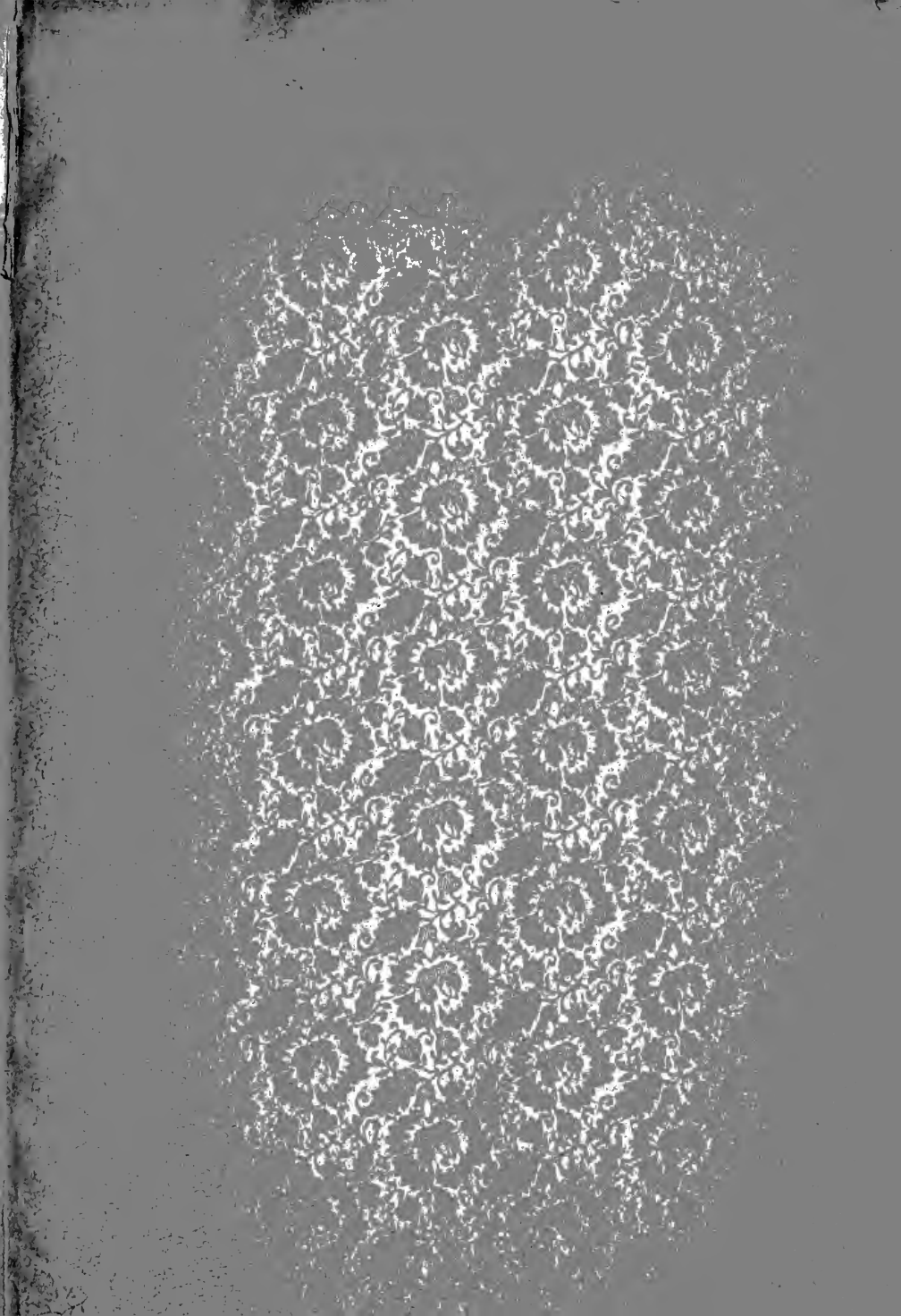
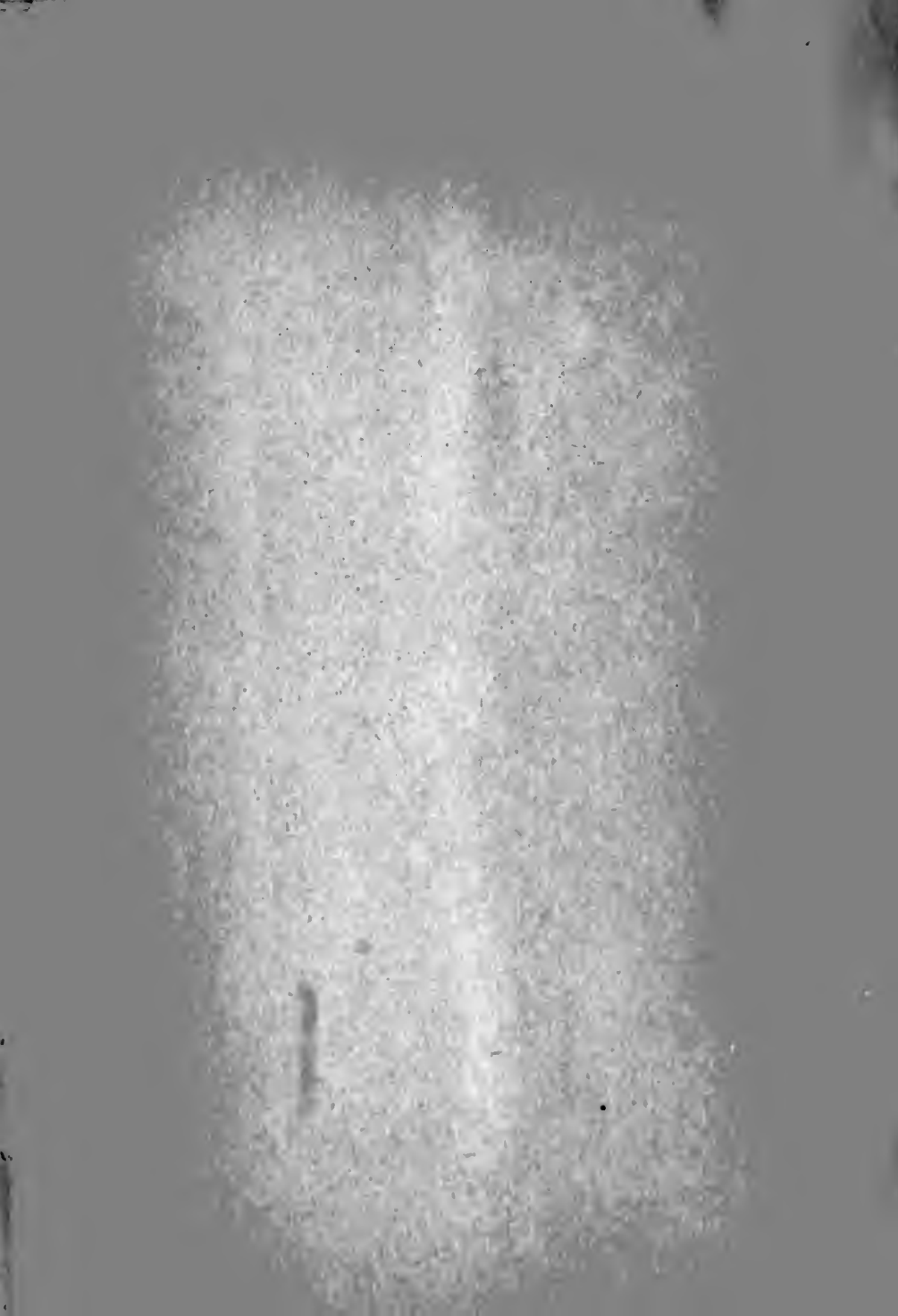




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Original Articles.

EXPERIMENT AND EXPERIENCE WITH THE RIFLE.¹

BY HENRY G. BEYER, M.D., U. S. NAVY.

In these uncertain and turbulent times when the peace balance of foreign relations has reached so high a degree of sensitiveness as to be disturbed and upset by a breath; when war clouds start up most unexpectedly and from the most unlooked-for quarters of the globe, and chase each other in rapid succession, the study of military surgery claims a much larger share of the attention of the medical student than ever before. Within the last two years a very considerable amount of knowledge has been harvested on the field of battle, and presented to us in the shape of some of the most excellent monographs ever written on the subject. Every student of military surgery, taking his profession seriously, and, therefore, seeking every available opportunity to inform himself and keep abreast with the times, must feel a debt of gratitude for the very instructive reports that have come to him and the profession from Senn, Nancrede, La Garde, Borden, Sir William MacCormac, Treves, Dent, and many others.

There has, perhaps, never been a time in the whole history of field operations, when any one particular weapon has wielded so powerful an influence on both friend and foe, professional soldier as well as layman, and on the military medical man, as has the present infantry rifle. The influence of the practical work of this gun in the field upon both offensive and defensive operations, upon the disciplined courage of the soldiers, upon future drills and upon the handling of the wounded, both during and after the battle, has, perhaps, not yet been fully measured and realized. Enough, however, has already been done and accomplished to bring us to a full sense of realization of the great and overwhelming importance of the present infantry rifle.

When we consider that, at the battle of Colenso, in the Anglo-Boer War, 97.5% of all the wounds were due to rifle fire, and only 2.5% to shell fire, an intimate study and acquaintance of the work done by this phenomenal piece of machinery, on the part of the surgeon, ought to need no further argument. In order that the conclusions which have been reached and formulated shall prove enduring and useful in the future, it would seem both desirable as well as necessary for us to carefully weigh and measure the evidence that has so far accumulated on both the experimental and practical side of the question. Before going into the details of either side, let us once for all keep in mind the more general as well as significant fact, also the result of recent experience in the field, that the proportion of the killed to the wounded, a proportion of 1:4, remains nearly the same as in former wars, although the percentage number of recoveries from among the wounded has been largely increased under the new bullet. There seems to be, moreover, little doubt on the part of the most experienced military surgeons that, after all shall have been said and sifted with regard to the humane character of the new bullet, and after due and proper allowance shall have been made for the influence of antiseptic methods of

surgery, the palm of humanity will be found to belong as much to Lister, the man who originated antiseptics in 1876, as to Reger, the man who introduced the steel-jacketed bullet in 1884. With regard to this point Dr. Borden says ("Gunshot Wounds"): "I venture to say that had modern methods of asepsis and antiseptics been in use during our Civil War, the results would have been so different from those actually obtained, that it would have been seen that it was the surgical method employed, and not the particular bullet, which most influenced the result. . . . It was probing with dirty probes and unclean fingers, and unnecessary operative interference under septic conditions and septic dressings, that was responsible for unfavorable results and high mortality."

With these general facts in mind, let us first turn our attention to the side of the experimenter.

A close and careful study of that most excellent monograph by Kocher, "*Zur Lehre von den Schusswunden*," Cassel, 1895, cannot help but result in showing that almost every injury produced by the new bullet that has been described so far as having occurred in the field has its prototype among the experimental results recorded in that work and the rest will find a most satisfactory explanation. The conscientious, unbiased and discriminating student, looking for the grand principles underlying the production of gunshot wounds, and not for the minor and non-essential details that were merely deduced, will find himself richly rewarded by a perusal of this work.

Let us, therefore, spend a short time in turning our attention to the contents of this monograph and the splendid illustrations that accompany the same. From it we learn that Kocher has experimented annually for a period of nearly twenty years, and his chief merit consists in that he has furnished the best explanation of the nature and the manner of production of what is known as *explosive effect*. From my own limited experience with experimental injuries, I may be permitted to say right here that, when once the peculiar conditions under which this explosive effect is produced are thoroughly known and correctly appreciated by the student of military surgery, the whole subject of gunshot injuries and their production under the most varied conditions, on either the living or the dead, in the field or in the laboratory, becomes unexpectedly clear.

Explosive effect in general has been attributed by different observers to a variety of causes and conditions, namely: (1) To deformed and deforming bullets; (2) to indirect or ricochet shots; (3) to the rotation of bullets; (4) the melting of the lead of the bullet.

Kocher, while willingly admitting, and, thereby, basing himself on his own experiments, that any and all the above-named conditions may co-operate in its production, sees in none of them the principal and primary cause of the explosive effect, inasmuch as he has produced the effect by undeformed, non-rotating and non-melting bullets, providing he gave these bullets the required velocity. According to Kocher, moreover, explosive effect, whether occurring in dry substances or in organs saturated with water, is due to and may be explained by the operation of the same physical law.

As early as 1880, now twenty years ago, Kocher had demanded that it should be made a matter of international law and agreement to introduce metals in

¹ Read before the Boston Society for Medical Improvement, November 26, 1900.

the manufacture of projectiles that possessed a higher melting point, greater hardness and a smaller diameter than the ordinary leaden bullets used at that time. He had already, then, convinced himself by experiment and observation that every increase in the frontage or the cross area of the attacking surface of a projectile was followed by diminished penetration and an increased explosive effect. It made no difference whether this surface was peculiar to the size of an original bullet or whether it was secondarily produced by deformity of a smaller bullet, owing to greater velocity being given to it than it could bear without becoming deformed.

Köcher, therefore, demanded that every further increase in the velocity given to any bullet should at once be compensated for by giving it a correspondingly increased hardness, because that alone could prevent the conversion of a small calibre projectile into one of large calibre by deformity on impact.

It was upon principles such as these that the early experimenters worked and succeeded in counteracting and correcting the disadvantages to mankind growing out of the higher velocities given to bullets for merely technical reasons; and so successfully did they struggle and do their unselfish work that today, it may be said, it is chiefly owing to these humane efforts on the part of experimenters that explosive effects for the human body have been practically eliminated from every part of it, except the very hardest portions of bone and those organs that contain a large percentage amount of fluids in their composition. That this is true, recent experience in war has so fully demonstrated as to produce almost the impression of disappointment upon the surgeons, not acquainted with either the views or the results of experimenters. Whence, otherwise, the seeming embarrassment on the part of some surgeons with regard to the lodgment of bullets; for instance, that low velocity bullets, no matter what their calibre, must arrive at a point where they will no longer penetrate in perfect accordance with and not "despite all theory and experiment" (Nancréde). If none of that "appalling destructiveness" attributed to the new projectile, which experiment, made on the dead body and on animals, appeared to forecast, was seen, it was simply a matter of range or the low velocities by which the particular injuries referred to were produced.

The question as to whether the interest of the individual has overridden that of the State, by the reduction of the calibre of the bullet, or whether it has not, does not so much interest the surgeon as it does the professional soldier; it is enough for us to bear in mind that it was one of the aims of experimenters to produce a bullet that should be less destructive on the human body than the old leaden bullet. That this has been actually accomplished, recent experience has confirmed.

In order to make accurate comparisons between the effects produced by bullets of different dimensions and compositions, at varying distances from the muzzle, it became very desirable, soon after systematic experiments were begun, to have the objects of experiment near enough for accurate aiming and still strike that object with a velocity which should exactly correspond to that which the bullet would develop at any desired distance from the muzzle. The curve which a bullet describes from the time it leaves the gun to the mo-

ment when it falls to the ground is known as its trajectory. A bullet develops its greatest velocity a few feet from the muzzle of the gun. From that moment it steadily decreases until the bullet strikes the ground. The velocities which bullets develop at different distances have been ascertained for most of them and are, therefore, known. (Tables A and B).

TABLE A.

Decrease in velocity by distance. Projectiles 10 millimetres.			
Velocity.	At muzzle =	435 metres.	Losses in metres.
" 25 metres from "	" =	410 "	25
" 50 " " "	" =	390 "	45
" 100 " " "	" =	342 "	83
" 150 " " "	" =	327 "	108
" 200 " " "	" =	318 "	127
" 400 " " "	" =	242 "	173
" 600 " " "	" =	232 "	203
" 800 " " "	" =	204 "	237
" 1,000 " " "	" =	177 "	248

TABLE B.

Decrease in velocity by distance. Projectiles 7.5 millimetres.			
Distance, 0 metres.	Velocity, 600 metres.	Decrease, in metres.	
25 "	563 "	19 "	
50 "	563 "	37 "	
100 "	532 "	68 "	
150 "	504 "	96 "	
200 "	478 "	122 "	
300 "	431 "	166 "	
400 "	398 "	202 "	
600 "	341 "	259 "	
800 "	248 "	302 "	
1,000 "	264 "	346 "	
1,500 "	267 "	393 "	
2,000 "	170 "	430 "	

By reducing the amount of our ammunition we may give any bullet such a velocity close to the muzzle as will accurately correspond to that which a full ammunition bullet would develop at any desired distance from the muzzle. Heppner and Garfinkel were the first to make experiments with such charges of reduced ammunition and Köcher finds that the alleged differences in the injuries produced, as compared to those at real distances, are so slight and uncertain that they might easily be explained on other grounds.

Köcher's experiments are so numerous and cover such an immense ground in time, scope, skill and material; they were done under conditions so varied, that it would seem as if the field had been thoroughly and absolutely exhausted. The velocities with which he experimented varied from 25 m. to 800 m. The calibre of his bullets varied from 5.8 mm. to 16 mm. in diameter. The different projectiles varied in weight from 1.9 gr. to 23.6 gr. Both their volume and specific gravity were taken into account. The hardness of his bullets varied from steel to wax; he used rifles as well as smooth-bore guns. Lastly, the greatest variety of material was used to serve in the place of targets.

Glass plates.—Glass plates represent the brittle tissues and much useful knowledge has been derived from shooting through these with different velocities and projectiles. Köcher's plates had a thickness of 3 mm. and were 30 cm.² and encased in a wooden frame being suspended from above.

Firing at such plates with a bullet moving at the rate of 25 m. per second we obtain a defect in them, consisting in an irregular hole, larger than the diameter of the bullet and, radiating from this irregular opening, we notice several long and straight fissures, reaching the periphery of the plate. Bullets with a velocity from 250 to 400 m. show that the effect produced in the plate becomes more concentrated towards the point struck. The fissures are finer, more numerous and shorter, not extending to the periphery of

the plate. With velocities varying from 400 to 600 m., we obtain still more intensified central defects. Instead of a large irregular opening, the defect is a small round hole approaching in diameter that of the bullets; the short and straight cracks radiating from the hole are very fine and numerous; at some distance from the central defect are seen circular, branching, intercommunicating cracks; all the cracks seem filled with powdered glass.

These effects, produced by bullets moving with different velocities, occur so regularly that the velocity share in the vi al force of a bullet is shown to be by far the most important factor in their production. A 10 mm. lead bullet and a 7.5 mm. steel bullet, moving alike with a velocity of 595 m., produce like effects. It is interesting to note that the plates themselves, when shot at with these enormous velocities, scarcely move at all.

Tin cans filled with marbles.—In solid and, more especially, the brittle class of bodies, the cohesion among the small particles to be overcome requires a greater force than is the case with fluids, but when their equilibrium has once been disturbed, it remains disturbed, while in the case of fluids the injury is quickly repaired. In order, nevertheless, to illustrate his conception of the perfect analogy existing between explosive effect in fluids by certain velocities, Kocher experimented with tin cans filled with marbles in which, as will be readily seen, the solid particles were given a greater play of mobility upon each other than they had, for instance, in a solid block of stone.

Experiments with such cans show that velocities up to 250 m. are attended by effects marked principally in the line of flight of the bullet. Both entrance and exit openings are nearly alike in shape and extent. With increasing velocities, the lateral or explosive effects are beautifully brought out by the appearance of small bumps on the surface of the cans; these are, first, noted about the exit, next, on the sides and, at last, with the highest velocities, in all directions. An exactly similar process occurs in water or in organs saturated with it under the same conditions. That small particles of melted lead from soft metal bullets have nothing whatever to do with the production of this effect, nor that their rotation affects these results very materially is proven by the circumstance that hard bullets fired from smooth-bore guns produce identical effects, providing they possessed the required velocity. The gull-stone-like flattenings on the marbles show the pressure exerted by one upon the other within the can.²

Sandstone blocks.—These were 9.6 cm. thick and 30 cm. square. On account of the great firmness of these plates, all the shots show a quicker exhaustion of both the penetrating and lateral or explosive force of the bullets used. Here the specific gravity of the bullet shows the value of its share in the vital energy. Lead has a more powerful effect than copper; copper a more powerful one than hollow tin filled with wood. Some of the plates are not perforated, but they show that a large, irregularly round plate of stone in the rear has been broken off. This injury being much larger than that in front of the plate, it shows the possibility of the transmission, in a funnel-shaped direction towards the exit, of the force

of a bullet, without breaking the continuity of the object hit.

Iron plates.—These were 1 cm. in thickness. The experiments on iron plates serve the double purpose of showing the effects of the bullets on the plates and the reciprocal effects of the plates on the bullets under different conditions. Lead bullets, for example, when fired into water, soap or wood, show as yet no deformity with velocities of 75 to 150 m. When sent against iron plates, at the same rate of speed, they experience considerable deformity. None of the bullets produces an impression up to 200 m. velocity. With a velocity of 435 m., a lead bullet produces an impression and leaves a whitish, star-shaped deposit, extending for several cm. around it. The bullet itself is mashed into a cake of 5 cm. in diameter, its posterior end alone having preserved its shape, being seen in the centre of the cake. An aluminium bullet, with the same velocity, produces no impression, leaving only a whitish deposit. These shots, then, would illustrate the dependence of the penetrative power of bullets upon the specific gravity of the latter, for, in spite of the velocity being the same, lead and copper will produce deep impressions, while the lighter aluminium only leaves a whitish deposit with a very shallow mark. That, however, the velocity also has a large share in the penetrating power is shown in the difference of the effects on iron plates produced by velocities of 200 m. and 435 m.

In substances like iron, therefore, in which the explosive effect does not occur, the penetrative power of a bullet is shown to be directly proportional to the two component parts of its vital energy (mv^2) and inversely proportional to its volume. Anything, moreover, which diminishes the consistency of a bullet will also diminish its penetrating power.

Lead plates are 3.5 cm. thick and 30 cm. square. A 10 mm. lead bullet, sent against such a plate with a striking velocity of 435 m., gives rise to a cup-shaped depression, 3 cm. wide and 3.3 cm. deep, with a rim thrown up around the entrance, 2.5 cm. high and indented star fashion. A copper bullet of the same velocity completely penetrates the plate, entrance opening 2.2 cm. wide, exit opening 1.3 cm. wide; front rim 13 mm., rear rim 4 mm. high. A tin bullet with wooden filling of the same velocity as the preceding produces a depression 2.2 cm. wide, 2 cm. deep, with a rim 3 mm. high. The projectile is seen at the bottom of the cup-shaped depression, with the wooden filling partly forced out by a core of lead from plate entering in front. An aluminium bullet, same velocity, gives rise to a round impression, 2 cm. wide, 12 mm. deep, rim 1.5 mm. high.

Both soft and hard lead bullets, as well as steel- and copper-jacketed bullets, remain in the target with velocities of 150 m., producing, at the same time, hardly any lateral effect. With velocities of 400 m., those with steel jackets penetrate, and the rest nearly but not quite; while with velocities of 500 m., every bullet perforates the plate.

These shots on lead plates would, therefore, serve to show very clearly that the penetrative power of a bullet is primarily dependent on its velocity, next upon its specific gravity and, thirdly, upon its hardness or consistency. The same may be said of the amount of lateral or explosive effect, for it is seen that the

² See the Journal of the Boston Society of Medical Sciences, January, 1899.

diameter of the various openings in the plates is, in every instance, greater the greater the velocity. Notwithstanding, therefore, the undoubted influence of the calibre, the specific gravity and the consistency as well as the rotation of the bullet, its velocity dominates in the production of the characters of the resulting injury.

By the earlier experimenters it was held that lateral or explosive effect could not be produced by a non-deformable bullet with any velocity. The funnel-shaped injury produced by these bullets, now known to be the second degree of explosive action, and in which the exit is wider than the entrance, was explained by them as being due to the rotation of the bullet. It was assumed that melted particles of lead from the projectile, together with parts of the target, were thrown into a whirl by the rotating bullet, these particles acting as secondary missiles and transmitting their energy in an over-extending circle to the parts directly in front of them, and, in this manner, giving rise to the funnel-shaped defect. This explanation, no matter how alluring it may seem, became untenable after Kocher had produced this identical defect with hard, non-melting and non-deformable bullets, fired from smooth-bore guns.

Kocher's explanation of the nature and production of the lateral or explosive effect is, that the energy of the bullet is transmitted from the parts struck, first, in the direction of the line of fire; next, with increasing velocities, in a funnel-shaped direction towards the exit, and, lastly, with still greater and the greatest velocities, in all directions.

The lead plates, especially, show this effect so well, and prove the correctness of Kocher's explanation, because the action of the bullets on them is preserved in the form of a cast. Our own experiments on glass plates, lead plates, and tin cans filled with marbles have fully confirmed Kocher's views.

Soap plates.—These were 10 cm. thick, 60 cm.,² and consisted of the common rosin soap. Bullets with velocities of 150 m. produced effects corresponding to the diameter of the projectiles used; with velocities of 300 m., funnel-shaped canals, 1 cm. in diameter, were produced; with velocities of 435 m., the canals became 2 cm. wide; with 600 m., the openings show a width of 4 cm., and deformable bullets with 600 m. velocity give openings of 9 cm. in diameter.

In these plates, therefore, the gradual increase in lateral effect with increasing velocities is well shown. Up to velocities of 250 m., soft lead bullets remain as yet undeformed; with velocities of 135 m., they lose one-half their length. Hard lead bullets lose one-fourth their length with 135 m. and with 395 m. of velocity, the very posterior end alone remains in shape.

The plates show, among other things, that the resistance offered by the target, no matter what may be its composition, increases as does the velocity of the bullet. When compared with the lead plates, the soap blocks show more delicate shades of difference as regards both the effects of different velocities as well as of the varying specific gravity of the projectiles used.

Tin vessels filled with water or substances saturated with it.—Bullets fired into tin cans that are filled with dry cotton, dry meat or sawdust give, with all velocities, entrances corresponding in shape and diameter to those of the bullet and exits about twice that size. When these substances are wet or the meat is

fresh and succulent, then the exits become from four to five times larger than the entrances. With the highest velocities, the cans are torn open and fissured around the entrances.

With velocities from 410 m. or upwards all the vessels filled with water are rent apart and this hydraulic or hydrodynamic effect is made apparent whether these vessels are open or closed at the top. It is, therefore, not necessary, for the production of hydraulic effect, that the water be enclosed within rigid and unyielding walls. It is simply and most strikingly evident that the effect is due principally to the suddenness of the entrance of the bullet which leaves the water no time for making its escape in any direction, not even that of least resistance, but which tends to force it in all directions, like an explosion. It would seem as if the explosive energy of the ammunition that sent the bullet into the centre of the can had been translated into the can and suddenly transmitted to the water contained in it. Round bullets, fired from smooth-bore guns, produce identical effects with the same velocities as do rifle bullets.

Experiments with a water box.—In order to still further illustrate the hydraulic action of bullets in some organs of the human body, Kocher experimented with a water box. As regards hydraulic action, Busch was the first to suggest the idea that some of the effects produced by projectiles in some tissues or organs of the human body might possibly be explained on principles of hydraulic pressure. After him, Kiister, Heppner and Garinkel confirmed this idea and Kocher raised this hydraulic pressure theory to the dignity and importance of a law, true for all tissues of the body containing fluids. Later on, Reger, Bruns and Kikuzi did much to confirm and extend the experiments of the earlier authors.

Kocher had a box made, 345 cm. long, 56 cm. broad, 61 cm. high, open at the top and filled with water to a height from the bottom of 55 cm. Through the side of one end a hole was cut and this was covered in by leather of the kind used in making drum-heads. This was kept in position by an iron frame fitting the opening, and through it the bullets were fired into the water in the box with varying velocities.

Three important results were brought out from these experiments, namely: (1) The dependence of the penetrating power of any bullet upon its velocity; (2) upon its specific gravity; (3) upon its form and deformability. I will here only cite a few examples: A copper bullet, 410 m. velocity, 34 cm. beneath the surface, advanced 256 cm.; a soft lead bullet, 410 m. velocity, 32 cm. beneath the surface, advanced 110 cm.; a hard lead bullet, 410 m. velocity, 33 cm. beneath the surface, advanced 285 cm.; a soft lead bullet, 250 m. velocity, 29 cm. beneath the surface, advanced 230 cm. under water.

It will be seen, therefore, with leaden bullets, that the amount of penetration is not directly proportional to the velocity, as is the case with hard and non-deformable bullets. Lead occupies an exceptional position in that it shows greater penetration with lower than it does with higher velocities.

When, moreover, leaden bullets are given velocities above 250 m., they will undergo deformity; a lead bullet, 25 mm. long, when sent into the water box with a velocity of 250 m. remains undeformed, while a velocity of 410 m. will cause it to become

shortened to 14 mm. Knowing that the penetrating power of a projectile is inversely proportional to its cross-sectional area, it is almost certainly proven that the lessened penetration, noted above, is entirely due to the deformity which lead bullets undergo when striking the water in the box. That the deformity in this case is due to mechanical force and that, for instance, melting has nothing whatever to do with it, is proven by the facts (1) that mechanical force can produce the same degree of deformity, and (2) that metals with a much lower melting point than lead when fired into water with the same velocity remain solid.

A passing lead bullet evidently creates its own resistance in the water. The higher the velocity, the greater this resistance. From the moment the resistance reaches a point so as to cause deformity, which is at about the velocity of 250 m., explosive effect also becomes apparent. From that time on this effect is increased with the velocities used and at last it results in the bursting of the box and in the water spurting up to the height of 10 feet.

Based upon the results of these experiments and those on tin vessels filled with water, the conclusion seems unavoidable, namely: That the destructive effects of our modern high velocity bullets upon organs containing a large percentage amount of fluid are produced by hydraulic pressure.

That velocity has a preponderating influence upon the production of these effects was also shown by Salzmann (Kocher), who made use of bullets rolled out of filter paper in which "m." therefore, was as much as possible, eliminated. With such bullets Salzmann obtained explosive effects in skulls and, with the highest velocities, he was able to cause their complete destruction. The epiphyses of oxen at close range were completely exploded and, at 21 cm. from the muzzle, perforated. "Expansile effect" (Treves) does not seem a good substitute for the old time-honored name of "explosion."

Both Salzmann and Kocher agree in that the existence of an enclosing capsule is not a necessary condition for the production of explosive effect from hydraulic pressure and, while admitting that deformed and deformable bullets will increase the degree of the effect, the primary and principal cause of it is the velocity of a bullet. The principal reason why it has seemed so difficult at first to attribute to different causes the explosive effects in dry and wet substances is because the effects are not so much in evidence in fluids as they are in solids. The parts of a liquid after a moment come together again, while bone splinters, for instance, will remain splinters.

Measurement of explosive effect.—Nothing, certainly, could be better calculated to show the nature of explosive effect than the experiments of actual measurements by Kocher. Before, therefore, proceeding to study the effects of bullets on human tissues and organs, let us see what we can learn from the experiments made to measure the power of this all-important explosive effect. Two methods have been employed to this end. The one consists in direct manometrical measurement and the other in ascertaining the loss in velocity experienced by a bullet while penetrating its aim.

Table C (Kocher) shows loss of velocity in metres per second by a projectile after passing a 10 cm. layer of water enclosed within a pig's bladder.

TABLE C.

Projectile.	Calibre.	Original velocity.	Loss.
Hard lead	7.5 mm.	599 m.	190 m.
Copper jacket	7.5 "	595 "	57 "
Lorenz steel jacket	7.5 "	578 "	23 "
Hard lead	7.5 "	425 "	33 "
Copper jacket	7.5 "	425 "	30 "
Lorenz steel jacket	7.5 "	425 "	7 "
Hard lead	10.0 "	425 "	74 "
Soft lead	10.0 "	425 "	117 "
Copper	10.0 "	425 "	14 "
Copper	round	425 "	64 "

The above table shows the enormous difference in the loss of velocity experienced by a large-calibre or a deformable small-calibre bullet, as compared to a small or non-deformable large-calibre bullet. It also shows the relatively greater loss of velocity with the higher than with the lower velocities for all bullets.

Table D (Kocher) shows the loss in velocity of a 10 mm. hard lead bullet after passing through the extremities of a human cadaver. Striking velocity = 420 m.

TABLE D.

Parts.	Loss in metres.
1. Upper arm	79
2. " "	69
3. Forearm	58
4. " "	93
5. Thigh	139
6. Leg	183
7. Thigh muscles	124
8. " bone	175
9. Leg bones	123

The above experiments show that projectiles of different composition, and of which it has long since been known that they possessed different degrees of penetrative power, also experience different losses in velocity during their passage through certain aims. Generally speaking, this loss in velocity is inversely proportional to the hardness of the material of which the bullets are made and directly proportional to their calibre.

The Lorenz projectile, with its non-deformable steel jacket, loses the least amount in velocity, the Rubin projectile with its strong copper jacket comes next, and the hard lead projectile next, the soft lead last. By far the greater part of this loss in velocity is converted into lateral or explosive effect, because the loss in the total power of the bullet in becoming deformed is but a few kilogrammetres, amounting, as it does, in the case of a 10 mm. Vetterli to only 6 or 7 kgm.

With a velocity of 410 m. a 10 mm. Vetterli strikes its aim with a force equal to 181.6 kgm. While penetrating the muscles of the thigh, it loses 92.6 kgm. or very nearly one-half of its original power, by a reduction of its velocity from 410 to 300 m. In passing through the bones of the lower extremity, it loses 113 kgm., which greatly exceeds the amount of mechanical force necessary to cause its deformity, and which is only 10 kgm. It demonstrates the fact that the largest share of the original power of the bullet was converted into lateral or explosive effect, in this instance, at least twice as much as was necessary to cause its deformity and penetration together. From the fact that a bullet loses more of its force in passing through the lower than it does in passing through the upper extremity, we must, very naturally, expect the former to result in a more serious injury than the latter.

A knowledge of the losses in velocity of certain bullets through the different parts of the human body would enable the surgeon in the field to estimate the range of lodged bullets, providing the bullets did not

happen to be badly deformed. We know, for example, that a 7.5 mm. bullet, with an initial velocity of 600 m., has a remaining velocity of 170 m. at 2,000 yards' distance from the muzzle. Supposing that it should, at that distance, enter the outer side of one thigh and go only through the fleshy part, thus losing 124 m. of this remaining 170 m.; supposing, further, that it now enters the other thigh in a direction towards the bone, with the remaining 46 m. of velocity, it would be bound to lodge in the femur of the second thigh. Such calculations would, in my opinion, come much nearer the actual range at which the fire was delivered than the best guess.

The second method of determining the amount of lateral effect consists in direct manometrical measurement. Reger was the first to employ this method, but Kocher, by devising a very ingenious piece of apparatus, obtained thereby much more accurate and reliable results than Reger. This is schematically represented in Fig. 1.

Legend.—Shows the lower part of a tin vessel filled with water. Into the bottom is fitted the cylindrical projection of the iron stand, within which slides a cylindrical piece of steel resting on a lead bullet. This may be fitted to the sides, top or bottom. When a shot is fired through the vessel the power exerted upon the water will cause the projectile to become shorter by direct compression. The mechanical power necessary to do this may be easily ascertained and expressed in kilogrammetres. By means of this piece of apparatus, Kocher was able to calculate the amount of lateral pressure caused by a 10 mm. Vetterli, 25 mm. long, entering a tin can filled with water and which amounted to a little over 23 kgm. per square centimetre of surface. By means of the same instrument, it was, moreover, clearly shown that hard lead bullets gave considerably less pressure than soft ones; more pressure was also produced when the projectile passed nearer to the measuring instrument than farther away from it, but regardless of whether the vessel itself was open or closed (see next table). While, therefore, the pressure may rise to a higher degree, when the water is enclosed within resisting walls, the effect itself occurs without such walls.

TABLE E (Kocher).

Bullets.	Calibre.	Velocity.	Atmospheric pressure per cm. ²
			Sides. Bottom.
1. Soft lead	10 mm.	435 m.	37.5 37
2. Hard lead	7.5 "	595 "	42.5 41.5
3. Copper jacket	7.5 "	595 "	29 22
4. Lorenz steel jacket	7.5 "	595 "	21.5 24

Some experiments also were made with a hollow iron shot, into which holes were bored for the entrances and exits of bullets. These holes were closed with bladder skin and the shot filled with water, of which it held $1\frac{1}{2}$ litres. The result of shooting through it, under these conditions, was the bursting of the shell into fragments. Experiments with skulls, with the same apparatus attached, gave a lateral pressure of 10 atmospheres.

The analogy in the effects of bullets produced on tin cans containing water on the one hand, and on tin cans filled with marbles on the other hand, is that in both the water and the marbles are suddenly dispersed in all directions by the passing bullet when the latter has the required velocity. As the velocities increase from the lowest to the highest, we first notice only an effect in the direction of the shot, next by a funnel-

shaped exit, and, at last, the effect shows itself in all directions, as is evidenced by the bursting of the can of water and the impressions of the marbles on the surface.

The very highest degree of this effect, and which presupposes the existence of rigid walls, is hydraulic pressure. But to this condition neither the skull, with its content of brain, nor the cylindrical bones, with their marrow, exactly correspond. The hydrodynamic effect noted to occur in these is not the same in degree but only in kind.

Finally, since it is well known that water offers less resistance than does, for instance, the cortical substance of bone, we must expect that explosive effect in the latter will continue to occur with lower velocities and longer ranges than it does in water-containing tissues or organs. The effect itself, however, once produced, will reach a higher degree in water and water-containing tissues than it does in bones.

Human tissues and organs.—For the purpose of a better appreciation of the characters of gunshot injuries in the human body, we will do well to study such injuries on the different tissues separately. To this end, we may, with Kocher, divide them into three categories or classes: (1) The brittle; (2) those that contain fluids, and (3) the elastic tissues.

The brittle tissues.—The cortical substance of bone is the only tissue in the human body belonging to this class, and the more this preponderates over the other in any part, the more lateral effect in all its forms may be expected to occur in that part. The reduction in the calibre of bullets and the hard metallic jacket have resulted in reducing the size of skin wounds and limited the occurrence of hydraulic effect in the soft parts to shots at close range. The injuries to bones, on the other hand, continue to be serious. Special attention has been called by von Coler and Schjerning to the small skin wounds that are found over very serious bone injuries, particularly the long cylindrical bones. To one acquainted with experimental literature, it ought, therefore, give no surprise to find small skin wounds in the field even behind perforated bone. Nor would he allow himself to be misled by these small skin wounds as regards the possible existence of more serious injury to the bones underneath. That this has, however, actually occurred, we are led to infer from what Dent says with regard to these small wounds. He says: "A feature of small-bore wounds was the large amount of callus afterwards thrown out and, therefore, a neighboring joint might become fixed." The fissures existing in the bone underneath a small wound of exit are not so much in evidence in the field nor can they be brought out as clearly as a dissection on a cadaver can bring them to light in a laboratory. While, therefore, a surgeon not personally acquainted with experiments might be surprised at this abundance of callus which is thrown out, one who has such an acquaintance would, on the contrary, be led to look and prepare for such occurrences.

A careful comparison of the results obtained by experiment have, moreover, brought very prominently into notice slight differences in hardness, elasticity and percentage amount of moisture between different bones as well as different parts of the same bone. Hence, also, it has become clear that injuries produced under apparently identical conditions may still differ somewhat in character. Thus, for instance, the relative

proportions of hard, bony substance to the volume of the cavities within have been studied and calculated by Habart and Friedrich (Kocher). In the femur of a young man the proportions of solid substance to volume were found to be 1:1.26; in the tibia, 1:1.6. In the femur of an old man the proportions were 1:2.11 and in the tibia 1:2.45. In a humerus, 32 cm. long, Habart found the marrow cavity 21 cm. long and 13 mm. at its greatest breadth. The closed spongy ends measured 7 cm. above and 4 cm. below. The thickness of the cortical layer in the middle was 5 mm.; 4 cm. above the lower end it was 3 mm. thick, and where it passes over into the articular cartilage it was only 1 mm. thick. The cortical layer of bone is, as a rule, slightly thicker in front than behind.

In view of the existence of these differences and the effect which these will exert on the production of injuries, it seems at once but reasonable to demand that they shall be taken into account whenever bone injuries either in the living or the dead are compared. Observing these points, Kocher, for instance, was unable to detect any differences between the injuries produced at long distances and such as were produced

obliquely of fractures I should say deliberately that the great majority of fractures in this war due to Mauser bullets have been transverse,"³ he gives the best possible and most unavoidable proof that the majority of fractures that came under his observation were produced at long range. The general rule is that the greater the distance or the lower the rate of velocity of a bullet producing a bone injury, the longer and the less numerous will be the splinters of the resulting fracture and the more likely it is that the splinters will remain in position and adherent to the periosteum; the bone may be perforated and yet show only long fissures running parallel to its long axis, as experiments have shown. The closer the range the smaller and the more numerous will the splinters be and the more perfect their separation from the periosteum as well as from each other. Fractures in which the splinters are small, fine and numerous and in which the exit is a large cavity filled with bone sand, driven into the neighboring and pulped muscles, may be produced experimentally at 100 m. distance. That Mr. Treves⁴ has seen some fractures that were produced at close range,

we must infer when he says: "I have seen a fracture of the humerus in which the bone was broken into twenty-three small fragments,"⁵ and, also, when he gives an account of a case in which the bullet had entered the epiphysis of the humerus and blown off its head, he says: "On examination, hardly any fragments of bone were found at all, they had been practically pulverized." This is a very lucid description of an explosive injury as it occurs in an epiphysis.

But even in such extensive bone injuries, it is not at all uncommon to find both entrance and exit exceedingly small. In

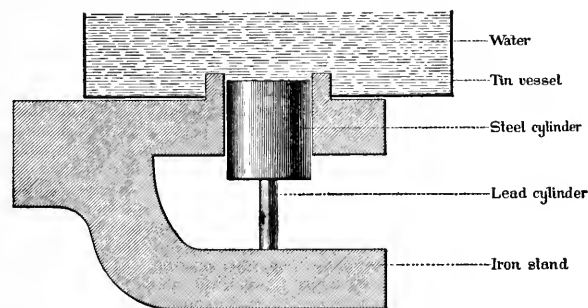


FIG. 1.

with reduced ammunition but by the same velocity at close range.

It is a well established fact that the lateral effect becomes greater the greater the resistance which a bullet has to overcome. As a solid body, therefore, bone must show signs of lateral effect with lower velocities, in other words, at greater distances than other tissues do. This same effect must, moreover, be greater the nearer we get to the middle of the diaphyses of cylindrical bones and to certain borders that are especially strengthened by extra layers of compact bone, such as we find about the *linea aspera* of the femur.

In view of the varying composition of different parts of the same bone, it is, moreover, easily understood how opinions could differ as widely as they did with regard to bone injuries in general. Since now, however, a distinction has been drawn between injuries to diaphyses, metaphyses and epiphyses, these differences of opinion have become reconciled.

The type of a gunshot fracture is today, as it was formerly, a fracture with splinters. Transversal and parallel longitudinal fractures are the result of bullets of low velocity in which the parts are simply pressed apart or bent and the walls pushed in. When, therefore, Mr. Treves says: "With regard to the alleged

an experimental injury of this kind on a knee joint, I found both exit and entrance wounds small, not exceeding the diameter of the bullet, but dissection revealed complete comminution of the articular end of the tibia, the capsule of the joint filled to distention with bone sand. The copper jacket of the bullet was discovered in the centre of the mass of detritus, the lead core, afterwards found on the floor, had alone escaped through the skin, causing a very small skin wound.

Between these two extremes we find the typical fracture first described by Bornhaupt and called by him a butterfly-fracture, occurring in long bones about the diaphysis. In this fracture, two triangular pieces of bone seem broken out on either side of the point of perforation. The apices of the triangles are at this point, while the hypotenuses are at the periphery of the bone. Behind is found a longitudinal fissure dividing the two fragments into two lateral halves. The evidence seems conclusive that the tubular character has everything to do with the production of this very characteristic fracture with certain velocities, because Bornhaupt has produced similar fractures in cylindrical glass tubes.

³ British Medical Journal, May 19, 1900.

⁴ Loc. cit.

⁵ Loc. cit., January 27, 1900.

Mr. Treves,⁶ speaking of bone injuries, says, "The following four statements are not borne out by experience in the present war. The first is that the severity of the injury to bone decreases as the range increases; the second is that explosive effects are produced when a bone is hit at short range, such as 500 yards or under; the third is that fractures are nearly always oblique, and the fourth is that when a bone is fractured, the exit wound is always larger than when this does not occur."

From what has already been said with regard to injuries to diaphyses and from what we will hear presently with regard to injuries to epiphyses, the above cited four textbook statements do not perhaps go far enough to convey the full impression of their meaning, but as far as they do go, they nevertheless appear to be not so far from being correct as Mr. Treves would have us believe.

Tissues containing fluids. (a) *Muscle.*—In muscular substance, explosive effect has reached its minimum degree of intensity. Bruns obtained clean perforative injuries at distances of 120 m. The canal was not larger than the diameter of the bullet and its adjoining walls were practically uninjured. Von Coler and Schjerning also obtained such injuries in near shots. That such injuries also have occurred in the field and at much larger distances, we must infer from what Sir William MacCormac says: "This slender, elongated bullet produces a canal not much, if anything, larger than a goose quill, and bores its way through, as if the hole had been done by a drill." Nevertheless, a defect in the muscles, in the direction of the bullet, attended by a total destruction of the parts to the extent of the diameter of the bullet, marks, according to Kocher, the first degree of explosive action.

At a distance of 30 m. explosive effect in muscle becomes very much more apparent. We obtained in a young ox an injury which involved both hind legs at that distance, about two minutes after he had been killed by a shot through the brain. The bullet entered the fleshy part of the left leg, midway between ankle and knee, and passed out through the right leg of the opposite side about the same point. The first entrance and the second exit wounds were not much larger than the calibre of the bullet, while the first exit and the second entrance wounds were of the size of a silver dollar. The wounds might be represented by two funnels, their wide ends turned towards each other, on the inside of the legs.

Shots through muscle, at greater distances than the above, result in canals that are smaller even than the calibre of the bullets, but the above example shows that hydrostatic pressure may be produced, even in muscle, by a simple increase in the velocity. It begins to show itself by a funnel-shaped exit and ends by a pulping of the tissue adjoining the track of the bullet. Mr. H. Temple Mursell,⁷ civil surgeon attached to the British forces in South Africa, with regard to this point, says: "It has been frequently stated that the damage to the tissues inflicted by a small hard cased bullet, such as the Mauser, is comparatively small and, within certain limits, the statement appears to be correct. . . . In those instances in which it has been necessary from any cause to follow up the track of such a bullet wound, the death of the tissue

around the track has been found to be much in excess of what might be anticipated. The resulting cylindrical cicatrix is of considerable extent and often produces more crippling than would be expected, owing to the muscles and their sheaths becoming firmly bound down." Such statements, based upon experience in the field and confirmatory of the experiments in the laboratory, might be multiplied. They would tend to make us slow and careful before pronouncing an opinion as to the benignity of an injury, because of the presence of small entrance and exit wounds. We must wait for more remote consequences. Many of those wounded in the war in Cuba, and whose wounds were considered trivial at the time, have since been invalidated from the service.

It has, moreover, been observed by Reger that, while in one muscle we obtain as yet clean perforations, in another, containing slightly more fluid, we already obtain a beginning explosive action, the velocity being the same in both cases. Muscles of different animals as well as different muscles from the same animal behave differently in this respect, and hence also the clash between the opinions of the earlier experimenters and of those in the field not thoroughly acquainted with these facts.

In the heart, liver, intestines and the bladder, the hydraulic effect begins to appear with velocities of about 250 m. and amounts to more or less, in accordance with the quantity of fluids which these tissues contain at the time, as experiments have abundantly shown. As regards the benign character of abdominal wounds occurring in South Africa, Sir William MacCormac says, "I can only explain this considerable immunity by the frequently empty state of the intestinal tract at the time of the injury" (*Lancet*).

In the South-African War where, according to the reports, it happened not infrequently that both officers and men went without food or drink for ten and twelve consecutive hours through no fault of their own, all penetrating wounds would naturally be expected to be smaller, except those in the cortical portions of bone. This state of things was therefore not an unqualified evil, but rather a "blessing in disguise."

(b) *Spongy bone.*—In the diaphyses we have found an almost complete absence of hydraulic effect, which, in epiphyses and metaphyses, becomes the prominent feature. Hydraulic action commences to show itself in spongy portions of bone with velocities of 300 m. The spongy substance is ground up into sand, the cortical layer is splintered and these splinters are driven in all directions under the highest velocities. Hence, also, the difference in the injuries between hard cortical and spongy epiphyseal bone and the necessity for a separate classification. It will, therefore, not do in the future to speak simply of bone injuries in military surgery, without specifying the parts of the bone in which these injuries were produced.

Busch (Kocher) has shown that the amount of destruction experienced by any part of a bone depends primarily upon the amount of resistance which it opposes to a bullet. This resistance is less in spongy than in hard bones. When, therefore, von Coler and Schjerning noted the occurrence of rather serious bone injuries at unusually great distances, while Reger and Bruns found them so slight as to call them benign and the bullets that produced them humane, the former experimenters referred to hard bone and the latter to injuries as they occurred in spongy bone.

⁶ *British Medical Journal*, January 27, 1900.

⁷ *Lancet*, January 23, 1900.

(c) *Metaphyses*. — According to Kocher, it was first proposed in 1871 that the portion of bone lying midway between the epiphysis and the diaphysis of a long cylindrical bone should receive a separate name and its injuries treated under a separate head. The term "intermediary" bone was applied to it by German surgeons. Kocher proposed the name of "metaphysis," which seems to have been accepted. In this portion of bone, the cortical layers begin to become thinner than they are in the diaphyseal portion, while the spongy substance, at the same time, shows an increase. Hydraulic effect prevailing in the epiphyses, fractures with splinters about the diaphyses, injuries to metaphyses, must share the characters of either. Injuries to metaphyses are, as a rule, more serious than those of epiphyses and less so than those of diaphyses.

(d) *Flat bones*. — In flat bones, simple perforations seem to be the rule. Injuries to flat bones are serious only in direct proportion to the importance of the organs which they protect. The highest velocity shots upon skulls, filled with brain, show that they are attended by a high degree of explosive or hydraulic action. Any one having once fired a full velocity bullet at such a skull and seen the fragments of the skull fly apart, the brain scattered to the winds, will probably not again speak of "expansile effects," but will call the event a plain explosion. Empty skulls will give clean perforations and low velocities, irregular openings.

The elastic tissues. — Whenever we shoot into elastic material, such, for instance, as is represented by a soft, flexible rubber plate 3 cm. thick, we obtain a very uniform series of defects: more conical perforations with the highest velocities and straight and very narrow canals with the lowest. The parts are shoved aside with such ease that a projectile of even the highest velocity at present attainable does not push the parts hit directly in front of it, but only shoves them aside temporarily. These uniform injuries cease to occur from the moment we substitute an inferior quality of rubber, so much so that the quality of rubber may be tested by a shot.

This circumstance has a practical bearing, for it is well known that by no means all the so-called elastic tissues of the body contain the same amount of elastic material, and in accordance with this difference, their injuries must differ just as do those of elastic rubber plates of different quality. Some elastic tissues, moreover, like the skin and the blood vessels, part much more easily in one direction than in another. Hence, we often get either transverse or longitudinal rents or fissures instead of clean perforations. In skin wounds on fresh cadavers, for instance, the elasticity of the skin becomes apparent only at the exit, because about the entrance it is backed by a less resilient tissue. Sometimes, also, but only with the lowest velocities, we obtain slit-like entrances which occur more often with the exits. With slightly higher velocities the entrance wounds become round. When, however, an elastic tissue is distended so as to neutralize its elastic nature in certain directions, we get perforative effects with loss of substance. This also occurs in situations where elastic tissue is adherent to non-elastic membranes.

Under such conditions the defect produced by a bullet in the skin, for instance, or the fascia, is of the form of that of the tissue directly underneath it: A

round hole when over muscle; a longitudinal slit when over bone. When the injury has occurred in the neighborhood of tissues liable to show explosive effect, the skin partakes of the character of the injury done to those tissues. It is in this manner that we get the fissures and rents, shaped like an H or like a star, also the long tears in serous membranes and those covering the liver.

Nerves as well as blood vessels show sometimes a miraculous escape from injury even with the new bullet, but only with the lowest velocity; with the higher velocities, they are simply perforated and portions of their coats scooped out; the ordinary injury, however, is a transverse or longitudinal rent similar to that found in the skin.

Shots through lung tissue, especially when in a distended state, show a complete absence of lateral effect even with the very highest velocities, providing the bullet entered undeformed.

Experience in war. — We have seen from the preceding experimental evidence that the human body, from the point of view of the military surgeon, must be considered as a compound body, made up of a variety of tissues, each of which reacts differently upon a passing bullet. It is for these all-sufficient reasons that the original division of the trajectory of a bullet, with reference to the injuries to the human body, into three zones has been given up by experimenters years ago. Recent experience, also, would indicate that the injuries occurring in the field either are severe enough to cause immediate death, or promise a fair chance of recovery on account of their being rather light. Injuries in general, consequently, would naturally fall into two great groups, the severe and the light, and since the former occur at close range and the latter at long range, we now would more correctly speak of near-shots and far-shots (*Nahschüsse* and *Fernschüsse*).

Indeed, when we read carefully the descriptions given by military surgeons of the injuries which came under their treatment and observation in recent campaigns, we can hardly escape the conclusion that by far the greatest number of them were light. La Garde ("Remarks upon Gunshot Wounds") says that he only saw one case in Cuba that approached anything like explosive effects. This great scarcity of the severer class of injuries can only be due to the fact that engagements occurred at distances that made their occurrence impossible, while those that actually did occur were so severe that the men remained where they dropped and were buried out of sight long before the surgeons had time to notice them.

In any attempt, therefore, at discussing the injuries produced under the more exact conditions of experiment with those that occurred in the field, a comparison between the ranges would be of the first and greatest importance. It is here, also, that we meet with our first great difficulty, for it is easily seen, while the range in a shooting-gallery or laboratory can be measured with absolute accuracy, that in the field, in the majority of cases, must remain practically unknown. There is no guess, however good, no range-finder, whatever its construction, that can approach an actual measurement of distance, or of the velocity of a bullet.

As regards South Africa, for instance, Mr. Charles A. Court, in the *Nineteenth Century* for November, 1900, page 712, says: "Until all ranks became ac-

customed to the clearness of the atmosphere, ranges were frequently underestimated by one-half the real distance. . . . The Boers, excellent shots, would open fire at 2,000 yards' range from every scrap of cover that could shelter a man."

Mr. Dent says with regard to range: "Unfortunately reliable information can very seldom be obtained on this point," and Mr. Treves⁸ remarks: "The damage done by the Mauser depends mainly on the range." Although an additional four months' experience caused Mr. Treves to change his mind with regard to the influence of range, he has no doubt since then had sufficient leisure to repent and to revert to his former and more correct conclusion.

At any rate, those of us who have seen shots at close range, either due to accident or suicidal intent, and long distance injuries in the field must be pardoned for looking upon the range as having the most important bearing on the character of the wounds produced by bullets. This is indeed so much the case that, even in the absence of more accurate information of field ranges, the trained military surgeon may be trusted to read the range in the character of the wound before him, with at least the same accuracy as any rangefinder can. We may, then, even without an exact knowledge of the field ranges at which bullet wounds are produced, conclude with perfect safety and all scientific reserve that practical experience has fully confirmed the results of experiments in respect to the influence of range. All other conclusions contrary to this would seem to have been arrived at without a knowledge or personal acquaintance with experimental injuries, so necessary for a correct interpretation of the meaning of gunshot injuries on the field.

Our own conclusions would, therefore, exactly coincide with those of La Garde, who says: "From the foregoing I believe we should conclude that the work of the experimenters agrees with the conditions found in war, and that their work was not done in vain."

CLINICAL NOTES AND COMMENTS: DEGENERATIVE DISEASE OF THE SPINAL CORD ASSOCIATED WITH ANEMIA.

BY ROBERT T. EDDES, M.D., BOSTON.

THE connection between certain fairly definite spinal symptoms, not usually recognized as belonging to the well-marked system diseases on the one hand, and conditions of malnutrition of the blood on the other, is of much interest both to the neurologist and to the general practitioner.

At first, the cases showing this connection were spoken of as spinal degeneration, dependent upon pernicious anemia, and as the "pernicious" is usually the most severe and persistent form of anemia, the association is certainly a very frequent one. But, on the other hand, since many cases of pernicious anemia progress to a fatal termination without spinal symptoms, and since fairly characteristic symptoms of this spinal type occur in cases which do not exhibit blood appearances diagnostic of the specific form, the association is evidently not necessary even though it be frequent.

The present tendency is to put the anemia more or less into the background, and to speak rather of a toxemia which may be a common cause of both con-

ditions. This toxemia, like many others equally important, is largely hypothetical, and perhaps there is more than one kind, but its existence is rendered very probable by the sequence of the condition spoken of upon quite a number of infectious diseases. These are, according to Dana, influenza, acute infectious diseases, diarrhea and dysentery, possibly shock, lead and malaria, and some others less common and less certain. Strangely enough, syphilis, that arch enemy of the nervous system, is not among them as enumerated by our countryman, but a very elaborate article, by Risien-Russell, Batten and Collier,¹ seems to make up the deficiency, for of their 7 cases 4 had a definite history of syphilis, and in only 2 could it be excluded with comparative certainty. Congenital predisposition does not seem to play an important part, or at any rate it is not easy to demonstrate in persons in or beyond middle life. Dana makes the suggestion, which is highly important, not only from the point of view of etiology but of prognosis and therapeutics, that possibly some of the obscure paralyses of children which recover, as most adults do not, are in reality cases of this kind.

Which set of symptoms has existed first in any given case cannot always be known, inasmuch as both begin gradually, and neither is likely to be looked for before its presence is distinctly announced. It is more likely to be the nervous ones which first attract attention, as the paresthesia or the pareses force themselves upon the attention of the patient, while he may not be aware of increasing pallor, or it is referred by himself or his friends to an indefinite condition of health below par.

The early sensory symptoms are numbness in the extremities, inability to use the hands for fine work, and a sense of extreme coldness of the feet, which latter, however, may have a double cause in an actual deficiency of circulation as well as interference with paths of sensation in the cord.

The motor symptoms are of general weakness of motion and co-ordination rather than of distinct paralysis of any group of muscles or special movements. The deep reflexes are at first apt to be exaggerated. Later, everything has progressed and we may have a more or less extensive anesthesia, absolute paralysis, and absence of deep reflexes. The following cases illustrate several of these points:

CASE I. A professional man, aged about forty, who had worked hard and had had diphtheria, after which he lost smell and taste, but had no paralysis. His wife thinks she noticed that he was becoming pale before the onset of the paralytic symptoms. He began to lose control of his legs and fell several times, but kept about on crutches for some months. No severe pain. When first seen by me his appearance would at once have suggested anemia, probably pernicious, at the first glance, as he was fat, extremely pale, with a sort of puffy look that suggested but was not edema. He could draw up his legs and raise his toes. There was distinct loss of tactile sensibility throughout the legs, which on the inside of the thighs and the perineum became almost complete anesthesia. The sense of position was lost. There was no distinct girdle sensation, but pain and soreness about the sacrovertebral junction. He said, when he was sitting up he felt as if the body rested on the pelvis by a ball and socket joint. He could distinguish

⁸ British Medical Journal, January 27, 1900.

¹ Brain, Spring, 1900.

heat and cold on his feet and the outer aspect of the legs and thighs. The knee jerks were absent, and were said to have been so for some time. The plantar reflex was normal. The wrist and elbow jerks were normal or perhaps slightly increased. He had not lost control of the rectum or bladder. The respiratory, circulatory and digestive organs were normal. He had a very good appetite; took and digested a very good amount of food.

An error was made in the estimate of blood color, but it was not far from 25% ; red corpuscles, 1,760,000. The whites were not increased in proportion to the reds, and they were divided in about the usual proportions, except that the eosinophiles were a little above the average but not distinctly above the normal. There were no nucleated reds, but the variation in their size and shape was extreme. The patient died about three months after these notes were made, after a few days of rapid failure with a rise of temperature. There was no autopsy, but there can be no doubt of the extensive and extreme degeneration of the lower portion of the cord.

CASE II. A man, aged seventy-six, tall and rather pale, had bronchitis (grippe?) in September, since when he had not been well or walked well. In December he had a feeling of numbness in his hands and of numbness and coldness in his feet. His back felt numb. He walked awkwardly and feebly without crutches, but better with them. There was no diminution of sensation anywhere nor any hyperesthesia; heat and cold were well distinguished. The knee jerks were normal or slightly increased, but there was no ankle clonus. The heart and pulse were weak, and he had frequent attacks of syncope. No blood counts were made, but a cover-glass preparation showed nothing characteristic of pernicious anemia. He died in February.

CASE III. A man, aged seventy-one, of active habits, had not been well for two years, except during a visit to California the previous winter. He was seen on January 13, 1887. Last September he noticed shortness of breath on exertion, and his feet and legs felt cold. Six weeks before my first visit, on going out into the street, he felt a sudden weakness of the legs and was obliged to return, which he did with much difficulty, being hardly able to get up the door-steps. When I saw him he was in bed, though he stood up for part of the examination. He complained chiefly of coldness and stiffness of the legs, as well as of weakness, but of no pain. A sense of constriction across the lower part of the bowels was constantly present, and seemed to have little or nothing to do with any condition of constipation or otherwise, nor with any abdominal tumor, although this latter possibility was seriously considered. With the history of the sudden attack and the peculiar sensations and weakness of the legs, attention was at once directed toward spinal disease. The legs could be moved freely in any direction as he lay in bed. The muscles were flabby and small, but not decidedly atrophied, and reacted well to the faradic current. Sensation was everywhere present, and both superficial and deep reflexes were of nearly normal intensity. He could stand with his eyes shut. Examination of the urine, rectum and of the fundus of the eye gave no further information. The blood count was, at first, 1,575,000, and there was very marked poikilocytosis. This was before the days of staining and of differential count,

so that my diagnosis of "pernicious" anemia, although it was agreed to, on the basis of a cover-glass preparation, by one of the first authorities in the world, would probably not now be considered justified.

The blood count increased to 2,540,000, coinciding with a considerable gain in flesh and strength, although it was found after some months that the patellar reflex had disappeared without any other symptom of increasing paralysis. In the extremely hot weather of July he contracted an enteritis of which he died.

CASE IV. Mrs. M., a patient of Dr. Tanner, of Dorchester, age about fifty-five. A year and a half ago she had "bilious fever," with vomiting, chill and jaundice. During the interval up to the present time she has had at times symptoms similar to those of which she now complains. Day before yesterday she had another chill. She has had numbness of the hands and feet, and now has distress as if her feet were in cold water. She can walk but little, but can make any movement freely. Sensation perfect. Knee jerks normal or perhaps slightly increased. Ankle clonus on the left side. No increased elbow reflexes. No nystagmus, no tremor of the intention kind or otherwise. Her sight was not good, but the precise nature of the trouble was not determined. There was a large white spot in each retina, and on the right side the disk was possibly too white. These appearances were probably due to an old retinitis. The blood was unfortunately not counted or its color per-



centage determined, but a cover-glass preparation was made and examined. This showed no marked departure in quality from the normal which would indicate the presence of any special form of anemia.

The patient made no essential improvement. She had jaundice for some time before her death, which came by way of heart failure, about six weeks after the notes were made.

Autopsy.—The body was quite fat, although it was said that the patient had lost much flesh. The liver was large and the gall bladder distended with bile. It contained a few small black stones, one of which was in the cystic duct. This was undoubtedly the cause of the jaundice present some time before death, and possibly of the previous attack. The kidneys were large and palish, of structure apparently normal to the naked eye. The spleen was large, soft and pulpy. The uterus contained several fibroids. The heart was large, flabby, and with a large amount of fat upon its surface. In places its structure was pale and friable. Under the microscope some of the fibres in the right ventricle and in the septum were nearly destitute of striae, and showed some fatty granules. There was little or none of this condition in the left ventricle. There was no atheroma of any of the arteries. The muscles in the popliteal space were light colored and friable, and under the microscope showed some fibres with few or no striations and some fine granules (fatty degeneration). The brain was apparently normal to the naked eye, and was not examined further, except the medulla oblongata in its lower

portion. Portions of the spinal cord, the lumbar region and a small piece of the extreme upper cervical just below the oblongata were normal to the naked eye.

Sections made after hardening showed the appearances usually found in this form of disease as indicated by the cribriform condition of the connective tissue or neuroglia, showing large and irregular meshes where the degenerated and swollen nerve fibres have fallen out, and presenting a very marked contrast to the regions still normal, with much finer and uniform meshing. Everywhere, however, there are found considerable numbers of fibres apparently normal. The areas of this degeneration were found in the lower (third and fourth) lumbar region only in the posterior columns, but at the level of the first lumbar nerves there were in addition very distinct patches in the posterolateral columns and in each anterior horn beside the median fissure. In none of these cases except in the anterior horns did the lesion come quite to the surface of cord; and in the posterior columns there was a narrow strip of tissue, at least comparatively normal, along the inner border of the posterior horns. In the upper cervical region where the decussation of the pyramids is not quite complete corresponding areas may be found, but of course more widely separated. In the medulla at the level of the olivaries there are still evident remains of degenerated patches toward the outer posterior border, but so ill defined that it is difficult to localize them more accurately.

It has been remarked of these cases that there is a tendency to formation of focal lesions, that is, that the degeneration does not follow continuously any of the so-called systems of fibres. The gap (a long one) in this specimen makes it impossible to say that such may not be the case here also, but so far as it goes, the degeneration seems to follow very closely the conducting paths of voluntary motion and sensation, and thus corresponds precisely to the symptoms.

As to the gray matter it would not be possible to say, in the absence of the more delicate methods of preparation, which should be applied to very fresh specimens, that the cells were absolutely healthy, but the larger groups in the lumbar region apparently retain the full number of well-developed cell bodies, which show no signs of degeneration. The small blood vessels, those of the membranes, and those within the cord are free from any marked changes.

The literature of this subject includes in this country careful studies by Dana,¹ J. J. Putnam² and (with E. W. Taylor),³ and Lloyd.⁴

Among a large number from foreign literature may be mentioned a very recent and elaborate study by Risien-Russell, Batten and Collier⁵ of a series of cases of nearly the same character which, however, present some anatomical distinctions more or less differentiating them from ours. The limits of their group certainly do not exactly coincide with those of the Putnam-Dana type, and the authors are inclined to lay less stress upon the blood changes.

THE DIFFERENTIAL DIAGNOSIS OF INTESTINAL OBSTRUCTION.¹

BY Z. BOYLSTON ADAMS, M.D., FRAMINGHAM, MASS.

To make a complete "duoynopic picture of the diagnosis," as described by Vallee, would be impossible in intestinal obstruction unless in a volume. The number is legion who have written more or less at length upon this important subject. A study of the symptoms and causes is all that I shall attempt in the present paper.

Among causes we find such things as paresis and nervous inhibition;² muscular spasm from straining at stool or the abuse of purgatives, or from extraneous causes such as impaction of the ureter; embolism of the superior mesenteric artery; cancer and sarcoma and tumors of various sorts; gall stones and enteroliths, and the presence of foreign substances, such as hair, magnesia, etc.; ulcers in the bowels; stricture of the rectum; abscesses of various origin, including perityphilitis; hernias, reduced or not, or caused by mesenteric openings or bands of cicatricial tissue; intussusception; volvulus; and lastly tubercular or purulent peritonitis and syphilis. These causes act in three principal methods, namely, by invagination, by pressure or impaction, or by strangulation.

It is idle to insist upon the inadequacy of statistical tables in determining the diagnosis. We may, however, affirm that in a majority³ of cases, acute or chronic, such as are ordinarily met with, it is possible to find in the previous history or in the clinical observations and local phenomena, by palpation under ether or examination per rectum, a cause, quasi-mechanical, which does not require a differential diagnosis. Some few there are among the many causes mentioned which seem to be doubtful, or are so rare that they may be said to be non-existent.

It must, I think, be admitted that volvulus is rarely, if ever, a cause of fatal obstruction. Dr. Thomas Bryant, the famous London surgeon, in his Harveian Lectures upon this subject does not mention it except to say that it might have been suspected in a certain case which he describes. My old instructor, Dr. J. B. S. Jackson, declared that he had never found volvulus at the autopsy, although not rarely diagnosed before death.

We have the authority of Gross, Erichson and others for the statement that closure of the bowels by spasm alone, sufficient to prevent the passage of feces and even of air, has been the cause of death. This has been denied by Dr. Frank Hamilton on anatomical grounds, although Dr. Hamilton admits that spasm of the muscular coat of the intestines, with relaxation and dilatation above the spot so contracted, may produce the phenomena of fatal ileus. And this, I believe is usually the case.

Leichtenstern, in "Ziemssen's Cyclopaedia," says that without important testimony, objective or derived from the previous history, the diagnosis of constriction cannot be made with certainty, and Rokitsky and other morbid anatomists have shown us that invagination of the intestines may occur without appreciable symptoms to indicate its existence during life. That is, we may have obstruction by invagi-

¹ New York Medical Record, 1887; Brain, 1889, p. 480; Journal Nervous and Mental Disease, 1891, p. 205, and 1895, p. 1.

² Journal Nervous and Mental Disease, 1891, p. 69.

³ Boston Medical and Surgical Journal, September 20, 1900, p. 297, and Proceedings of American Neurological Association, 1900.

⁴ Journal Nervous and Mental Disease, 1895, p. 225.

⁵ Brain, Spring, 1900, p. 133.

¹ Read before the Framingham Medical Society, December 4, 1900.

² At the autopsy of a child made by the writer, assisted by Dr. Sylvester of Natick, it was found that numerous invaginations of the small intestines had followed upon a kick bruising the kidney. That this injury was the exciting cause of the invaginations was inferred from the history.

nation or otherwise, without great tympanites, tenderness, obstinate vomiting, etc., and with the occasional discharge of fecal matter in the stools. Dr. Benjamin Phillips found in 169 cases of fatal obstruction from all causes 63 cases of invagination. It should be borne in mind that obstruction of the bowels may remain latent for a long time.

In a valuable monograph⁸ a record is found of 56 cases. An erroneous diagnosis was made in 27. In some of these a wrong diagnosis was made several times and by different men. In 10 cases only was a correct diagnosis made. Obstruction of some sort was, however, made out in 18 cases, if we admit among these 3 of worms, 1 of abscess, 3 of prolapsus of the rectum, 1 of polypus of the rectum, and 6 of cancer or intestinal tumor. In 13 instances the diagnosis shows apparently no suspicion of any obstruction of the intestines. Among the various diagnoses were 1 of fever, 1 of some inflammatory process, 1 of cancer of the stomach, 1 of ulcer of the stomach, 1 of dyspepsia, 1 of peritonitis, 1 of peritonitis with gastro-enteric ulcer, 1 of gastro-enterocolitis, 1 of poison, 1 of flux of the bowels and 3 of chronic dysentery.

By carefully sifting the evidence upon which these mistaken diagnoses were based, Raffinesque finds that the first and most important differential diagnosis is between obstruction and *dysentery*, or some ulcerative or irritative process going on in the intestinal tract accompanied with occasional colic pain with bloody or slimy matter in the stools and tenesmus. This description would embrace more than half of the errors above enumerated.

(1) In dysentery, chronic or acute, there is fever, marked by high temperature, thirst, a hot skin, etc., symptoms that are rarely, if ever, observed in intussusception.

(2) In the latter there is tenderness at a particular spot in the belly, which serves as a guide to the seat of the trouble. This is not true of dysentery. Whenever this symptom is present in a case of presumed enterocolitis, enteric ulcer, flux of the bowels, or other dysenteric conditions, either should be given and the abdomen thoroughly explored over the region of tenderness, the most important pathognomonic indication being the finding of a tumor at the point indicated by the tenderness; either aiding materially in this exploration by relaxing the abdominal walls, which on pressure become tense and resisting by pain.

(3) The occurrence of colic pain in paroxysms; a symptom almost invariably present in invagination, and very unusual in dysentery. In chronic cases, especially in thin subjects, the intestines can be seen and felt writhing and rising up against the abdominal wall, and giving valuable evidence of the presence of obstruction.

(4) It is important to remember the frequency of invagination as a cause of intestinal obstruction in infants, and exploration of the rectum should be added to the other means of diagnosis. Of course in dysentery no tumor would be found, but impacted feces, foreign bodies, constrictions, ulcers and sometimes invagination, might be thus disclosed.

(5) The history of the case. In favor of obstruction of some sort there may be hernia, external or internal, reduced or unreduced; the fact that indigestible things have been swallowed, hair, for example,

or calcined magnesia; a history of the existence of some tumor; of wounds or injuries; of peritonitis or typhilitis, with probable adhesions; or of invagination recovered from in childhood; and perhaps paralysis, lead poison, and possibly syphilis. On the other hand, in favor of dysentery or some intestinal ulceration there would be a history of fever, and as an explanation of tenesmus and hemorrhage there may be such things as cirrhosis of the liver, embolism of the superior mesenteric artery, and perhaps other disorders. A case is reported also of bowel obstruction caused by diphtheritic membrane.

In view of the great relative importance of invagination in fatal bowel obstruction, being about 40% of all the causes put together, the following diagnostic picture is valuable: Constipation, with repeated attacks of a dysenteric nature, but without marked fever; paroxysms of colic pain with tenderness in a particular point, and the presence of a sausage-shaped tumor not accounted for by anything in the previous history, are very strong points in establishing the diagnosis of intussusception. In infants this diagnosis is often very difficult, and cases are recorded of invagination in children with no other marked symptom than occasional bloody stools.

The second differential diagnosis, judging by these cases of Raffinesque, is that from chronic and tubercular peritonitis, especially in young subjects.

(1) Vomiting. This symptom is almost invariably present at some time or other in obstruction, while in chronic peritonitis it rarely occurs except from special cause.

(2) The colic. This is perhaps the most common and constant symptom of intestinal obstruction, and occurs in occasional paroxysms. In chronic peritonitis the pain, if any, is usually dull in character, not paroxysmal, and not accompanied by straining and tenesmus.

(3) Tenderness in one particular point. This is characteristic of obstruction, and is very seldom marked in chronic peritonitis, although in infants we may find it difficult to establish this fact.

(4) Emaciation. This is very marked in cases of chronic peritonitis; whereas, according to Rilliet, it is by no means extreme in invagination or in more or less partial obstruction in infants.

Moreover, examination under ether enables us usually to establish the fact of the non-existence of any foreign body or tumor pressing upon the intestine or obstructing its lumen from within. *Reus, volvulus*, invagination are only three names for the same condition, although the etiology may be different. In appendicitis there is seldom any call for a differential diagnosis, as obstruction does not occur until a perityphlitic abscess has formed and is pressing upon the bowel.

Catarrhal enteritis, however, sometimes closely resembles invagination, and has been mistakenly diagnosed. In both there is constipation, sometimes alternating with small thin stools, with localized colic pain and tenderness and a sausage-shaped tumor. The diagnosis here is based upon different grounds than those above mentioned. In invagination there is usually blood in the stools, retching and vomiting from the first, with complete absence of fever, while the tumor, which is upon the left side, can be felt writhing in the effort of straining. Hugo Engel, of Philadelphia, in a paper on "The Localization of Intestinal Catarrh," says, "If the dejections show the

⁸ Etude sur les Invaginations intestinales chroniques par le Dr. F. G. Raffinesque, Paris, 1878.

typical bile-pigment reaction we may conclude that the bowels are pervious, and that peristaltic action is continuous throughout the whole tract."

Lead poisoning has been mistaken for intestinal obstruction. Here the diagnosis must be derived chiefly from the history. In syphilis the obstruction, according to Mr. Bryant, is caused by ulceration, especially of the rectum.

The most important differential diagnosis from the point of view of treatment lies between strangulation and impaction or closure of the intestines, occluding the lumen, whether from within or from without. When palpation under ether fails to disclose the nature of the tumor, the anamnesis is of importance. The family tendency, the fact of injury or of surgical operations, of previous attacks of similar nature, of hernias, reduced or not, of the ingestion of indigestible substances, poisons, etc., should be inquired into. The clinical history usually enables one to decide between the acute and the chronic, the febrile and non-febrile, complete and partial forms. Examination per rectum should never be omitted, and much may be accomplished in certain cases by the persistent use of high-up injections. The employment of purgatives or opium is both misleading and dangerous, and the only word to say about treatment is this, namely, that whenever the diagnosis of intestinal obstruction, acute or chronic, whether by invagination, occlusion or strangulation, is made, a surgeon should be called to the case. The operation of celiotomy in experienced hands is comparatively safe, and may be the means of saving many lives. The fatal result comes usually from overdistention of the gut above the seat of obstruction. None of the means pointed out should be neglected, so that one may arrive without delay at a correct diagnosis. No positive and definite line can be drawn, however, which will apply to all cases, and death has been known to occur from intestinal obstruction in forty-eight hours and even less, without severe pain, marked distention or much vomiting.

Clinical Department.

A PHYSIOLOGICAL SOLVENT IN THE TREATMENT OF PUS GASES.¹

BY CARL E. MUNGER, M.D., WATERBURY, CONN.

Assistant Surgeon, Manhattan Eye and Ear Hospital, New York; Laryngologist and Aural Surgeon, Waterbury Hospital, Waterbury, Conn.; President of the New Haven County Medical Association.

THE physiological function of gastric juice is to break down and dissolve all the alimentary proteins, converting them into soluble albumoses and peptones. The gastric juice is also antiseptic and bactericidal, and thus not only enables us to appropriate food, but confers in health a certain immunity against sources of infection in food and drink. These are no doubt familiar facts; but when my attention was recently called to the use of an artificial gastric juice as a solvent for pus and broken down tissue, they took on a new significance. The technical employment of artificial digestion *in vitro* in the production of peptones from various food proteins is already long established. The proteid matter of suppurating tissue is in its nature quite as responsive to the enzymic action, and

is even more penetrable than ordinary masses of food.

I was, therefore, impelled to give consideration to this suggestion, new to me, of gastric juice as a physiological solvent, as presenting on a *a priori* grounds obvious advantages over chemical agents. In H_2O_2 , for instance, which is of undoubted value, there is the disadvantage of its creating much gas, which produces pressure, which pressure may be beyond our power to control. Whilst the broken down tissue is not destroyed, the soluble substances into which it is converted by enzymic action are readily removed by irrigation, and the artificial gastric juice itself is incapable of producing systemic poison.

The product which I have used, enzymol, is a sterile fluid, which, when diluted with an equal volume of water, has about the acidity of normal gastric juice, and is then suitable for use in most cases. It possesses great proteolytic energy. It exhibits marked action as an antiseptic and deodorizer, offensive odors yielding to a few applications. It has agreeable qualities, and does not produce irritation except in cases of sensitive mucous membrane.

In some cases the matter readily yields to the solvent; in others it is necessary to keep the solvent in prolonged contact, with repeated washing and renewed application. In every case the procedure is based upon the fact that the action is essentially physiological, not at all similar to that of a chemical which instantly attacks the surface it touches.

CASE I. The first case that I used this on was an old middle ear and mastoid case in which there had been a foul-smelling discharge from the external ear, and also behind the ear through a fistula in the mastoid bone. Three injections of a 50% solution of enzymol at intervals of twenty-four hours stopped the discharge entirely. There has been no further discharge, now seven weeks after its use—this without any other treatment. This ear had been continually running for two years in spite of frequent cleansings and treatments with H_2O_2 , boric acid in powder and solution, corrosive-sublimate solution, aristol, iodoform, iatrol, etc.

CASE II. Acute purulent otitis media. The patient, a girl twelve years of age, came to my office January 11th with a typical case of otitis media acuta purulenta. The ear had been running ten days. The discharge was copious but not foul smelling. This was treated with injections of hot boric-acid solution, followed by instillations of H_2O_2 into the ear three times a day for twelve days. I then injected a 50% solution of enzymol into the ear, and instructed the mother to do this twice a day. Eight days later the patient returned with the history that after the injections had been used three times at home the discharge had entirely ceased, and there had been no more discharge. Examination showed that there was no discharge, and that the hearing was practically normal.

CASE III. Young man, age twenty. Polyps in both ears, or rather stumps of snared-off polyps. There had been a very offensive discharge for months, which had been aggravated by an attack of influenza. One week's use of enzymol, an injection of 5 drops of a 50% solution twice a day, stopped the discharge in a week, and the accompanying foul odor. Seen a week later there was still no discharge and no odor.

CASE IV. Baby, one year old. Vaccination sore,

¹ Read before the Waterbury Medical Society, November 12, 1900.

deeply ulcerated and covered with foul-smelling pus and broken down tissue. Four applications, at intervals of twelve hours, of a 50% solution of enzymol caused the ulcer to be dried, healed and non-odorous. At the first application there was considerable smarting, lasting a few minutes. The subsequent application caused no pain.

CASE V. Adult, female. Ulceration of triangular cartilage of months' standing. One application thoroughly rubbed in caused this to heal, though it again ulcerated some weeks after.

CASE VI. Baby, cervical abscess. Abscess opened, washed out with enzymol once, entirely healed three days later.

CASE VII. Girl, eight years old. Abscess of neck due to broken down lymphatic glands. Opened and enzymol used daily. This was a case which should properly have been curetted, but I wished to see if enzymol would disintegrate the remainder of the gland which was not broken down. It did not do this, but did keep the wound sweet and clean, with a healthy granulating surface.

CASE VIII. Abscess of arm in a man, probably tubercular. This was opened, and enzymol, 50% solution, injected into the abscess cavity, which was healed in two days.

CASE IX. Ulceration of septum, syphilitic, with troublesome formation of crusts. Enzymol used, 33% solution twice a day for one week, almost entirely relieved the patient of this condition.

CASE X. Boy, fourteen years old, came into the Waterbury Hospital with an abscess probably appendicital in origin. This was opened and 16 ounces of foul-smelling pus with broken down tissue was evacuated. Enzymol, 50% solution, was used in this cavity, with the effect of quickly stopping the foul smell and the formation of pus. The enzymol was injected twice daily and later every other day. The cavity is healed, there being only a small sinus left, which is quickly healing. The enzymol was left in the cavity ten minutes and then washed out with normal salt solution. The wound became infected shortly after the operation, and was covered with a thick fibrinous deposit. The effect of enzymol on this was particularly interesting and instructive. It could be seen to dissolve the membrane and leave a bleeding, healing surface.

CASE XI. Man, a caster, injured by having molten lead fall in top of shoe between shoe and foot and burning the top of foot severely. This wound was seen three days after injury, and the condition was as follows: A destruction through entire thickness of skin forming an ulcer 2 inches in diameter and covered with a foul-smelling slough. This wound was treated by binding absorbent lint soaked in 50% solution of enzymol, and at the end of three days the appearance was that of a clean, healing, granulating wound.

CASE XII. Man. Extensive cellulitis of front and side of chest wall. In this case large amounts of enzymol were used by injection through drainage tubes, and into several deep pockets formed by broken-down cellular tissue. The results here were extremely satisfactory, as the enzymol fairly dissolved the broken down tissue so that it could be easily washed out through the drainage tubes.

I tried enzymol in a case of chronic cystitis, but was disappointed in its action, as from its former use

I was led to believe that I had found a remedy *par excellence* for this troublesome class of cases. I used both a 50% and 33% solution, but the symptoms were aggravated, and I abandoned its use for other remedies. In another case I should recommend a much weaker solution and should hope for better results.

I have used this remedy in nasal wounds, such as division of synechia and operations on the septum, with the results of finding that the wounds kept sweet and clean and healed readily.

This can hardly be called more than a preliminary report, but the results have been so satisfactory thus far that I feel justified in reporting them, and shall continue this method of treatment in these classes of cases in which at this writing it seems to me of value and scope yet to be fully determined. This remedy appeals to me as being especially applicable for use in diseased cavities, sinuses and fistulas, and wherever there is found broken down tissue—bony, lymphoid, muscular or cellular.

I believe that solutions of enzymol may be used much weaker than the 50% solution which is recommended, and in fact must be so used on mucous membrane to avoid undue irritation.

When using enzymol in mastoid cases and suppurating middle-ear cases, I find that these cases do better when the enzymol is used thoroughly and *injected* into the middle ear or through the mastoid wound, not merely dropped in.

Reports of Societies.

THE NEW YORK OBSTETRICAL SOCIETY.

STATED meeting, November 13, 1900, the president, Dr. H. J. BOLDT, presiding.

Dr. E. B. CRAGIN presented a patient upon whom operation had been performed for

FULL-TERM ECTOPIC GESTATION.

the child being alive, in perfect condition, and presented with the mother to the society. Mrs. K. W., age thirty-three years, a German, was admitted to the Sloane Maternity Hospital, October 16, 1900, with the following history: She had been married eight years, had two miscarriages, one at six, the other at four months, menstruation had been regular, and there was no history of endometritis or pelvic trouble of any kind. She had her last regular menstruation in January, 1900. In February she flowed for two weeks. In March she had a severe attack of abdominal pain which kept her in bed one week. After this she was well, except for alternating constipation and diarrhea during pregnancy. "Life" was felt in June. She had had pains in the back for two weeks before admission, and for two days before admission she had had several pains in the abdomen. On admission the pulse was 120; abdominal examination was negative on account of tympanites and rigidity of the abdominal walls.

Vaginal examination showed the vertex low down in the posterior cul-de-sac, almost on the perineum. High up behind the symphysis the finger could just reach the posterior lip of the cervix, but could not enter the cervical canal. As delivery *per vaginam* seemed impossible, it was determined to enter the abdomen. It was then found that the case was one

of full-term ectopic gestation, within the folds of the left broad ligament, pushing the uterus up against the anterior abdominal wall and dissecting the peritoneum from the posterior wall of the uterus. As a result of forty-eight hours of spurious labor, the ectopic sac was found ruptured and the intestines covered with fresh fibrin stained with meconium. The point of rupture was quickly dilated with the finger and the living child extracted, which is here presented. The placenta was chiefly attached to the left broad ligament, and it was found that the maternal vessels supplying the area could be ligated. The uterus was so incorporated with the sac that it was decided to remove it, the sac and placenta *en masse*.

The patient has had a smooth convalescence. The baby was kept in an incubator for one week, then for one week in cotton, and since then it has been out of cotton. At birth it weighed 5 pounds, and now weighs 5 pounds and 7 ounces.

Dr. CRAIG again drew attention to the fact that the viable ectopic fetus was worth saving, and with certain limitations, attempts to save the child do not seriously increase the mortality to the mother, and that the child in ectopic gestation should receive more consideration than it enjoys. He believed that at present, in the majority of cases, the placenta is so attached that it is safer not to remove it as the primary operation, but that occasionally, as here, the attachment will be such that the maternal blood supply can be ligated and the placenta safely removed.

Dr. E. A. TICKER emphasized the importance of making an early diagnosis of spurious labor, for the reason that operation could then be successfully performed, whereas in the later cases the mortality to the child in particular was necessarily great.

Dr. CRAIG said that the best time to operate was two weeks before full term, so as to get ahead of the spurious labor, and in this way get a living child.

Dr. A. BROTHERS presented a specimen of

MALIGNANT CHORION EPITHELIOMA, OR SO-CALLED DECIDUOMA MALIGNUM.

The patient was twenty-four years of age; menstruation regular up to June, 1899, when, after bleeding for a month, she had an eight weeks' miscarriage. In June, 1900, after suffering considerable pain due to delayed menstruation, she began to bleed, and lost so much blood that on June 21st she was cured. The scrapings were examined and showed no evidence of malignancy. She remained well for two and one-half weeks, when bleeding came on in an irregular manner, would last several days and then disappear for two or three days.

Suspecting the condition known as deciduoma malignum, the patient was anesthetized, and the long conical cervix dilated, after which it was incised laterally to a depth of 1 inch. The cavity contained a small tumor, found later to consist of myxomatous tissue, with no evidence of malignancy, and the interior of the uterus was subjected to a thorough curettage. After irrigation, the incisions were closed, everything pointing against malignancy. The patient remained well until the last week in September, when she had another exhaustingly profuse hemorrhage with large clots. This was succeeded by such a large hemorrhage that a doctor called to the house was obliged to pack the vagina with gauze and transfer her to the hospital. The vagina was douched several

times, and then repacked without benefit. The cavity of the uterus was then swabbed daily with 95% carbolic acid, and then for a few days with 10% ferrichloride. On October 25th the house surgeon of the hospital did a curettage, but in spite of the presence of some foul-smelling tissues still left in the uterine interior, he was obliged, on account of fearful hemorrhage in the almost pulseless patient, to suspend the operation and rapidly pack the uterus and vagina to their full capacity with iodoform gauze. There was now no doubt that radical operation alone could be of any avail, and preparation was made for vaginal hysterectomy. The operation was performed under intraspinal anesthesia, and while one of the staff injected several quarts of saline solution into one of the veins of the elbow, the uterus was quickly removed, about seven minutes being required. The patient made an uninterrupted recovery, although convalescence was slow on account of the anemic condition. The pathologist reported that he was inclined to designate the pathological condition as so-called "deciduoma malignum."

Dr. J. E. JANVIER presented a specimen of a

LARGE MULTICULAR FIBROMA OF THE UTERUS,

removed by abdominal hysterectomy. The patient was forty-five years of age, and had had a miscarriage at about the fifth month, twelve years ago. Two and one-half years ago, she noticed an enlargement in the right pelvic region, and since that time a gradual increase in size has taken place. In certain months the menses have been more profuse than usual, but general health has been good. In July of the present year examination revealed the presence of the fibroma, its apex extending upward to the right of the median line, for a distance of four fingers above the line of the umbilicus, crowding up against the liver and under the false ribs. There were numerous adhesions in the pelvic cavity, and no mobility of the mass in its lower half, but the upper half was movable. Tonics were given, and frequent hot douches ordered, in order to prepare the patient for operation. In October, with the patient in good condition, hysterectomy was performed, the operation requiring two and one-half hours on account of the difficulty in breaking up adhesions. The bladder had become firmly adherent to both the anterior surface of the tumor and the abdominal wall, its fundus reaching almost to the umbilicus. In spite of the utmost care in making the incision, the bladder was entered, the escape of urine into the abdominal cavity being prevented by the strong adhesions formed. The opening through the bladder wall was immediately closed, and the incision continued upward nearly to the sternum, which enabled the operator to dissect the bladder from the tumor. The broad ligaments were finally clamped and ligated and hemorrhage effectually controlled. The whole mass was then lifted from its capsule of adhesions, and removed, leaving about $\frac{1}{2}$ inch of cervix to form a roof for the vagina. Peritoneal tissue from the posterior wall of the tumor, with capsular tissue, made a thorough covering for the stump, ligatures and cervix, thus leaving the abdominal cavity free from raw surface. The shock of the operation was considerable, and several quarts of warm normal saline solution were left in the abdominal cavity. The patient made a satisfactory recovery. The weight of the tumor was 8 pounds.

Dr. Janvrin then presented a specimen of

CANCER OF THE UTERUS,

abdominal hysterectomy being complicated by an ovarian tumor. The patient was fifty-nine years of age; she had had one child thirty-four years before, and was badly lacerated at its birth. Five years ago the cervix and perineum had been repaired, and there was no evidence of malignant disease. Sudden hemorrhages occurred in July and September, and the cervix was curtted by a physician in another city, who advised against radical operation. In October Dr. Janvrin found the cervix to be the seat of a cancerous infiltration, and there was also a tumor occupying, as it seemed, the body of the uterus. The mass was so hard and firm, of the size of an infant's head, that diagnosis of fibroma was made. Radical operation was performed in November. The tumor was found to be a very tense and inelastic ovarian growth, originating in the left ovary, and firmly bound down to the fundus by old adhesions. The contents were evacuated, and the sac removed with the uterus, the cavity being well filled with iodoform gauze, reaching down and out of the vagina. The pathologist reported the case to be one of rapidly developing epitheliomatous infiltration. Dr. Janvrin stated that it was not his usual custom to remove the uterus where the disease had extended into the parametrium, but in this case there was doubt and there had been the ovarian tumor to be removed also. The patient has made a good recovery from the operation, but further extension of the disease was to be expected.

DR. BROTHERS remarked that the case was interesting because of the fact that the operation was preceded, five years before, by a trachelorrhaphy. He believed that the impression existed that trachelorrhaphy had an influence in preventing cancer.

DR. JANVRIN stated that this was the first case in his experience where cancer of the cervix had developed after trachelorrhaphy had been done. At the time of the operation five years before, the sections of cervix which were removed were thoroughly examined, and there was no evidence of malignancy.

The paper of the evening was read by DR. SIMON MARX. His subject was

MY FAILURES AND SUCCESSES WITH SPINAL ANESTHESIA.

The peculiar title of the paper about to be read will at once attract the attention I wish, for I am fully prepared to report the failures of this procedure. I have already so covered the ground of my successes that many would imagine that spinal anesthesia cannot fail. No method, mechanical, therapeutical or surgical, has ever been used without its quota of failures. My successful punctures were so continuous that I never expected a failure. It was only after doing from 60 to 70 punctures that my failures, 2 in rapid succession and for one operator and before one audience, occurred, placing me in as humiliating a position as any honest investigator could possibly be. They were such convincing failures that only the veriest dreamer could have thought them otherwise.

As to my successes I have little to say, since I have said enough in other places. So far as I am concerned, "Be the destiny of the method what it may, to you," I know from a very large experience what I

can do with medullary narcosis. I do not need to defend this little operation; it needs no defence. We realize its possible dangers, immediate and remote; we know it occasionally fails, and we do not expect too much from it, for spinal anesthesia will never take the place of cerebral anesthesia, for its sphere will ever be limited to well-defined cases.

I know it will please you not alone that Corning originated this operation, but that the first extensive original experiments were done by two Americans, Drs. Dudley Tait and Guido Caglieri, of San Francisco, Cal., and published by them in the *Transactions of the Medical Society of the State of California*, April, 1900, under the heading, "Experimental and Clinical Notes on the Subarachnoid Space." The experiments, both physiological and clinical, are the first extensive experiments on record pertaining to cocainization of the subarachnoid space.

I have had in the neighborhood of 100 punctures with 2 failures. Both occurred in intensely neurotic women (Italians) upon whom pelvic operations were to be performed. By careful analysis as to the causes of these failures I am able to exclude all but an idiosyncrasy to the drug and again to the highly nervous condition of the patients. The more nervous a patient the more likely is the spinal anesthesia to fail. The possible causes of failure may be enumerated as follows:

(1) *Inert cocaine solution.*—Repeated sterilization absolutely spoils the cocaine. We never employ a solution that has been boiled more than once, but have the solution freshly prepared for each patient; at least it should not be more than one day old.

(2) *Too little of the drug used.*—This is a factor that can never be gauged, since a small dose will bring success in one case, and absolutely fail in another. In obstetrics we find from a study of our cases that between $\frac{1}{4}$ to $\frac{1}{2}$ of a grain is sufficient. In surgery we certainly have seen most brilliant results from smaller rather than larger amounts, from $\frac{1}{4}$ to $\frac{1}{2}$ grain. We have never been compelled to give a larger individual dose, and we would consider doses of from $\frac{3}{4}$ to 1 grain highly dangerous.

(3) With an imperfect syringe backing of the solution behind the sucker would cause the fluid to be ejected instead of injected. For this reason after the injection we always slightly withdraw the piston to be sure that this does not take place. Of course here comes the advantage in using a glass instead of a solid metal hypodermic.

(4) *Idiosyncrasy* is a condition that can never be foretold. It is a well-known fact that cocaine will never bring certain patients under its influence, no matter where or by what means used. This condition is especially associated with highly nervous and hysterical patients.

(5) *Faulty technique.*—Where care is used in following carefully the directions given, success in the largest majority of cases follows. The largest numbers of failures are due, we believe, to non-entrance into the canal, whether due (a) to faulty technique, or (b) to too short needle; the average needle should be about 10 centimetres long, but the distance to be traversed will rarely exceed 6 to 7 centimetres. Of course in a very obese patient it may be necessary to exceed this distance, but this seldom is the case. (c) A very dull needle point may, by pushing the membranes before it, prevent entrance of the fluid, and yet, on the

other hand, a very large pointed and sharp needle may throw the solution beyond the canal. For this reason my points are exceedingly short, more on the trocar order, for long points may wander beyond parts under control and prevent what is essential to success, the escape of spinal fluid. (d) Again, very large-calibre needles, by making inordinately large apertures in dura and pia spinalis, predispose to the extravasation of our medicinal fluid. Therefore it is wise after the injection to hold the needle in place for a minute or so in all cases, but it is best overcome by using exceedingly fine aspirating needles for this purpose. (e) Disturbing the relation of the needle point to the canal while screwing or fixing on the barrel is a not uncommon possible cause; for, if clumsily done, it is possible to withdraw a short bevel, and by such faulty action throw the cocaine outside of the canal.

The author then described the correct technique of the operation: The injection is given between the fourth and fifth space, but the space between the third and fourth lumbar is equally desirable. Tait, in his experiments, and in his operative work in 3 cases, speaks highly of the sixth cervical space, as a way that is sure and extremely easy in the human being. We, nevertheless, object to inject in this area for the sole reason that the solid cord lies here; further, that the nearer the skull cavity the cocaine is injected the greater the toxic influence of the drug. We have been so well satisfied with the fourth lumbar space that we always elect it when at all possible. To ensure absence of pain from the puncture through the skin, a freezing spray is used. From 8 to 15 metres (as the needle holds about 3 metres we must allow for this, and the barrel of the syringe charged with the exact amount) of a 2% solution is used, representing between $\frac{1}{4}$ to $\frac{1}{2}$ grain of the salt. The needle is held *in situ* for a minute to plug the arachnoid puncture and ensure the impossibility of its escape, then withdrawn and the puncture sealed. Within from two to three minutes anesthesia is ushered in, occurring somewhat suddenly, occasionally preceded by a marked hyperesthesia. There is often trembling of the limbs, and a feeling of formication in the affected areas. Vomiting often accompanies the symptoms, but is very evanescent. Operation can usually be commenced as soon as firm pinching or pulling upon the labia elicits no pain. If at the end of fifteen minutes the desired result is not obtained, the injection of a smaller dose may be repeated. My clinical experience has taught me that the area of anesthesia varies considerably, and cannot be influenced by either the dose given or the force with which the solution is thrown in.

The post-operative symptoms are due to a disturbance, in part, of the equilibrium in the subarachnoid space, and could be avoided by the preliminary extraction of a small amount of fluid, and by making the injection slowly. Again, the amount of cocaine was an important factor. With more than $\frac{1}{2}$ cubic centimetres of a 1% solution, or more than $\frac{1}{4}$ cubic centimetre of a $1\frac{1}{2}$ % solution, we generally noted nausea, headache and weakness. Nirvanin and eucaine produce less analgesia and disappear more rapidly.

Tait and Cagliari conclude (in part) as follows:

(1) To the lumbar route they propose to add the "low cervical" in the sixth cervical space—both easy and safe.

(2) Direct intramedullary medication is feasible and deserving of further trial.

(3) Subarachnoid injections are devoid of danger if made with certain precautions. The solution should be freshly prepared and injected slowly at a temperature of 37° C. and never in greater amount than 3 cubic centimetres.

(4) The extent and duration of the analgesia thus induced are generally in direct proportion to the amount of the drug injected. Analgesia is noted in some cases as early as five minutes after the injection, and in others, for unknown reasons, as late as thirty-five minutes. Its duration is sufficient for the performance of all operations on the lower limbs and pelvis, and may be of service in obstetrics.

(5) The disagreeable effects sometimes noted are partly due to the sudden increase of pressure in the subarachnoid space, to too rapid diffusion towards the brain, and principally to the amount of cocaine used. These post-operative symptoms are never alarming nor lasting. They recall the intradermic effects of cocaine, and never resemble in severity the symptoms so frequently observed during or after chloroform or ether anesthesia.

(6) One cubic centimetre of a 1% solution of cocaine, injected slowly, is generally sufficient for all practical purposes, and has not been followed by untoward results.

(7) For obvious reasons it is a good plan to withdraw a small amount of cerebrospinal fluid prior to making an injection.

A last and very potent factor combining to make an otherwise good narcosis a failure is noise, bustle and excitement during the operation. These patients must be protected from extra annoyances, at least excusable or avoidable ones, whether by obtunding their otherwise markedly increased powers of sight and hearing by medical means, as a preliminary dose of morphine, or mechanical, which I consider far better, that is, plugging the ears and blindfolding them, or by means of a screen, shutting off their power of sight. As to measures directed against the post-operative symptoms, we still pin our faith to the bromides given in large doses, 30 to 40 grammes, one to two hours before the operation. This drug has answered us admirably in many cases. Possibly a combination with caffeine might enhance the value of its effect. Personally we have no experience with this combination, but caffeine has been highly lauded by others; a combination of both might be exhibited with more beneficial effect. Where no result is obtained from the bromides, and the vomiting persists, which is unusual, or the headache and the other symptoms are pronounced, hyosine hydrobromate in doses of $\frac{2}{10}$ to $\frac{1}{10}$ grammes as a powerful cerebral sedative is of considerable value. We still retain the use of nitroglycerin where cyanosis or dyspnea becomes apparent. But since we have never seen this condition in labor, we have had no occasion to use it.

Now as to my labors, over 10 in number: Motor disturbances of the uterus we have never seen, for the uterine contractions go on regularly, and under their influence the os dilates as under normal conditions; and all this time while the patient has some indescribable sensation, but not one of pain, she is delivering herself as naturally as if her symptom of pain was not masked. Under these conditions we only recognize the powerful contractions either by placing the hand on the abdomen, or by exposing the protruding

and bulging bag of water or the advancing head. Reflex action of the abdominal muscles was found present only when incomplete anesthesia existed, and was then accounted for by the presence of pain. But when anesthesia was complete, spontaneous bearing down did not occur; voluntarily the muscles were not called into play; only when told to do so was the patient capable of bringing her abdominal muscles into play, and then as powerfully as under normal conditions. This I have always encouraged to further the *vis a tergo* in normal labors. I have done some extremely difficult operations under spinal anesthesia; in fact, all forms of obstetric operations were undertaken, except symphysectomy and Cesarean section. Explorations, versions, forceps extraction, placental removal were done, not with as great ease as under chloroform, but with much greater facility than in a non-narcotized (chloroform) woman. It was never necessary to finish any operation under a general anesthetic when commenced with medullary narcosis. Relaxation of the uterus or even spasm of a severe grade was never encountered, nor was there a greater disposition to bleed than under ordinary conditions. We have never met involuntary evacuation of bowel or bladder such as occasionally occurs in surgical practice, even as often happens when ether or chloroform is administered, or as occasionally happens during labor under normal conditions. In all cases where cocaine was employed we obtained the happiest results. In no case were any bad symptoms noted, except in 1 case, where, by mistake, with the cocaine $\frac{1}{4}$ grain of morphine was administered. The patient developed all the symptoms of a grave opium poisoning, and required pretty heroic measures to bring her out of her soporose condition.

DR. A. PALMER DUDLEY commented favorably upon the happy results Dr. Marx had obtained in obstetrics, but said that in general surgery he had used the method in 1 patient for amputation of the leg below the knee, with the result that within a few hours convulsions came on, twelve in number, the temperature rose to 103°, the pulse to 120. The urine was loaded with sugar, uremic conditions supervened, and the patient died. In another case he obtained intense reflex action, for which he used bromides. There were no convulsions and the patient did nicely. The third case he had had was one in which he did a curettage and division for vaginismus. Twelve hours after the operation she became a raving maniac. Her temperature was 103°, and pulse 120, and the headache intense for nearly two days in spite of bromides. The patient, however, recovered nicely. All 3 cases had involuntary stools and incontinence.

DR. ARSTIN FLINT, JR., reported excellent results in 1 case of labor, but unsatisfactory results in 2 others. The headache was the worst feature.

DR. MARX stated that he had never seen involuntary stools or urination in his cases, and a friend who had used the method for 37 operations had had no bad effects in that way.

TYPHOID FEVER AT GALVESTON, TEXAS.—Typhoid fever prevails widely in Galveston, according to the *Medical Record*, the estimated number of cases in the city being about 500. It is believed that the infection is spread by the use of cistern water, contaminated at the time of the great storm.

Recent Literature.

Heart Disease in Childhood and Youth. By CHARLES W. CHAPMAN, M.D. (Durh.), M.R.C.P. (Lond.), Physician to the National Hospital for Diseases of the Heart, Soho Square, E.; late Physician to the Farringdon Dispensary, E. C. With an introduction by SIR SAMUEL WILKS, Bart., M.D., F.R.S., Physician Extraordinary to H. M. the Queen; ex-President of the Royal College of Physicians, and Consulting Physician to Guy's Hospital. London: The Medical Publishing Company, Ltd. 1900.

Dr. Chapman has prepared a very readable little book. While it is scarcely to be expected that one should find a great deal that is new on a subject which has lately received much attention, the author is to be commended for the common-sense way in which he has handled it. The first portion of the book gives a brief outline of the "more usual varieties of heart disease as they occur in young persons," to quote from the preface, while the latter part is made up of illustrative cases which serve as a text for remarks on treatment and prognosis. The latter are always to the point and give valuable suggestions as to the management of these cases.

The Practice of Medicine. A Textbook for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By JAMES TYSON, M.D., Professor of Medicine in the University of Pennsylvania, and Physician to the Hospital of the University, etc. Second edition. Thoroughly revised and in parts rewritten, with 127 illustrations, including colored plates. Philadelphia: P. Blakiston's Son & Co. 1900.

It is four years since the appearance of the first edition of Dr. Tyson's "Practice of Medicine." This second edition, an octavo volume of 1,222 pages, deserves the same favorable comments as were made upon the first edition, with the additional statement that it has been revised and enlarged where needed in accordance with the progress and changes which have taken place during the intervening period. Of the changes the most numerous are to be found in the sections on the Infectious Diseases and on Diseases of the Nervous System.

The index also has been revised and enlarged as required by changes in the body of the book.

A Manual of Modern Surgery. An Exposition of the Accepted Doctrines and Approved Operative Procedures of the Present Time. For the Use of Students and Practitioners. By JOHN B. ROBERTS, A.M., M.D., Professor of Anatomy and Surgery in the Philadelphia Polyclinic; Mutter Lecturer on Surgical Pathology of the College of Physicians of Philadelphia. Second edition, revised and enlarged. Illustrated with 473 engravings and 8 plates in colors and monochrome. Philadelphia and New York: Lea Brothers & Co. 1900.

The author believes "that a volume from a single pen may be more equitable in its teachings than a composite book from many minds," and this second edition of his book demonstrates its success. The book is certainly one of the best, if not the best, single volume textbooks on surgery.

The articles on Appendicitis, Diseases and Injuries

of the Joints, Diseases and Injuries of the Genito-Urinary Organs, Dislocations, Excisions and Amputations have been entirely rewritten.

It is essentially a practical book, the descriptions being simple and concise. From the size of the book the treatment is of necessity dogmatic, but this, from the student's standpoint, is perhaps a virtue rather than a fault.

The illustrations are, as a rule, satisfactory and are sufficiently numerous. They are evidently selected as typical of conditions, and not for the purpose of making "a picture book." It is a safe, conservative textbook to place in the hands of students and is thoroughly abreast with modern surgery.

Bacteriology and Surgical Technique for Nurses. By EMILY M. A. STONEY, Superintendent of the Training School for Nurses, St. Anthony's Hospital, Rock Island, Ill., etc. Illustrated. Philadelphia: W. B. Saunders & Co. 1900.

This is a volume of 190 pages, much more limited in scope than the usual textbook, the chief function of which is the instruction of nurses. As indicated in the title, the book confines itself to bacteriology, surgical technique and closely allied topics. Naturally the bacteriology is not of a profound sort, nor can the discussion of immunity and phagocytosis, for example, be regarded as of great value. The following sentence (page 34) is perhaps calculated to mislead: "The theory is now known as the Metchnikoff theory of phagocytosis, and assumes an educated white corpuscle and cell body." We confess to a doubt of the advisability of such information for nurses, particularly in view of the possibilities of the future. Where it is all to end, is coming to be a more and more pertinent inquiry. The details of surgical technique, with the many admirable suggestions of a practical sort contained therein, are timely and valuable. The book, as a whole, is written in a judicial spirit and will, no doubt, be of value. We only hope that future editions may not go further into the obscurities of bacteriological research. The binding, paper and illustrations of the book are all satisfactory.

Fractures. By CARL BECK, M.D., Visiting Surgeon to St. Mark's Hospital and New York Polyclinic, etc. With an appendix on the Practical Use of the Röntgen Rays. Pp. 235, with 178 illustrations. Philadelphia: W. B. Saunders & Co. 1900.

This book is intended to encompass in a systematic treatise the important essentials compiled from publications on the use of the skiagraph in fractures, also from data derived from the author's personal study and experience. A study of fractures in the living subject is rendered possible, and developed by the use of the Röntgen method.

The introductory pages describe the discovery and development of the x-ray by Röntgen, and enumerate the various ways in which it is an aid to surgery, especially in the diagnosis and treatment of fractures.

Part I deals with the subject of fractures in general, their classification, statistics, diagnosis, process of repair, the conditions which interfere with repair, treatment, etc.

Part II discusses the fractures of special regions classified anatomically.

The last 52 pages are devoted to the practical use of skiagraphy. Here is described the apparatus, the

character of the electric current required, the fluoroscope, photographic plates, etc., also what tissues and objects are visible by this method, and what has been demonstrated in the different pathological processes, or different tissues of the human body. The writer briefly enumerates the different methods by which the process is made available to different conditions, and states its present limitations and possibilities; for example, one reads how to photograph gall stones or renal calculi, how to determine the size and shape of the stomach, the position, size or shape of the heart, the presence of pulmonary or subphrenic abscess, trichinosis and many other things.

In conclusion the possible sources of error in the use of skiagraphy are enumerated.

The book appears to be carefully written, and is a very good résumé of the subject to date. It is especially interesting as showing the influence and value of the discovery of Röntgen on medical diagnosis and treatment. It suggests many possibilities to the student of surgical pathology.

The illustrations are a distinct feature of the work. Many are skiagrams which are exact reproductions of photographic prints. They show exceedingly well the points emphasized by the author.

The work of the publisher is admirable in every respect.

A Manual of Diagnosis and Treatment of the Diseases of the Eye. By EDWARD JACKSON, A.M., M.D., Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic, etc. Pp. 604, with 178 illustrations and 2 colored plates. Philadelphia: W. B. Saunders & Co. 1900.

This book, as the author says in his preface, is designed to aid in the actual work of dealing with disease, and therefore gives the place of first importance to the recognition and management of the conditions likely to be presented early in practice rather than the rarer diseases and more difficult operations that may come later.

Anything that Dr. Jackson writes is well worth reading, and this book is no exception to the rule. The arrangement of the book is excellent, and the style clear and concise. The opinions given as to etiology, prognosis and treatment are always conservative and safe. The book has not been utilized to advance any hobby of the writer.

There is a very useful chapter devoted to ocular symptoms and lesions connected with general diseases, in which each symptom or condition as it is mentioned is referred back to the page in the volume where it is described, that cannot fail to make the book of great value to the general practitioner as a book of ready reference.

The work deserves success and will undoubtedly be widely read.

Hernia. Its Etiology, Symptoms and Treatment. By W. McADAM ECCLES, M.S. (Lond.), F.R.C.S. (Eng.); Assistant Surgeon to the West London Hospital, etc. Pp. 231. New York: William Wood & Co. 1900.

This book is not intended to be a complete treatise of the subject, but to contribute for the benefit of the medical profession some facts relating to the origin, symptoms and treatment of hernia which have seemed of practical importance and value to the author.

Hernia in its various forms is discussed: Inguinal

hernia, femoral hernia, umbilical, ventral, obturator, and lumbar hernia, also inflamed, irreducible, obstructed, strangulated, sciatic, perineal, ischiorectal, vaginal and diaphragmatic, hernia of the urinary bladder, ovary and vermiform appendix. Finally, the relation of hernia to life and accident assurance, public service, foreign service, etc., is considered.

The book is interestingly written and well arranged. One can, as one reads, distinguish what points have especially attracted the attention of the author, or have aroused his interest, such as would naturally be the case, being more exhaustively presented.

The text is illustrated by 97 cuts and photographs, the latter especially showing excellently well clinical cases and the application of trusses. The volume is one which contains much relating to the subject which is interesting and well worth reading.

A Handbook of the Diseases of the Eye and their Treatment. By HENRY R. SWANZY, A.M., M.B., F.R.C.S.I. Seventh edition. Pp. 607, and 165 illustrations. Philadelphia: P. Blakiston's Son & Co. 1906.

The seventh edition of this popular book retains the alterations and improvements of the preceding editions, and has had added to it an account of Dr. Mackenzie Davidson's method of employing the Röntgen rays for the detection and localization of foreign bodies within the eyeball; an operation for ptosis by Mr. Mules; and three tables by Dr. L. Warner, giving action and values of the mydriatics, myotics and local anesthetics used in ophthalmology. Other minor changes have been made, all of which seem to have been well considered.

Diseases of the Throat, Nose and Ears. A Clinical Manual for Students and Practitioners. By P. McBRIDE, M.D., F.R.C.P., etc. (Edin.). Fellow of the Royal Society of Edinburgh. Third edition, revised and partly rewritten. Edinburgh and London: Young J. Pentland; Philadelphia: P. Blakiston's Son & Co. 1900.

McBride's manual has been well known since its first appearance in 1892 as a reliable, conservative and satisfactory textbook. This is the second American edition, and does not differ materially from the first. The text has been added to in places, a little has been rewritten, and there are a few more cuts. This volume contains 744 pages, about a hundred more than the previous one, but this increase is in good part due to larger type. Most of the changes are simple insertions of paragraphs in the text, describing recent work, or the author's experience in the subject. A few unimportant new subjects have been added, such as the pharynx in myxedema, auto-scopy, scleroma, myoma of the larynx, false voice, inflammation of the lingual tonsil. Most American readers, at least, will be surprised to find that the subject of deviations of the septum still occupies the insignificant place that it did in the first edition. A short sketch of the Asch operation is added, but nothing about any other; while the author's accumulated experience has not justified him in taking out from this edition the following discouraging sentence: "My own experience has been that deviations of the septum are not a very satisfactory class of cases to treat, and unless the nasal obstruction is very marked, the patient if he be flippantly inclined, is

prone to conclude that 'the game is not worth the candle.'" The subjects of tonsillitis and peritonsillitis are incomplete and confused with one another; there is but little improvement in this edition. The supratonsillar fossa is mentioned a few times, but neither the anatomy nor the pathology of these regions receives the attention which their importance requires. The tone of discouragement in giving the treatment for atrophic rhinitis has been changed to one of hope by the introduction of cupric electrolysis. The chapter on the accessory cavities has been enlarged, in accordance with the added experience of the author and recent literature. It is judicial and satisfactory.

The book is worthy of the popularity which it has attained, and in spite of a large number of recent rivals in the field will undoubtedly retain its share.

Modern Surgery, General and Operative. By JOHN CHALMERS DA COSTA, M.D., Professor of the Principles of Surgery and Clinical Surgery, Jefferson College, Philadelphia; Surgeon to the Philadelphia Hospital, etc. Third edition, revised and enlarged. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1900.

As it is only two years since the publication of the second edition of this work, the fact that now a third appears can be taken as an indication of the popularity of this book, or the determination of its author to keep it fully up to date, or both.

The present edition in general attractiveness of appearance, arrangement of text, and excellence of press work resembles closely the handsome volume of 1898. Comparison of it with its predecessor causes one to note an increase in size. Its pages have increased in number from 883 to 1,083 and its illustrations from 386 to 493. This increase in the text is due partly to the introduction of new material and partly to the rearrangement of old, the table of contents showing slight changes, except in its increased number of pages.

It is written in the same direct style as formerly, and evidently the author had in view his former effort to eliminate all data or hypotheses liable to create uncertainty in the mind of the reader as to their correctness or efficacy. In short, everything obsolete, unsuccessful, uncertain or unessential was to be conspicuous only by its absence.

This plan is an excellent one for a student's textbook, provided the student is made to understand at the same time that he has not exhausted the subject of surgery by becoming familiar with its pages. The writer in his second edition carried this idea almost to its limit, and we cannot avoid the impression, as we examine the pages of his last work, that in this he has crossed the line, that at times the increase in subject matter has been made by the sacrifice of that directness, simplicity and positiveness which has been so attractive to the student, and so prominent a characteristic of the original work. The present volume contains at times a more extended exposition of its subject, yet one not full enough to form a complete review. The limited scope of the work must necessarily prohibit that, since modern surgery exhaustively treated cannot be compressed into a single volume.

The expert in surgery will still use the book as a convenient summary, which, although not always complete, will, at least, present an interesting resumé.

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MDCCC—MCM.

WITH the beginning of the new century it is natural to review the changes which have taken place since the opening of the century just past, and the physician asks himself what changes have taken place in his own profession during the last one hundred years, and whether these changes have been commensurate with those in other sciences.

One of the great changes which has taken place is in our knowledge of the causation of disease. Not only do we refer many diseases to their origin in germ growth, but this discovery has helped to foster an entirely new variety of medical practice. Preventive medicine was practically unknown one hundred years ago. Our boards of health would probably at that time have been looked upon as meddlers with the individual rights of the profession. Today they are considered not only most important helpers in the prevention, but also in the treatment, of disease.

With the science of the prevention of disease has come in a whole series of new weapons with which to fight it, in the form of disinfectants. Some of these materials were used earlier, but in an uncertain, tentative manner, whereas now we realize more exactly how to use them and how much they may be expected to accomplish. The fires which our ancestors used to burn in the streets to dispel the plague we still use for disinfection, but in a more orderly and usually a less destructive manner.

The department of preventive medicine is but one of a whole series of specialties into which the science of medicine has been divided, and each one of these many specialties has its instruments of precision, many of which were unknown even fifty years ago. The ophthalmoscope is but one in a long list of such new instruments. The compound microscope has opened up a new anatomy and a new pathology. The stethoscope has enabled the physician to use the sense of hearing, which aided the physician of long ago but little, in determining the pathological processes going on under the surface. Electricity has helped still

further to show matters which were hidden to the eyesight. What would have been thought of the physician who had dared to foretell, at the beginning of the nineteenth century, that before its close we should be able to see through the integument the broken bones beneath and to mechanically picture them?

Hardly a discovery in the whole range of physics and science but has added something to the practice of medicine. Photography plays its part in the recording of cases. The general use of rubber has contributed widely to the variety of the instruments which are today at the physician's command. Chemistry has not only added materially to our knowledge of the human frame, but has rendered the exhibition of drugs a matter of greatest simplicity. The products of petroleum have practically done away with rancid ointments of previous days, and synthesis has added a series of remedies which are not merely an addition to our pharmacopoeia, but an addition to our therapeutics as well.

One has but to mention ether, antiseptics, x-rays, the compound microscope, the clinical thermometer, the stethoscope, the ophthalmoscope and the other instruments for showing morbid conditions previously beyond the reach of vision, the use of active principles instead of crude drugs, the subcutaneous syringe, the use of manipulation instead of brute force in the reduction of certain dislocations, to show how great has been the advance, not merely in the investigation, but in the treatment of morbid conditions, and this list is so far from complete that every one who reads will be able to suggest some important additions. To the physicians of a hundred years ago the physician of today would seem like a magician.

Having indulged in this brief but gratifying enumeration, let us as a profession not forget that *noblesse oblige*, that privileges and advantages imply correspondingly increased responsibility.

UNDERPAID PHYSICIANS OF PUBLIC INSTITUTIONS

It will be generally admitted that the life of physicians connected with insane hospitals has its very decided drawbacks. It is an isolated life; there is small possibility for the various social enjoyments which add to the variety of existence beyond institution walls; there is, furthermore, the inevitable limitation which surrounds men who are, in great measure, cut off from the companionship and stimulus of daily contact with fellow-workers. However we look at it, life at an institution entails a continual sacrifice of much that the ordinary man regards as essential to his enjoyment and well-being. In view of this fact it is noteworthy and somewhat remarkable that the State, whose faithful servants these men are, is quite willing to accept their services for a remuneration which is often beneath the value of their work, and which would be regarded as niggardly in many other employ-

ments. It is clear that the work of a superintendent, for example, of a large hospital for the insane is as arduous as one can well conceive. Not only are high qualities of mind demanded for the intelligent control and treatment of a difficult class of patients, but he must also combine with this technical skill an unusual degree of executive ability, in order to manage properly the mere routine of institution work. It is, therefore, simply a matter of justice that the services of such men should be properly recognized. We are glad, in this connection, to call attention to the report of the consulting staff of the Danvers Insane Hospital, recently published in the twenty-third annual report of the institution. After alluding to certain deficiencies capable of reform, the consulting staff brings up the pertinent and important question of the lack of permanency in the office of superintendent. It appears that since 1882 five superintendents have served, and that in the words of the report, "Each of these gentlemen resigned his connection with our asylum on account of the inducements offered him to better his material position elsewhere — inducements that probably no one of them would have felt justified in refusing. . . . The State of Massachusetts is amply able, and should be willing, to give the chief officer of the asylum a separate residence and a salary of at least four thousand dollars. And until it does this it will be liable to lose, one after another, from its service men whose abilities are unquestionable and whose experience is invaluable, thus depriving the institution that parts with them of the advantage of a settled policy, and greatly embarrassing the carrying out of plans that take much time for their full development."

With these statements we are in entire agreement. The time has certainly come for the State through its legislators to take such action in the matter that an adequate remuneration for this type of service be at once provided.

MEDICAL NOTES.

A BEQUEST OF ONE HUNDRED THOUSAND DOLLARS TO AN INSTITUTION FOR FEEBLE-MINDED. — It is reported that a bequest of \$100,000 has been made to the New Jersey Training School for Feeble-Minded Children at Vineland, N. J., by Thomas H. Vinter, executor of the Maxham estate. The legacy will pay off all obligations and give the institution a cash balance of about \$60,000.

LEPERS IN THE PHILIPPINES. — It is estimated that there are at present about 30,000 lepers in the archipelago, most of them being in the Visayas. The disease is supposed to have been introduced in 1633 from Japan. A commission is now engaged in selecting a suitable island or group of islands for the isolation of all lepers.

ARSENICAL POISONING OF BEER. — Arsenical poisoning in beer was the topic of chief interest at the opening session of the convention of the American

Chemical Society recently held in Chicago, the discussion growing out of the recent wholesale poisoning in England. One speaker charged the brewers with wilfully introducing into beer an arsenical antiseptic to prevent the fermentation of the beverage from progressing too far.

ENCOURAGING REPORT REGARDING YELLOW FEVER AT HAVANA. — A recent report of the Havana Sanitary Department is more encouraging than any report since June. No Americans are sick with the disease. The 17 cases under treatment December 27th were all Spaniards, recently arrived in Cuba, and are being cared for in Spanish hospitals.

THE "PHILADELPHIA MEDICAL JOURNAL." — According to the *Medical News*, with the opening of the New Year, Dr. George M. Gould will retire from the editorial management of the *Philadelphia Medical Journal*, and the duties he has so ably carried on will be assumed by Dr. John Hendrie Lloyd and Dr. Julius L. Salinger.

SMALLPOX IN WASHINGTON. — Ten cases of smallpox, more virulent than the epidemic of last year, were reported December 26th. The disease is supposed to have been brought from Maryland by a negro.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, January 2, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 158, scarlatina 41, measles 56, typhoid fever 15.

THE OPENING OF THE NEW BUILDING OF THE BOSTON MEDICAL LIBRARY. — The new building of the Boston Medical Library Association will be opened Saturday, January 12th. The exercises will consist of addresses by the president and librarian of the association, and remarks by the president of the Massachusetts Medical Society; Dr. William Osler, of Johns Hopkins Medical School; Dr. John S. Billings, of the New York Public Library; Dr. H. C. Wood, of the Philadelphia College of Physicians, and Dr. H. P. Walcott, acting president of Harvard University. Communications are also expected from one or two other representative members of the profession.

CAMBRIDGE, MASS., STATISTICS. — The recent annual report of the Cambridge Board of Overseers of the Poor gives among others the following statistics: The city physician has made 862 visits upon 462 outside patients, and 1,642 visits upon 179 patients at the City Home. There have been 14 deaths at the institution and 37 deaths outside. The total expenses for outside aid, city home and city farm have been \$78,574, and total receipts for same have been \$5,973, making a net cost of \$72,601 for the care of the poor, which is an increase of \$7,840 over the previous year, caused very largely by the greater number of insane patients supported during the past year.

FOUR CENTENARIANS. — Anna A. Treat, born in Hartford, Conn., on April 7, 1797, died at Denver,

Col., on the 9th of December, at the age of one hundred and three years and eight months. James Reed, of Portsmouth, N. H., who celebrated his one hundred and fourth birthday December 9th, has died from the infirmities incident to old age. James A. Nichols, one hundred and eight years of age, died in Harwich, Mass., last week; he was a Welshman. Mrs. Mary Cullen, the oldest woman in Maine, died last week at the age of one hundred and five years, two months and five days. She was born in New Brunswick.

UNDRAINED LAND A MENACE TO THE PUBLIC HEALTH.—At a recent meeting of the Cambridge Medical Improvement Society, it was voted that the danger to the public health demanded the immediate reclamation of the undrained area between Arlington, Somerville, Belmont and Cambridge. United action on the part of the cities and towns interested was urged. A committee was appointed to concur with one already at work, to bring about the desired result.

HOSPITAL FOR TUBERCULOSIS IN BROOKLINE, MASS.—Dr. H. L. Chase and Dr. F. P. Denny have submitted a report relative to the establishment of a hospital for tuberculosis in Brookline. The selectmen of the town have been particularly interested in the equipment and conduct of this hospital and the report of Dr. Chase and Dr. Denny will do much toward influencing them as to the feasibility of establishing some institution of this character.

COLLECTION OF MEDICAL MEDALS.—Dr. H. R. Storer, of Newport, has presented to the Boston Medical Library Association his valuable collection of medical medals. It numbers about 2,300 examples, and is, we understand, the third largest collection in existence. It is to be known as the "D. Humphrey Storer Collection of Medical Medals." Dr. Storer's son, Dr. Malcolm Storer, is to be the curator.

NEW LABORATORY ACCOMMODATIONS FOR THE BROOKLINE, MASS., BOARD OF HEALTH.—The bacteriological laboratory, the work of which has up to this time been considerably handicapped for want of sufficient room, is about to be established in the new public building, in much more commodious quarters. The laboratory has already proved of very great service to the physicians of Brookline.

PROPOSED SANITARIUM FOR TUBERCULOSIS IN MAINE.—An organization to be known as the Maine State Sanitarium Association has recently been formed by prominent citizens of the State. The object of the association is to provide an institution in the Maine woods as a hospital for consumptives. It is proposed to request an appropriation from the next legislature to assist in carrying out the work.

PROGRESSIVE ACTION OF NEWTON, MASS., BOARD OF HEALTH.—The Health Board of Newton has asked the co-operation of the School Board in securing cultures from the throats of 1,000 pupils to determine, if possible, what percentage of well persons, who

have not been exposed to diphtheria, carry bacilli in their throats.

FREE HOSPITAL BED FOR TECHNOLOGY STUDENTS.—The trustees of the Massachusetts General Hospital have established a free bed for the use of students of the Institute of Technology, Boston, in recognition of the services the Institute has rendered the hospital.

MEETING OF MEDICAL OFFICERS.—The medical officers of the Second Brigade, M. V. M., met recently at the East Armory, Boston. Numerous papers were read, chiefly relating to the exigencies of war.

A BEQUEST TO THE MASSACHUSETTS GENERAL HOSPITAL.—By the will of the late Roger Wolcott \$5,000 is left to the Massachusetts General Hospital.

NEW YORK.

THE HILLIARD CASE AT BELLEVUE HOSPITAL.—In the Hilliard case, in which the inquest was held on December 28th and 29th, the coroner's jury rendered a verdict to the effect that the deceased came to his death from asphyxia and fracture of the ribs inflicted by the three accused nurses, pupils of the Mills Training School at Bellevue Hospital. The conclusion of the verdict was as follows: "And we censure the authorities of said hospital for laxity of the methods of the medical service of said pavilion for the insane, which tended to bring about the death of the deceased." As a result of this finding the three men were committed to await the action of the Grand Jury, the bail being increased in each instance from \$1,000 to \$5,000. The reason for the alleged physical violence was stated to be the refusal of the patient to take food, and the verdict against the accused was based principally on the testimony of Thomas Minnock, who explained on the witness stand that he had feigned insanity in order to get into the pavilion for the purpose of writing some articles for a newspaper. The counsel provided by Mr. Mills for the accused did not put any witnesses on the stand, stating that the testimony for the defence would be reserved for the Criminal Court.

DISMISSAL OF NURSES AT BELLEVUE HOSPITAL.—After an investigation, Commissioner of Charities Keller has dismissed three male nurses, and suspended six others, employed in the insane and alcoholic wards of Bellevue Hospital, on the ground of brutality and neglect. The three discharged men were arrested on the charge by Coroner's Physician Donlon of having been instrumental in causing the death of Louis Hilliard, an insane patient, and were afterwards released on bail furnished by Ogden Mills, a son of the founder of the Mills Training School for Male Nurses connected with the hospital. In consequence of his investigation the commissioner has placed in charge of the wards mentioned Dr. Louis Schultz, medical inspector in the Department of Public Charities. The State Board of Charities has also taken the matter up, and instituted an inquiry.

SEVENTY-FIVE THOUSAND DOLLARS TO A CHRISTIAN SCIENCE CHURCH.—During the contest of the will of Miss Helen C. Brush, who died in July last, bequeathing the bulk of her property of \$75,000 to the "First Church of Christ, Scientist," several Christian Science healers have made statements under oath which attracted the special attention of the Health Department and are likely to lead to prosecutions in the future. Among these are the following: That it takes a fee of \$100 and a two weeks' course of training for a person to become qualified to heal; that healers never report cases of contagious disease to the department, because it is contrary to the rules of their church; and that the physician who signed the certificate of death in Miss Brush's case acknowledged having signed a certificate in a case which he never saw. This physician, whose card bears the inscription, "Charles Griffin Peace, M.D., D.D.S., C.S." (standing for Christian Science), testified that he was still a member of the Medical Society of the County of New York. He also stated that he had given up the practice of medicine since 1898, but still continued to practise dentistry.

SMALLPOX.—There have been very few new cases of smallpox in the last two weeks. Dr. Blauvelt, chief of the Division of Contagious Diseases of the Health Department, states that since the first case was discovered on November 5th there have been reported 84 cases of the disease in the Borough of Manhattan, 2 in Brooklyn and 5 in the Bronx, and that only 3 of them have proved fatal. No cases have occurred in the other two boroughs of the city. On December 28th there were still 61 smallpox patients remaining in the hospital on North Brother Island. Over 50,000 persons in Manhattan have been vaccinated by the inspectors of the department, and fully 80% of those had never before been vaccinated. In consequence of the general need of vaccination in the community the Board of Estimate and Apportionment has been asked to make a special appropriation for the payment of 150 additional vaccinators for the first three months of 1901, at the rate of \$100 a month.

ELECTRICAL COOKING.—At the dinner at the last meeting of the Medical Association of the Greater City of New York, through the kindness of Mr. L. Le Bailly, a friend of Dr. Achilles Rose, the members had the opportunity of practically testing the efficacy of electrical cooking. By means of the Cary electric broiler steaks are done to a turn in five minutes, chops in two and a half minutes, quail in four minutes and sliced bacon in two minutes; the almost equal rapidity with which they were disposed of showed how highly the viands were appreciated.

GIFT OF \$75,000 TO NEW YORK EYE AND EAR INFIRMARY.—Wm. C. Schermerhorn, second vice president of the New York Eye and Ear Infirmary, has presented to that institution \$75,000 for the construction of a pavilion for ear patients. The gift was made in consequence of a perusal of the advance sheets

of the annual reports of the infirmary, which direct attention to the urgent need of such a building. In the year past an unusual number of serious cases have presented themselves, and during the last five months 200 mastoid operations have been performed.

*** FORMAL OPENING OF CORNELL MEDICAL SCHOOL.**—The sumptuous new building of the Cornell Medical School, on First Avenue, opposite Bellevue Hospital, the gift of Col. Oliver Payne, was formally opened and dedicated on Saturday afternoon, December 29th. Addresses were made by President Schurman, of Cornell University, and Governor Roosevelt, and by Dr. Lewis A. Stimson, professor of surgery, representing the Medical Faculty; after the exercises there was a reception in charge of Prof. Wm. M. Polk, dean of the faculty.

PURCHASE OF PLANT OF FLATBUSH WATER COMPANY.—The Board of Estimate has decided to purchase by condemnation proceedings the plant of Flatbush Water Company, of Brooklyn, valued at \$100,000. This company has for some years supplied the residents of the Flatbush district with water, and its contract with the city expired on December 31st. The supply is obtained from driven wells and the system includes several miles of mains.

HOSPITAL FOR U. S. MARINE-HOSPITAL SERVICE.—It is announced that the Treasury Department has in contemplation the construction of a new three-acre island, to be connected by a bulkhead with Ellis Island, in the harbor, and on this it is proposed to build a hospital for the United States Marine-Hospital Service, to take the place of the present institution on Staten Island, which has been found too inaccessible.

DISMISSAL OF DR. PETER M. WISE.—On December 20th Governor Roosevelt announced that he had dismissed from office Dr. Peter M. Wise, president of the State Commission in Lunacy, on the charge of malfeasance in office. The ground given for this action is the use of his official position by Dr. Wise in the interests of certain financial companies with which he was connected.

ELECTION OF OFFICERS, NEW YORK ACADEMY OF MEDICINE.—At the annual election of the New York Academy of Medicine, held December 20th, the following officers were elected: President, Dr. Robert F. Weir; Vice President, Dr. Charles L. Dana; Recording Secretary, Dr. John H. Huddleston; Corresponding Secretary, Dr. Louis J. Bishop.

BEQUESTS OF THE LATE HENRY VILLARD.—By the will of the late Henry Villard, which has just been offered for probate, \$50,000 each is left to Harvard and Columbia Universities, \$10,000 each to the German Hospital and Dispensary and the New York Infirmary for Women and Children, and \$5,000 to the Dobbs' Ferry Hospital Association.

CIGARETTES AND INSANITY.—In the trial at White Plains, Westchester County, of young Burnz for the murder of the postmaster of Scarsdale, in

which the defence was insanity caused by excessive cigarette smoking. Dr. Carlos MacDonald, the alienist expert, recently testified that during the past thirty years he had examined 50,000 persons as to their sanity, and that he had never known of a case of insanity brought on by cigarette smoking.

TYPHOID FEVER AT SING SING. — Dr. Irvin, resident physician of Sing Sing prison, has reported to the State Board of Health that the recent outbreak of typhoid fever in that institution was due to a break in the water-supply pipe, in consequence of which the water became contaminated by local sewage.

MEETING OF MEDICO-LEGAL SOCIETY. — At the annual meeting of the Medico-Legal Society, on December 19th, Clark Bell was elected president, and Dr. Albert Bach read a paper on the "Rehabilitation of the Medical Expert."

Miscellaneous.

A DEATH ASSOCIATED WITH USE OF THE RÖNTGEN RAYS.

In the *Lancet* for December 8, 1900, a case is reported of a woman of sixty-eight, who met with an accident resulting in a fracture of the left hip. For purposes of diagnosis two x-ray photographs were taken, with exposures of thirty-five and forty-five minutes respectively. These not being deemed satisfactory a third attempt was made, with an exposure of forty-five minutes. Several days after the second exposure an x-ray dermatitis developed which finally resulted in a sloughing ulcer. Several months later the patient died, not having recovered from the effects of the x-rays. The photographing was done by a non-medical, under the general direction of the physician in charge of the case. At the autopsy the wound had lost its slough, but there was little sign of repair. The heart was flabby and the blood vessels degenerated. The coroner's jury in the case returned the following unanimous verdict: "That the deceased met her death from shock and exhaustion following the accident and the effects of the Röntgen rays upon a weakened system. No blame attached to either the medical man or the photographer."

Commenting on the case the *Lancet* says: "With regard to this case it may be remarked that the fact that the friends of the deceased not having been represented by expert evidence detracts somewhat from the value of the inquiry. It was admitted that no note was made of the time of the exposure, the distance of the tube from the plate, and other details that cannot safely be left to the memory. From the evidence it is clear that a burn resulted from prolonged exposure to the focus-tube, probably from the third exposure of forty-five minutes on April 27th, as the rash appeared seven days after that date. However, the fact that the first exposures were not followed by dermatitis during the thirteen days that elapsed does not absolve those exposures from all blame. It is reasonable to assume that the degenerative changes in the body of the deceased were indirect factors in the causation of the burn just as they were in the fracture of the hip. Unfortunately, for rea-

sons already stated, the full details of the exposures are not available. At the same time we are told of one important differing condition of experiment — namely, that the surface of the body was not protected by clothing on the third exposure, the one from which the damage in all probability resulted. No mention was made of the crucial point of the distance of the focus-tube from the skin. As regards the responsibility of a medical man who engages a non-medical man to take a Röntgen photograph the matter is not advanced by this case. The fact that the patient consents to the photography can hardly absolve the medical attendant. If the latter hands over the operation to a non-medical man it is a question how far he is relieved of responsibility. A chemist is responsible for errors in dispensing a prescription, but he is licensed to practise pharmacy, whereas the electrical or photographic worker with the rays has no such recognized and tested legal status. If the non-medical photographer had undertaken the case for the local hospital what would have been the position of the committee of that institution in the matter? On the other hand, the employment of a medical Röntgen ray expert would clearly absolve a medical man of further responsibility. Any medical operator must have hesitated to expose to the rays for forty-five minutes an old lady who had been laid up for five or six weeks with a broken hip. It seems undesirable, moreover, that female patients should be submitted to the manipulation of instrument makers and other non-medical workers with the rays."

Correspondence.

TYPHOID FEVER VS. APPENDICITIS.

BOSTON, December 26, 1900.

MR. EDITOR:—The wide prevalence of typhoid fever should be borne in mind in the consideration of acute abdominal emergencies which demand operation; for under a mistaken diagnosis an atypical typhoid may be operated upon as an appendicitis. If the truth were known, I believe it would appear that not a few cases of typhoid fever have been operated upon because pain and tenderness have been prominent symptoms in the early days of the attack. Cases which begin with malaise and a high temperature, and which develop pain and tenderness secondarily, should be scanned with the greatest care. I have recently seen 4 cases in 3 of which my suspicions were first aroused by an early temperature of 103° to 105° . So high a temperature in suspected appendicitis is sufficient always to excite a doubt, for even the severe cases rarely show so high a fever. When constitutional signs are the most prominent, and local the least, abdominal cases demand the most careful investigation and the most conservative treatment. Of the 4 cases 1 proved to be an acute obstruction from a congenital band, — a chronic and incomplete obstruction so aggravated during the early days of typhoid by the distention of the small intestine as to become acute and complete. The second case marked by high temperature and abdominal tenderness, proved to be a simple febricula dependent upon an injury in the foot-ball field in an overtrained and sensitive boy. The third, beginning with malaise and high temperature, presented, on the third or fourth day, a sudden excruciating abdominal pain starting in the epigastrium and becoming localized in the right iliac fossa, but without local physical signs. It proved to be a typhoid of the severest type, and is now in its third week. The fourth patient, a boy of eleven, had

been prepared for operation for a second attack of acute appendicitis. The symptoms were headache, malaise, very high temperature, with later development of general abdominal tenderness without pain. The attending physician and the surgeon had considered the possibility of typhoid, but were not convinced that appendicitis was not present. I advised against operation on the ground that it was not appendicitis, and asked that a medical man be consulted. The consultant agreed with the others that the disease was probably appendicitis, but of a type which did not at that time demand operation. I could never make myself believe that the appendix was diseased, and took with extreme reluctance the great responsibility of opposing operation. The disease proved to be a typical typhoid of unusually severe type. The tenderness lasted a number of days. The temperature has been a sustained high one. There have been several hemorrhages, and at present the child has pneumonia.

The dangers of a surgical operation performed in the course of typhoid are great, as has been shown by the excessive mortality in the surgical emergency occurring during this disease. I do not now refer to that terrible emergency of the disease, perforation of the typhoidal ulcer, but to such complications as gall-bladder and other indirect infections; to emergencies not in the least dependent upon the disease, such as strangulated hernias and other external and accidental complications. The consequence of an error in diagnosis may be extremely unfortunate for the patient, however desirable the removal of an appendix in health may be. For the surgeon there can be no greater mortification than that which he feels when a normal appendix is found among intestines showing unmistakable signs of typhoid fever. Even with the greatest care this mistake may be made. It is humiliating only when the diagnosis has been so hasty, not to say careless, that typhoid has not even been thought of.

Yours respectfully,

M. H. RICHARDSON, M.D.

KIRKES' PHYSIOLOGY.

KING'S COLLEGE, LONDON, December 7, 1900.

MR. EDITOR: My notice has been drawn to the reviews published in your issue of November 8, 1900, of the two rival editions of "Kirk's Physiology," and I must thank you and your reviewer for the determined stand you have made in the interests of international honesty. I have also seen Dr. Warren Coleman's reply, published on November 22, 1900.

Your reviewer mentions specially the figures of blood crystals as having been "lifted" from my edition without any acknowledgment. These figures occurred in the "Hand-book" before I undertook the editorship of the authorized version, and so far Dr. Warren Coleman might appear to score a point. The facts are, however, (1) that Messrs. Wood have never acquired any rights at all from the English owners and editors of the book; (2) when the work was under the charge of Mr. Morratt Baker and Dr. Vincent Harris, an edition authorized by the proprietors of the book was published by Messrs. Blakiston; (3) that Messrs. Wood have continued to publish their edition in spite of repeated remonstrances, and that their use of Mr. Baker's and Dr. Harris's names and of the materials introduced by those gentlemen is as improper as the use of materials introduced by me.

There are, however, other figures which have been pilfered from those which I have added to the book (Fig. 167 A and Fig. 340 of Wood's sixteenth American edition). The ethics of the proceeding are the same whether "lifting" has occurred in one part of the book or in another. The other statements contained in your reviewer's note are correct, and Dr. Warren Coleman has made no attempt to answer these, obviously because he is unable to deny their truth. I remain yours faithfully,

W. D. HALLIBURTON.

METEOROLOGICAL RECORD

For the week ending December 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer. Daily mean.	Thermometer. Daily mean. Maximum. Minimum.	Relative humidity. Daily mean. 8.00 A. M. 3.00 P. M.	Direction of wind. 8.00 A. M. 3.00 P. M.	Velocity of wind. 8.00 A. M. 3.00 P. M.	Weather. 8.00 A. M. 3.00 P. M.	Rainfall in inches.
S., 16	30.40	18 23	14 92	67 80	N. N.W.	16 9	N. O. C.
M., 17	30.35	20 30	15 97	49 48	N.W. W.	16 9	N. O. C.
T., 18	30.20	30 43	17 44	4 54	S.W. S.W.	3 13	C. C. C.
W., 19	30.04	40 48	31 65	73 73	S.W. W.	8 11	O. C. C.
T., 20	29.95	39 46	32 76	71 71	S.W. N.	12 11	C. C. C.
F., 21	29.94	32 47	28 72	70 71	N. N.	14 13	O. O. C.
S., 22	30.07	36 44	27 82	43 62	N.W. S.W.	8 8	F. C. C.

* O, cloudy; C, clear; F, fair; G, fog; H, haze; S, smoky; N, rain; T, threatening; N, snow. † Ind. as trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 22, 1900.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrhæal diseases.	Typhoid fever.	Diphtheria and croup.
New York . . .	3,437,202	1186	347	23.35	16.43	1.26	1.85	5.31
Chicago . . .	1,698,473	—	—	—	—	—	—	—
Philadelphia . . .	1,098,697	463	116	23.11	13.82	—	2.16	5.18
St. Louis . . .	575,238	—	—	—	—	—	—	—
Baltimore . . .	508,957	154	61	23.22	16.51	2.58	3.61	2.58
Cleveland . . .	381,768	—	—	—	—	—	—	—
Buffalo . . .	352,377	—	—	—	—	—	—	—
Cincinnati . . .	325,902	—	—	—	—	—	—	—
Pittsburg . . .	221,616	105	61	28.57	16.38	4.76	9.52	1.90
Washington . . .	278,718	—	—	—	—	—	—	—
Milwaukee . . .	285,315	—	—	—	—	—	—	—
Providence . . .	175,597	55	12	27.50	14.56	1.82	3.64	3.64
Boston . . .	504,892	193	54	27.79	14.50	1.03	2.59	7.77
Worcester . . .	118,421	35	21	30.00	31.43	—	—	8.58
Fall River . . .	104,861	37	14	21.60	14.51	2.70	5.40	2.70
Lowell . . .	94,869	34	8	8.82	32.34	—	—	—
Cambridge . . .	91,886	23	4	30.43	17.40	—	—	13.05
Lynn . . .	68,513	—	—	—	—	—	—	—
Lawrence . . .	67,551	8	6	6.25	31.25	—	—	—
New Bedford . . .	62,412	19	5	31.04	10.52	—	10.52	—
Springfield . . .	62,049	18	3	22.54	22.24	—	11.12	5.56
Somerville . . .	61,643	10	4	30.00	30.00	—	—	10.00
Holyoke . . .	45,712	14	7	21.42	35.00	—	—	14.28
Brockton . . .	40,663	9	4	44.44	11.11	—	—	11.11
Haverhill . . .	31,172	4	—	25.00	—	—	—	25.00
Salem . . .	30,656	10	2	30.00	10.00	—	—	10.00
Chelsea . . .	34,072	16	4	12.50	—	—	—	6.25
Malden . . .	33,664	5	1	0.00	—	—	—	—
Newton . . .	33,587	8	5	25.00	—	—	—	—
Fitchburg . . .	31,551	6	3	33.33	33.33	—	—	16.66
Taunton . . .	31,036	7	2	14.29	57.12	—	—	—
Glooucester . . .	26,121	2	1	50.00	—	—	—	50.00
Everett . . .	24,356	7	3	—	42.84	—	—	—
North Adams . . .	24,200	8	5	25.00	12.50	—	12.50	—
Quincy . . .	23,849	5	1	20.00	—	—	—	—
Waltham . . .	23,481	7	3	—	—	—	—	—
Pittsfield . . .	21,705	1	—	—	—	—	—	—
Brookline . . .	19,855	—	—	—	—	—	—	—
Chicopee . . .	19,167	8	3	25.00	—	12.50	—	—
Medford . . .	18,214	2	—	50.00	—	—	50.00	—
Newburyport . . .	14,378	6	2	33.33	16.66	—	—	—
Melrose . . .	12,362	4	1	—	—	—	—	—

Deaths reported 2,518; under five years of age 735; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrhæal diseases, whooping cough, erysipelas, fevers and consumption) 854; acute lung diseases 404; consumption 294; diphtheria and croup 129; typhoid fever 165; diarrhæal diseases 30; scarlet fever 23; whooping cough 17; cerebrospinal meningitis 10; measles 8.

From whooping cough New York 8, Pittsburg 3, Philadelphia and Baltimore 2 each, Boston and Worcester 1 each. From cerebrospinal meningitis New York 5, Pittsburg, Lowell, Somerville, Salem and Newton 1 each. From scarlet fever New York 10, Boston 5, Philadelphia 4, Pittsburg, New Bedford,

Brockton and Malden 1 each. From measles New York 7, Boston 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,610,266, for the week ending December 8th, the death rate was 17.1. Deaths reported 3,937: acute diseases of the respiratory organs (London) 400, diphtheria 98, whooping cough 91, fever 35, measles 51, scarlet fever 35, diarrhea 23.

The death rates ranged from 11.5 in Croydon to 22.1 in Hull; Birmingham 18.7, Blackburn 16.9, Bradford 15.0, Brighton 13.5, Cardiff 11.8, Derby 16.9, Gateshead 16.7, Halifax 16.6, Leeds 16.7, Liverpool 21.9, London 17.5, Manchester 20.6, Newcastle-on-Tyne 16.9, Nottingham 19.3, Portsmouth 13.6, Sheffield 21.5, Sunderland 21.2, Swansea 15.3, West Ham 14.4.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 29, 1900.

R. E. LEDBETTER, assistant surgeon, detached from the "Monongahela" and ordered to the "Constitution."

C. R. BURR, assistant surgeon, order of December 19th revoked; ordered to resume duties on the "Monongahela."

C. P. BRADLEY, medical director, commissioned medical director from May 31, 1900.

F. FITZSIMONS, medical director, commissioned medical director from November 19, 1900.

W. H. JONES, medical inspector, retired, died at Bethlehem, Pa., December 13, 1900.

S. S. RODMAN and J. M. BRISTER, assistant surgeons, appointed from December 14, 1900.

C. H. BARBER, surgeon, commissioned surgeon from June 7, 1900.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING DECEMBER 27, 1900.

PURVANCE, GEORGE, surgeon. To report at Washington, D. C., for temporary duty. December 14, 1900.

SAWTELLE, H. W., surgeon. Granted leave of absence for thirty days from January 20, 1901. December 18, 1900.

WHITE, J. H., surgeon. Bureau letter of October 14, 1900, granting Surgeon White leave of absence for thirty days, amended so that said leave shall be for twelve days only. December 18, 1900.

CARRINGTON, P. M., surgeon. Granted leave of absence for thirty days on account of sickness. December 18, 1900. Relieved from duty at Washington, D. C., and directed to report to Fort Stanton, N. M., and assume command of the service, relieving Passed Assistant Surgeon J. O. COBB. December 18, 1900.

COBB, J. O., passed assistant surgeon. Relieved from command of service at Fort Stanton, N. M., and directed to report to medical officer in command for duty. December 20, 1900.

ROSENAU, M. J., passed assistant surgeon. Upon completion of duty at Paris, France, to rejoin station as director of Hygienic Laboratory, Washington, D. C. December 19, 1900.

McMULLEN, JOHN, assistant surgeon. Relieved from duty at Tortugas Quarantine and directed to proceed to Savannah, Ga., Quarantine Station for temporary duty. December 15, 1900.

KORN, W. A., assistant surgeon. Granted leave of absence for seven days from December 24th. December 17, 1900.

OLSEN, E. T., junior hospital steward. Granted leave of absence for ten days from December 24th. December 7, 1900.

McINTOSH, W. P., surgeon. To proceed to Columbus, Ga., for special temporary duty. December 23, 1900.

DECKER, C. E., assistant surgeon. Granted leave of absence for fourteen days on account of sickness. December 21, 1900.

BAHRENBURG, L. P. II., assistant surgeon. Relieved from duty at the Immigration Depot, New York, N. Y., and directed to proceed to Manila, P. I., and report to the chief quarantine officer for duty. December 27, 1900.

DUFFY, FRANK, acting assistant surgeon. Granted leave of absence for six days from December 29th. December 24, 1900.

LINLEY, W. J., acting assistant surgeon. Granted leave of absence for thirty days. December 22, 1900.

APPOINTMENT.

A. C. FRASER, of Wisconsin, appointed acting assistant surgeon for duty at the port of Manitowish, Wis. December 17, 1900.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the society will be held at the Medical Library, 19 Boylston Place, on Monday, January 7th, at 8.15 P. M. Papers: Dr. Joel K. Goldthwait, "Diseases of the Spine of Non-tubercular Origin."

Dr. Elliott G. Brackett, "Attitudinal Strains of the Spine."

Dr. Robt. W. Lovett, "The Neuroathetic Spine."

Dr. John Dane, "Thoracic Pressure in Spinal Supports," Dr. Fredk. J. Cotton, "A New Method of Application of Plaster Jackets."

Dr. J. S. Stone, "Rhachitic Spine."

Election of officers at 9 P. M.

ARTHUR K. STONE, M.D., Secretary, 657 Boylston Street.

RECENT DEATHS.

GEORGE G. TARBELL, M.D., M.M.S.S., died December 28th, at the age of fifty-nine years.

EDWARD A. SMITH, M.D., of New York, died on December 11th. He was born in Stonington, Conn., in 1830, and was a graduate of the Medical Department of the University of Pennsylvania. He at one time served as assistant physician in the State Insane Asylum at Worcester.

ULYSSES H. BROWN, M.D., a distinguished eye and ear specialist of Syracuse, died suddenly in New York, on December 27th, at the age of forty-eight.

ISAAC WARD FERRIS, M.D., of Mount Vernon, N. Y., died on December 25th, in the sixty-first year of his age. He was a son of the late Chancellor Ferris, of the University of the City of New York, and was a graduate of the University and of the Yale Medical School.

BOOKS AND PAMPHLETS RECEIVED.

Thirtieth Annual Report of the Central State Hospital of Virginia (Petersburg, Va.) for the Fiscal Year ending September 30, 1900.

The Treatment of Fractures. By W. L. Estes, A.M., M.D., Director and Physician, etc., St. Luke's Hospital, South Bethlehem, Pa. New York: International Journal of Surgery Co. 1900.

Sanity of Mind: A Study of its Conditions and of the Means to its Development and Preservation. By David F. Lincoln, M.D. New York: G. P. Putnam's Sons. London: The Knickerbocker Press. 1900.

Refraction and How to Refract, including Sections on Optics, Retinoscopy, the Fitting of Spectacles and Eyeglasses, etc. By James Thorington, A.M., M.D. Second edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1900.

Comparative Physiology of the Brain and Comparative Psychology. By Jacques Loeb, M.D., Professor of Physiology in the University of Chicago. Illustrated. New York: G. P. Putnam's Sons. London: John Murray. 1900.

Therapeutics: Its Principles and Practice. By Horatio C. Wood, M.D., LL.D. Eleventh edition, remodelled and in greater part rewritten. By Horatio C. Wood, M.D., and Horatio C. Wood, Jr., M.D. Philadelphia and London: J. B. Lippincott Co. 1900.

The Medical Examination of Life Insurance and its Associated Clinical Methods, with Chapters on the Insurance of Substandard Lives and Accident Insurance. By Charles Lyman Greene, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1900.

A Compend of Diseases of the Skin. By Jay F. Schamberg, A.B., M.D., Professor of Diseases of the Skin, Philadelphia Polytechnic and College for Graduates in Medicine, etc. Second edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1900.

Diseases of the Nervous System: A Textbook for Students and Practitioners of Medicine. By H. Oppenheim, M.D. Authorized translation by Edward E. Mayer, A.M., M.D. First American from the second revised and enlarged German edition. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1900.

Text-book of Histology, including the Microscopic Technique. By Dr. Philip Söder, Professor of Anatomy at the University of Würzburg. Third American from eighth German edition. Translated by Dr. Emma L. Bristen. Edited with additions by Dr. Alfred Schaper. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1900.

Abstract of Report on the Origin and Spread of Typhoid Fever in U. S. Military Camps during the Spanish War of 1898. By Walter Reed, Major and Surgeon, U. S. Army, Victor C. Vaughan, Major and Division Surgeon, U. S. Volunteers, and Edward O. Shakespeare, Major and Brigade Surgeon, U. S. Volunteers. Washington. 1900.

Obstetric Clinic. By Denslow Lewis, Ph.C., M.D., Professor of Gynecology in the Chicago Polyclinic, etc. A Series of Clinical Lectures on Practical Obstetrics delivered to Students and Practitioners in Cook County Hospital, Chicago, together with Remarks on Criminal Abortion, Infanticide, Bigamy, the Restriction of Venereal Diseases, the Regulation of Prostitution and other Medico-Sociologic Subjects. Chicago: E. H. Colegrove. 1900.

Original Articles.

A SHORT ACCOUNT OF THE RECENT INTERNATIONAL MEDICAL CONGRESS IN PARIS.¹

BY HENRY BARTON JACOBS, M.D.,

Instructor in Medicine, Johns Hopkins Medical School, Baltimore, Md.; Secretary of the American National Committee.

IN whatever I may have to say I am largely forestalled by the excellent reports of the congress published in the *Boston Medical and Surgical Journal* during August, September and October.

The recent International Medical Congress is numbered thirteen in the series of International Congresses that have been held. The first, like this last, met in Paris during an exposition year. French physicians were contemplating arrangements for the annual gathering of their National Medical Association in 1867, when it occurred to the executive committee that it might be agreeable and becoming to ask a number of foreign physicians likely to visit the exhibition to attend the sessions of the association. Forthwith, invitations were sent out and several foreign vice presidents appointed. Fully 500 gentlemen from outside of France responded to this cordial request. The meeting was such an eminent success that Dr. Pantaleoni, of Italy, suggested it should be considered the first of a series of meetings held from time to time, to be known as the International Medical Congress. The suggestion met with universal favor, and accordingly it was voted that the second congress should meet in Italy in honor of Dr. Pantaleoni's nationality, two years hence, in 1869. Rome at this time was still under papal supremacy, so Florence was selected, that there might be no embarrassment to Protestant nations. Then came the Franco-Prussian War, and we find the third meeting postponed until 1873 at Vienna, following which the fourth, fifth, sixth and seventh occurred at intervals of two years at Brussels, Geneva, Amsterdam and London, respectively. All proved interesting to a constantly increasing number of attendants, though until that of 1881, in London, the American profession had taken no signal notice of their occurrence. Nearly every one was marked by the announcement of some important step in medicine, so that a study of the proceedings of these congresses during their existence will acquaint one with the main steps in the progress of medicine through these years. I call to mind that of 1875, at Brussels, when the transmissibility of puerperal fever at last became so fully recognized that a series of resolutions were passed recommending the abandonment of large lying-in hospitals; that of 1879, when Lister, with his fresh views upon the significance of antiseptics, was the hero of the hour.

With the meeting in London in 1881 begins the real modern conception of medicine from the new etiological point of view—the importance of the exclusion of pathogenic parasitic life to the health of the individual. Each congress since has left a more or less distinct footprint in the evolution of this conception.

Following London were the meetings at three-year intervals at Copenhagen in 1884; Washington, 1887; Berlin, 1890; Rome, 1894; Moscow, 1897, and now Paris, 1900.

Of those preceding this last I have little to say; for

¹ Read before the Boston Society for Medical Improvement, December 10, 1900.

many reasons, not all of which are wholly creditable to our American profession, the meeting in Washington in 1887 was the least satisfactory of the series, while that in Berlin in 1890 was one of the most satisfactory—all the world was there, eager, expectant, to see and to listen to the man who might be about to proclaim to all future generations the same relief in that great devastating disease of tuberculosis which Jenner a little less than a hundred years before had made possible in the great cure of his time. Koch spoke, the world hearkened, but, alas, time has not yet proven that his words were prophetic.

Of no less interest were the meetings in 1894 in Rome and 1897 in Moscow. Each denotes an era of progression, the former having for its salient feature the full recognition of the possibilities of serum therapy, while at Moscow, as has been well said, the world first awoke to an appreciation of the high state of Russian medical science.

Before adjournment in 1897, Paris was selected as the next meeting place.

Professor Lannelongue, with Dr. A. Chauffard as secretary, and Dr. Du Floq as treasurer, and an executive board numbering some of the proudest names in French medicine today, such as Bouchard, Brouardel, Raymond and Roux, went diligently to work to inaugurate the congress of this year, that which should be destined to mark the medicine of the civilized world at the end of the nineteenth century. With what success he accomplished his purpose I shall but vainly, I fear, be able to tell you. Whatever the success, however, I am sure he would be the very first to share it with his indefatigable colleagues, especially the secretary, Dr. Chauffard, and the treasurer, Dr. Du Floq.

Perhaps a word in regard to these three men as I saw them may not be out of place. I am sorry I have not good photographs to show you. They convey so much better impressions than mere words, but I have a newspaper print of President Lannelongue which will convey slightly, perhaps, an idea of his personality. It is almost libellous to show it; it does the man such an injustice.

Lannelongue is about sixty years old, heavily built, of florid complexion, with large, laughing, keen brown eyes, set wide apart, an attractive smile; full of dignity and composure, yet alert and vigorous, professor of surgical pathology in the Faculty of Medicine and honored with the distinction of being a member of the Institute as well as of the Academy of Medicine. One rare faculty he possesses—that possessed to such an eminent degree by the late Mr. Blaine—the faculty of remembering face and name of any individual introduced to him. This alone made him a most popular and valuable head, for his geniality and readiness to recognize even the smallest of those presented could but attract and encourage good feelings.

Chauffard is young, perhaps thirty-eight, slight, wiry, active, nervous, full of executive ability, not forgetful of the minutest details. To him, perhaps, more than to any one else, is due the perfect organization of the congress, and for his efforts he has been decorated with the insignia of the Legion of Honor.

Du Floq, the treasurer, is also young, genial, kind, honest, thoughtful of every one, methodical to a degree, the man to whom you would trust your all.

Fortunately, no fixed rules, except of their own making, confined these men in their undertaking, and

they were able to organize the congress along their own lines. The first move, so far as could be seen at this distance, was the selection from each nation of the world of a physician who should become chairman of the national committee of his country, he naming this committee from the leaders of the profession. I need not tell you that Professor Osler of Baltimore was asked to fill this office in America, and that he named the presidents of the leading national associations as his committee.

As in the preceding congresses at Moscow, Rome and Berlin, the numbers responding, especially among foreigners, were very gratifying, and on Sunday, the 5th of August, as many as 6,200 representatives from thirty-four nations of the world had registered their attendance, together with some 3,000 wives, sisters and daughters, an attendance, therefore, on this day of nearly 10,000 persons. Nor is it to be wondered at: not only was it a congress at the end of a century, but it was in connection with a great international exposition of arts and sciences, and, moreover, held in Paris — Paris with its Louvre, its Seine, its Champs-Élysées, its Beaux-Arts, its Notre Dame.

The registration of this large body of people, speaking nearly all the languages of the globe, was done most expeditiously and satisfactorily. In no less a cosmopolitan city would it have been possible. Volunteer students from all nations were stationed behind tables stretched along the arcade bounding the inner court of the École Pratique. Each proclaimed his nationality by a big sign attached to the wall over his head. Each had the subscription list of that nation, and the registration blanks, invitations, tickets, etc., of each subscriber. It all went like clockwork, so careful and painstaking had been the organization.

A glance at these 6,000 names: Two thousand two hundred of them are French, 800 Russian, 600 German, 400 American (that is, from the United States), 300 Italian, 200 British, and notice 108 from Argentine Republic and 43 from Japan. The United States, therefore, stood fourth in respect to numbers, and Great Britain sixth. The latter's low figures are to be easily accounted for by considering the strained political relations of the two countries for the past several years; the Fashoda incident, the warm, ill-concealed, even outspoken sympathy of the English for Dreyfus, and their threats of boycotting the exposition in case he was not pardoned. Then, in their turn, the French caricatures of those sacred to the English hearts, and their pronounced advocacy of the Boer cause.

But why the numbers of Americans should have fallen from 657 present at the tenth congress in Berlin to 112 at the present one is hard to explain. It must be admitted that many in the United States are not believers in the usefulness of International Congresses, while many more perhaps considered that this would be an expensive and uncomfortable year to visit Paris. I am sorry to say I feel that here in New England men were influenced to remain at home by the statements of "Spectator," whose letter appeared in your JOURNAL on March 8, 1900. As I walked the streets of Paris, attended the meetings of the congress, visited the houses of the French, receiving nothing but kindness and courtesy on all hands, I often wondered who this unfortunate individual could be that his life should be cast in such

unhappy lines, why perchance he did not leave the hostile shores rather than stay on only to suffer and to complain. How different his letter from those other letters written some seventy years ago by that enthusiastic, lovable young Bostonian, James Jackson, studying in Paris — letters so full of gratitude for the opportunities afforded, so full of affection for the masters with whom he worked, so full of praise of the privileges of living and enjoying Paris, knowing her language and learning from her great teachers — Louis, Andral, and Chomel. Unhappily, the officers of the French Congress saw the letter and were very much hurt, not only that such an one should have been written, but also that it should have had credence in any American town.

But who are the individuals making up these 6,000 names? I will cite but a few examples. Are they the young, the obscure, the unknown? I need not quote those of France; all the well-known men of this generation are to be found there. Germany: Virchow, von Bergmann, Elstein, Naunyn. Italy: Golgi, Bianchi, Baccelli. Austria: Albert, Danielski, Kaposi. Great Britain: Lister, MacCormac, Dyce Duckworth, Mayo Robson, Lauder Brunton. United States: Jacobi, Janeway, Bradford, Murphy, Keen, Richardson, Weir, Warren. The leaders of medical thought the world over.

The hotel accommodations of the city proved ample, not only to care for the visiting doctors and their families, but also for the thousands of other people attending the Exposition, and pries, too, contrary to the general prediction, were not excessive. I had a very comfortable room in one of the best hotels, near the Vendôme Column, for twelve francs a day (28.40). One could scarce do better here in Boston, even in the midst of summer, and, if one chose the pensions or mere lodging houses, especially in the Latin Quarter, it is remarkable how cheaply one might live. A young friend found lodgment in the most delightful of quarters with the cousin of Victor Hugo, now a charming old gentleman of seventy, who has gathered about him and preserved nearly all of the great novelist's treasures, bric-a-brac, the table upon which he wrote, the ink stand in which he dipped his pen, even the bed in which he slept and the clothes which he wore, and yet in such surroundings and in company of such an intelligent and attractive landlord he paid but three francs a day for his room (sixty cents).

The last ten days of July had been excessively hot both in England and France, but with the advent of August came a cold rain, and throughout the remainder of the summer the weather on the continent of Europe could not have been more delightful. During the week of the congress occasional showers, fresh and cool like the April rains of New England, cleaned the streets and made the necessity of an overcoat at night imperative.

Registration began July 31st, and by noon of August 2d the majority of the members were enrolled. Across the street in the beautiful new part of the medical school each country was provided with a separate meeting place for its national committee and their compatriots. These served as the headquarters of each country where bulletins could be posted or engagements made. This little register kept in the United States room shows the names of many of the American members.

Although the work of the congress was divided

into many sections, the numerous amphitheatres of the medical school, the nearby Sorbonne, and the adjacent hospitals lent themselves most conveniently to their purposes, centralizing the sections for the most part within two or three minutes' walk.

As was admirably appropriate, the dermatologists met at the St. Louis Hospital, where the wards furnished ample resources for the demonstration of many of the most interesting skin affections, and indeed these demonstrations became an essential part of the work of that section. Likewise, the Pasteur Institute was appropriately designated for the Section of Bacteriology and Parasitology, and here Roux, Marmorek, Leveran and others were to be seen constantly in attendance.

The first official business of the congress was the reception by the President of the Republic of the national delegates. These numbered five to ten from each country, and some thirty-four countries were represented. It took place at the Elysée Palace at 10 o'clock on the morning of August 2d. Delegates were bidden to appear in full dress, wearing orders, decorations, etc. For the first time in my life I put on a dress-suit at 9 o'clock in the morning, and I must say I felt much as if I had been out over night. However, this proved one of the most interesting of the official functions of the congress. On arrival at the palace we were ushered into a very large reception room, beautifully decorated in white and gold, and hung with interesting tapestries of the Louis Quinze period. Here we found representatives of other nations gathered. Before the arrival of the President the delegates were grouped together by countries, and then these groups arranged alphabetically in a large semicircle about the room. The United States, under its French name of *Etats Unis*, stood between *Espagne* and *Grande Bretagne*. The sight of this array of 200 or 250 men I shall not soon forget. They were for the most part the leaders of the profession in their respective countries, and their countenances and dignified bearing easily denoted their high positions. Many connected with the army or navy were dressed in full uniform, and all possessing decorations of any sort did not fail to wear them. President Lannelongue in the green embroidered coat of the Institute, with red sash and rapier, von Bergmann most resplendent in orders and medals, Sir Wm. MacCormac, Virechow, Reverdin, Zambaca Pachia, are but a few of those who catch one's eye. Promptly at 10 a most distinguished looking butler, if I may call him such, in powdered hair, velvet coat, silk knee breeches, and white stockings announced in a loud voice "le Président de la République." Emile Loubet entered, escorted and followed by the president, secretary and treasurer of the congress, several of his ministers and a small body guard. Thereupon, Professor Lannelongue stepped forward, presented him to the delegates in a short, formal address, to which he immediately replied, expressing his pleasure in greeting so many distinguished representatives from so many countries.

During all this time our neighbors, the Spaniards, magnificent in dress and decorations, whose presence at our very elbows we could not think of without some little degree of embarrassment, inasmuch as we could but wonder how they looked upon us, their recent conquerors, kept up an incessant noisy, excited conversation. Something had gone wrong with them, and not even President Loubet's words could silence them. Such a nation are they for talk. What must

the Spanish Parliament have been during the trying days of Dewey's victory and Cervera's defeat!

After the President's general greeting, he proceeded within the circle, giving individual welcome to each state, hearing the names and shaking hands with many of the delegates. Arriving at *Etats Unis* he greeted us most warmly, congratulated us upon our country so pre-eminent in its arts and sciences, and bade us hearty welcome as representatives of one great republic to another. Dr. Warren, who happened to be standing nearest him, in a few fitting sentences, and, I am happy to say, in very good French, thanked him for his welcome. It seemed to be noticeable that there was an earnest desire, not only on the part of all the officials of the congress, but on the part of the President of the Republic as well, to give Americans a particularly cordial greeting, and make them feel at home in France.

The first general assemblage of the congress met in the afternoon of this day in the Salle des Fêtes of the exposition, a tremendous auditorium capable of holding 25,000 or 30,000 people, wonderful to look upon from a structural point of view, hexagonal in shape, with very high dome roof and immense galleries on five sides, with the stage or platform on the sixth. Here were seated the delegates in full dress and uniform, as in the morning. The congress opened with a full military band playing the "Marsellaise," and as the moving strains of this spirited national anthem filled the immense space and one looked down upon the thousands of physicians assembled from all over the civilized world, he could but feel the cold shivering of excitement and emotion creep along his spinal marrow. It was really a moment not to be missed. What matter the words of any individual whether they be heard or not? Here was an occasion when one realized perhaps for the first time what it meant to belong to this great body of workers, assembled here from all corners of the earth to learn of one another for the good of humanity. The President of the Republic was to have greeted the congress, but the recent death of the King of Italy and the consequent official state mourning did not allow him to appear on this public occasion, and one of the ministers of state performed the duty. After President Lannelongue's inaugural address, and a few words from Dr. Chauffard regarding the organization of the congress, representatives were called upon to reply for each country.

Some spoke in French, but as a rule they employed the national language of the country they represented. In the absence of Surgeon-General Sternberg, who had been detained on the Pacific Coast with duties connected with affairs in the Philippines, his official representative, Major La Garde, medical director of the army, in the full uniform of his rank, replied in a few well chosen words for the United States. He first alluded to our national admiration, respect, even reverence for the name of Pasteur, the great figure in modern medicine, a true citizen of France. Others following also touched upon the same subject, but none more gracefully than he.

The representative of Canada, Sir Wm. Hingston, received the great ovation of the day; thunders of applause greeted him as he arose, which died away only to be taken up again and again. What was its significance none of us could think; it was sug-

gested that he stood for the Roman Catholic party of Canada, and so the French of the Old Régime. But later it was said that he had been mistaken for Lord Lister, and the round upon round of applause was intended for that famous man. The mistake might well occur, for both are rather tall, distinguished looking men, with shape of head similar, both wear the same cut of beard, both are very gray, but I am not at all sure that the first explanation is not the correct one.

Following these addresses Professor Virchow, in behalf of Germany, and as the great representative of German medicine, read his paper upon "Traumatism and Infection." Still adhering to his early conceptions, he pleaded for greater attention to pure cell pathology, less for the microbe, and instanced the changes taking place in an extra-uterine fetus, where bacteria are presumably absent. The great size of the hall precluded the possibility of any but those immediately surrounding the speaker hearing his venerable words, and so, although one of the oldest and most eminent of medical scholars of the century was speaking, the audience gradually dwindled away, except those within easy reach of his voice.

On the afternoons of August 6th and 9th the second and third general assemblies were held in the large amphitheatre of the Sorbonne, and a beautiful auditorium it is, with its graceful galleries and fine mural decoration from the hands of France's own Chavannes. Large and enthusiastic audiences greeted the speakers representing the five other favored nations of the world. As I have said, Virchow spoke for Germany at the first assembly. Now followed the paper of Pavlov as representative of Russia; Baccelli, of Italy; Albert, of Austria; Burdon Sanderson, of Great Britain, and Dr. A. Jacobi, of the United States. The latter spoke in French, and was listened to with rapt attention, especially by the Europeans. To our shame it seems to me few Americans stood by our national representative at a time when he was responding to the honor conferred upon us by being invited to speak, and when he was doing such credit to our institutions and men, by telling an audience more or less ignorant of us what we had been, what we had come to be, and what was the great outlook for the future, when eyes now turned to the East should be prone to look to the setting rather than to the rising sun. No address received better attention, and none compared in the applause it evoked. That he spoke plainly, even bluntly, there is no doubt, but that he spoke truly is also beyond question. And he deserves our united thanks for the able and creditable manner in which he represented our country.

Before saying his farewell words Professor Lainglongue announced that it had been decided that the Fourteenth Congress should meet in Madrid in 1903 under the presidency of Professor Calleja, and that in behalf of the younger workers it was voted Ramon y Cajal, of Madrid, be given the Moscow prize of \$1,000 for his careful work on the minute structure of the nervous system.

The work of the various sections began on Friday morning, August 3d. I can scarcely attempt even to outline the work here carried on. Each had a long programme which required nearly the whole week, even with morning and afternoon sessions, to complete. If any papers were refused surely the list

presented did not show it, and in this lies the great possible criticism of this congress — possibly all general congresses. Instead of abstracts, each full paper should be submitted to committees from each section who, like editors, should sift the chaff from the wheat and allow only those of real merit to be read; but the duty is a delicate one, and probably no country is yet bold enough to undertake this reform. The whole programme included two hundred and sixty reports and more than one thousand two hundred communications. I will only speak of some of the sections I visited.

In the anatomical section important subjects, such as "Topography of the Brain," "The Ascending Tracts of the Cord," "The Formation of the Cortex," were discussed by no less authorities than Waldeyer, Van Gehuchten and His. In the sections of medical sciences the mooted questions of infection and immunity engaged much attention, and here were to be found the leaders along this line of thought so recently deduced in logical sequence from the developments of preceding years, namely, Grawitz, Buchner, Metschnikoff, Calmette, Rolet, Widai, Chantemesse. Toxins and antitoxins found exponents in Ehrlich and Roux; alimentation in Leube, Ewald, and Le Noir; paludism in Laveran, Grassi, while Behring opened a discussion upon tuberculosis and Borrell upon the parasites of cancer. Baumgarten, Ziegler, Weigert and Marinesco spoke upon inflammation and reparation of tissues.

The discussion upon the pathogeny of gout engaged in by Dyce Duckworth, Elstein, Le Gendre and others showed how far at variance were still our ideas upon this important subject and how much work was still at hand for the student of physiological chemistry and metabolism.

In no section was the work more thorough or more interesting than that in neurology, presided over as it was by Charcot's successor at the Salpêtrière, Professor Raymond. Here were to be seen the active workers of this intricate branch of medicine — names familiar to you all, Brissaud, Déjerine, Grasset, Marie, Hitzig, Bianchi, Marinesco, Ferrier, Leyden, Kraft-Ebing, Flechsig, and Voisin. A feature introduced at this section, and one most interesting to the members, was a daily clinical demonstration of some subject illustrated by a series of cases brought either from the Salpêtrière or the Bicêtre. The richness of these two hospitals in all forms of nervous disease warrants the statement that these demonstrations were most creditable and instructive.

Surgery, presided over by the venerable but still active Tillaux, was very largely attended, but of the character of the work done I am incompetent to speak. America, so sparingly represented in many other sections, was to be found among the surgical sciences with the names of physicians known to the world. Keen, of Philadelphia, reported his case of ligation of the abdominal aorta; Weir, of New York, suggested a new method of operating in cases of acute appendicitis, and Murphy, of Chicago, spoke upon intestinal obstruction, while Fenger, of Chicago, Young, Cullen, and Gilchrist, of Baltimore, Carl Beck, Palmer Dudley, of New York, and de Schweinitz, of Philadelphia, made themselves heard in their respective branches.

The practical work of French surgeons claimed much attention. Many of their clinics were con-

stantly full of visitors, and here in an informal way surgeons discussed cases and methods, and observed the work of their French brethren.

Particularly full was the clinic of Dr. Doyen, and at the time of my visit I found myself *vis-à-vis* with many of the most eminent and renowned surgeons of the day, watching like students the operations of this man. I almost hesitate to speak of his work. Doyen is perhaps forty years of age, strongly and muscularly built, with high, retreating forehead and deep set eyes. The newspaper cut will give you some idea of his appearance.

The story is that he is owner or part owner of one of the champagne brands, and so a man of very large means. For some years he practised in one of the provincial towns, then as his fame spread and he became more ambitious he moved to Paris, built a hospital in the new part not far from the entrance to the Bois, and there carried on his surgical work. The hospital is a model private institution, with some thirty-five or forty rooms comfortably, even elegantly, furnished, with modern plumbing, heating and lighting. His operating room is at the top of the house, and seems to be very well arranged. In the wall of the room, with door opening outward, is a beautiful sterilizer, whose contents can be reached in a second by assistant or nurse, while above is a fine clock with stop attachments, so that the length of an operation can be accurately timed. Near by are etherizing and recovery rooms, as well as library, museum, and rooms for the demonstration of surgical methods.

In his work Dr. Doyen is ambidextrous, every movement has its purpose, every action tells, but when I say to this audience that I saw him remove a cancer of the breast, clean out the axilla and sew up the wound in exactly *seven* minutes, I am sure you will agree with me that this is not surgery. Surgery, at least in these days, means so much more than mere dexterity in operating; it means deliberation, judgment, care, and especially in such cases as this, *thoroughness*.

After viewing this spectacle of race-track operating we were asked to take places in the next room, where cinematograph pictures of Dr. Doyen performing all sorts of capital operations were reeled off for our instruction, and indeed I am told that no longer is it necessary to cross the ocean to see these interesting representations, that in Chicago in one of the vitascopic exhibits, after a certain hour, ladies are invited to remove themselves, while the gentlemen are regaled with a series of Dr. Doyen's surgical pictures. For the truth of this I cannot vouch, but I know from a truthful gentleman that they are on exhibition in Buda Pesth.

Dr. Doyen is not a member of the Faculty of Medicine of Paris, but that he is treated with consideration, even if not with respect, is shown by the fact that he was allowed to present *seven* different papers in as many different sections of the congress — a résumé of all which, printed by himself, was circulated promiscuously among the thousands of visiting physicians. That he has genius there is no doubt, but that it is mechanical rather than surgical is exemplified by the large exhibition of surgical instruments which he has invented.

The other subject which attracted a great deal of attention was Tuffier's method of operating under spinal anesthesia. Indeed, if one thing rather than

another marked the attention of members of this congress it was this subject, and the manner in which it has been tried throughout the world since this meeting demonstrates clearly to my mind, what I perhaps ought not to say above a whisper here in Boston, namely, that there is felt a universal need for a new anesthetic. That in the minds of many surgeons the old have their strict limitations, and a large and increasing class of cases requires something different. This feeling has been evident for some time, as the tendency more and more to local anesthesia has been witnessed. I cannot think that it is a mere fad of the hour, but rather a genuine need, which this reaching out for new means represents. Tuffier seems not to have priority in the matter, but surely he, more than any one else, has called it to the world's attention. He uses the method boldly and maintains there is little or no risk. In the two cases I saw operated upon there was no question about the profoundness of the anesthesia to pain and although one of the patients showed symptoms of collapse with vomiting and sweating, neither symptom was very urgent nor lasted very many minutes. But this subject has been so largely considered in the medical journals within the last few weeks that I will not speak of it further.

If time permits, a word or two about the entertainment of members. Here, also, the death of Italy's king somewhat interfered with the plans proposed. The first general reception in the Luxembourg Palace proved rather a failure on account of one small oversight. Melancholy Jaques would have arranged it better, for he would have remembered that men and women must have their exits and their entrances. The programme was novel and should have been most delightful, the amount of refreshments would have done for a whole army corps, so lavishly had everything been provided, but as it was a cold night people found it too dangerous to wander about the beautifully illuminated gardens, and so the rooms of the palace became overcrowded, and the fine main stairway with its double row of faultlessly uniformed cuirassiers in plumed helmets became a scene of strife between the ascending and descending throngs. This same scene of strife was more exaggerated at the narrow doorway where the in and out going masses met in full collision like the rush lines of football teams. Finally, the in team obtained advantage and pushed its way along so completely that fully a half hour elapsed before those without could gain entrance.

Many of the presidents of sections gave dinners or receptions to their members. These were delightful, as here men doing the same work met in social intercourse, learning to know the human as well as the scientific side of their colleagues or correspondents.

One of the most enjoyable of the small entertainments at which I was a guest was a luncheon at the house of Professor Lannelongue. Few people were present, and besides Madame Lannelongue only one lady, Mademoiselle Virchow, who with her father was staying with the Lannelongues. Both host and hostess were very warm hearted and genial, and the evident affection and dependency existing between Virchow and his daughter was delightful to observe. Both spoke English fluently, putting me at least at my ease. I scarcely ever hoped to meet on such friendly and intimate terms the great German professor, and I assure you I appreciated the opportunity. Although within a month of eighty years old, he was as bright,

active and interested as a youth, seemed not to know fatigue, and was as direct and forceful in his conversation, and as kind and thoughtful of the younger members present, as is possible to conceive.

In passing I must not forget to remind you that the great feature of entertainment was provided by the Exposition. Time does not permit me to speak of this, though it holds its place in any reminiscences of the congress—an exposition, a credit to the nineteenth century and to France, the like of which has never been seen nor is likely soon again to be repeated.

For the national delegates the dinner given at the Elysée Palace by the President and Madame Loubet was very enjoyable. I wish time permitted me to give you some idea of the sumptuousness and regality of a French presidential dinner. Though the State be republican, surely her ruler is surrounded by all any prince of the blood could desire. But most interesting of all, perhaps, was the President's garden party, at which not only were our members invited, but also members of other congresses then in session in Paris—the press, the students, etc. Fully 10,000 people were entertained, the Shah of Persia included. Representations of dances at various eras were given by a *corps de ballet* from the Opera, and a most delightful and interesting presentation they gave. The stage erected for the occasion under the gigantic oaks of the garden was unusually picturesque, while particularly pretty was the minuet of Louis the Fourteenth.

Of the visiting Americans who are they who enjoyed the most, and in general got the most out of this congress? Surely, I shall say without hesitation, those who understand spoken German and French—not one of such whom I met but was pleased with everything, thankful that he had come, and regretful when it was over. Does it not seem shameful that in these days of ours, when science has become so completely cosmopolitan, especially medical science, and we are so interdependent one nation of workers upon another, that any single individual should be turned out of college with degree of Bachelor of Arts or of Sciences without complete speaking as well as reading knowledge of the three great languages of the time—English, French, and German? In this respect foreign universities, particularly Russian and German, are still far ahead of ours, and to our mortification be it said.

And now you will ask, what was accomplished by this great gathering? It is hard to put one's finger upon any one thing especially. Perhaps no absolutely new discovery was promulgated, perhaps no great knowledge was individually acquired, but the inspiration each one of us received in seeing, hearing, knowing, and being associated with our fellow physicians the world over, many of whose names will live forever in the history of medicine, was profound, and can but serve to stimulate us to a loftier desire to accomplish something useful in our chosen field, and to a further satisfaction in belonging to that noble army of workers whose only desired reward is that they may live to further the ends of civilization by relieving to some extent the ills of mankind.

It seems small and provincial to decry the usefulness of these International Medical Congresses, when the very leaders of our profession have not only commended them in words, but have lent their enthusiastic support by constant attendance and active partici-

tion in the proceedings. The great medical triumvirate of the second half of the nineteenth century have been among the most ardent and vigorous champions of these gatherings—Pasteur, Lister, Virchow. They were present at the first, have been seen at many another, and two of them, at least, were still able to gallantly receive the homage of their fellows at this last meeting. The twentieth century now opens before us. Happy, indeed, if it produces three such men!

THE RADICAL TREATMENT OF LACHRYMAL DISEASES.¹

BY WALTER B. LANCASTER, M.D., BOSTON.

THE great majority of cases of epiphora are amenable to the usual conservative treatment which consists of astringent and antiseptic collyria, syringing and probing, and occasional treatment of the nasal cavities. In spite of a judicious selection and skilful application of these methods there remain a considerable number of cases which are not relieved. To this class must be added those cases which might probably be cured, but cannot afford the time and expense of two to twelve months' treatment. A third class comprises those cases on which an operation is necessary, for example, for the extraction of cataract, which would not be safe so long as there is a focus of infection like the lachrymal sac communicating with the conjunctival sac.

In these three groups are comprised the cases for which something more radical must be done, since the prevalent methods are either frank failures or impracticable of application. I repeat that these cases are not rare and unusual, and that the disease is not only very annoying but a constant menace, threatening to cause ulceration of the cornea as the result of some slight abrasion which becomes infected from the discharge, or to cause phlegmonous inflammation as the result of infection of the tissue about the lachrymal sac. Any method of treatment which promises a quick and sure relief from such a condition is certainly worthy of attention.

Such a method, it is claimed, is to be found in extirpation of the lachrymal sac and gland, one or both as may be indicated. The surprising thing is that the operation has not become more common. Described as long ago as 1748, and, indeed, practised by the ancients, it has been practised or suggested by different writers with increasing frequency during the last fifty years, but has never become the fashion in this country. In 1881 40 cases of extirpation of the sac, operated on by Graefe, were reported; in 1889, 25 cases of extirpation of the gland by De Wecker. Since then an average of one to three reports have appeared every year on either sac or gland, nearly all favorable, almost all by European writers. Lawford is the only English, and Holmes, of Cincinnati, the chief American writer whom I have seen. In this vicinity the removal of the lachrymal sac by caustics or dissection, or both, has been practised at long intervals, the removal of the sac and gland apparently not at all. Hence I was inclined to assume that so obvious a method of treatment must have some decided drawbacks, or it would have gained greater vogue. The prejudice against it appears to have been either theoretical, based on insufficient knowledge of physiology,

¹ Read before the Boston Society for Medical Improvement, December 10, 1900.

which led men to say, "Remove the sac and close the duct and what becomes of the tears? Of course they run over! Remove the gland and what becomes of the cornea? Of course it dries up!" Or the objection has been that the operation was difficult, as most of the writers on the subject state. For example, Holmes says: "I do not consider the extirpation of the lachrymal sac and gland an easy operation." Czermak advises having two extra assistants who shall have nothing to do but hand sponges to the first assistant, and in general implies that the operation is somewhat formidable. Others take a similar view. A third possible explanation may be that the operation was not new, so that when it has been suggested the reply has been, "Oh, that has been tried before and given up." If it had been really new probably plenty would have been found to rush to try it, and of course report favorably.

With the sentiment rather strongly against the operation I waited for a fairly desperate case before venturing to try it. Such a case was encountered in a woman with an absolutely impermeable nasal duct and a lachrymal sac distended to the size of a small lemon by the long duration of the disease. It was filled with mucus, which was infected with ozena, and which could be expressed in enormous quantities into the conjunctival sac at any time. Appearance and odor were disgusting, and the patient was anxious for any operation to gain quick relief. She lived in the Provinces, and could not waste time over treatment. The result of dissecting out the sac was so entirely satisfactory, and the patient was so grateful, that I tried it on other cases, and have been more and more favorably impressed as cases presenting possibilities of various complications have resulted favorably.

Given a case on which a radical operation is needed, which shall we advise? Removal of sac or gland or both? Removal of the sac takes away the source of irritation, and not only does away with the disease of the sac and its dangers, but diminishes materially the flow of tears; for the secretion of tears is a reflex affair increased by any irritation of conjunctiva as well as by other causes, for example, by irritation of the nose or retina or by emotion. The overflow of the contents of the lachrymal sac into the eye keeps up a chronic conjunctivitis which excites an excess in the supply of tears. Experiments on guinea pigs indicate that the extirpation of the *normal* sac is followed by a diminution, not only of the activity, but also of the size of the lachrymal gland, apparently by a compensatory atrophy. Be that as it may, there is no doubt that removal of the *diseased* lachrymal sac is followed by diminished flow of tears, especially after any conjunctivitis which may have existed is cured. If the patient is exposed to irritation, however, as in cold, windy weather out of doors, there is a considerable surplus which fills the conjunctival sac and causes annoyance. Nevertheless, since the condition is so much improved, the majority of patients are well pleased. But if either the surgeon or the patient is critical he deems the result a partial success only, in many cases. For this reason the second step was suggested of removing the lachrymal gland.

The moisture of the conjunctival sac comes from the mucous membrane of the conjunctiva from the group of small glands called accessory, or palpebral, or inferior, and from the much larger primary or superior lachrymal gland. The accessory or smaller glands

may be reached through the conjunctiva, and many have limited their operation to the removal of these. The result is uncertain because the main effect depends, not on the removal of the accessory glands, themselves, which would be slight if it were possible to remove them alone, but on the damage done to the ducts of the large gland, which are numerous and pass through or among the smaller glands. Even the removal of the larger gland causes surprisingly little diminution in the apparent moisture of the conjunctival sac. It is only when the eye is exposed to stimulus that the difference is usually apparent, and then the diminution is relative. There is never an absolute dryness by any means. Our aim, I take it, should be to produce a condition where under ordinary stimulus no excess of moisture is present, and where, under any greater stimulus which the patient from his occupation is likely to encounter often, there is such slight overfilling of the eye as to require only occasional wiping. Since the diminution required is a relative one, there must be a difference of opinion between different operators as to how great a diminution each will call satisfactory. My experience has not been sufficient to make me dogmatic on this point. My present inclination is toward removing both sac and gland, and not only the large gland, but the greater part of the accessory as well.

There are some cases where removal of the gland without the removal of the sac seems to promise relief, and if so, is to be preferred. I mean those cases in which there is no obstruction to the lachrymal passage either to a probe of fair size or to water from a syringe, and yet the epiphora is great. Whether removal of the lachrymal glands would remedy this I cannot say from experience, for the only cases in which I have suggested it have not so far been operated. Favorable results are reported by De Wecker and others.

What are the dangers or disadvantages of the radical treatment? These may be divided into direct and indirect. Under direct results we must include the possibility of not obtaining primary healing of the wound, which might entail prolonged treatment with more or less disfiguring scar. Disfigurement might result from faulty technique. Should infection extend to the orbit the consequences of orbital abscess must be faced. If orbital hemorrhage of sufficient extent to cause blindness by injuring the optic nerve has followed strabismus operations, such a result might conceivably occur after extirpation of the lachrymal gland. The possibility of causing ptosis by damaging the levator in extirpating the gland has been suggested. As far as I know, none of these possibilities has been realized with the exception of the first. Some operators have failed to get primary union. In case this occurs after operating on the sac, and part of the mucous membrane has been left behind, the epithelium proliferates and an irregular suppurating cavity is formed which leaves the patient in nearly the same condition as before. Ectropion is reported as a result of faulty methods.

As an indirect result of an unfavorable character there is the possibility of excessive dryness after removal of the lachrymal glands. This is conceivable perhaps, but has never occurred as far as I have been able to learn.² There is also the possibility of injur-

² Holmes has reported 2 cases of temporal dryness which passed off in a few days.

ing the cornea during the operation by lack of care. It has been advised to protect the eye by a strip of plaster to keep the lids closed during the operation. In case an eye deprived of its main supply of irrigating fluid became infected, for example, in case of purulent conjunctivitis or keratitis, it seems likely that the lack of irrigation would put the eye at a decided disadvantage and necessitate most frequent artificial irrigation to take the place of the natural. On the other hand the removal of the sac which is a focus of infection renders such a keratitis or conjunctivitis less likely to occur. All these complications, including suppuration of the wound, are on the whole rather remote possibilities when proper technique is observed.

I know of but one instance of serious complication following the operation of removal of the lachrymal sac and gland. That was reported last spring by Veasey, and it seems clear that the keratitis which occurred was of an unusual type, and not to be regarded as a direct result of the operation *per se*. There was recovery with normal vision.

Since my object is to call attention to a method of treatment much neglected in this vicinity, I shall say nothing about the technique of the operation, but show some cases on which I have operated.

CASE I. This gentleman is a private patient, but was so well pleased with the result of the removal of his lachrymal sac that he is willing to be shown. He was probed more or less for six years, and had several lachrymal abscesses, with pretty constant epiphora between times. In removing the sac I excised the scars of the old abscesses and now, as you see, the cicatrix is practically invisible. He has some epiphora when the eye is exposed to irritation, for the gland was not removed. He is planning to have that done later. I advised waiting longer to see if removal of the sac alone would suffice.

CASE II. Removal of both sac and gland. This woman had epiphora with mucopurulent, bad-smelling discharge four years. She had abscesses every spring and fall. Her condition interfered seriously with her occupation as a domestic servant. The eye was "always running over." Now she states that once or twice a day it needs wiping, "sometimes it doesn't run at all." This case was operated less than two months ago, so that the scars have not yet disappeared. The first case has been done eight months. Both were done in five days.

These 2 are fair samples of the result in the other cases I have done, with one exception, which I will show after showing 3 recent cases to illustrate the immediate result—the amount of reaction—following the operation.

CASE III. This man has been treated in Paris and in Philadelphia by the usual methods. Result, O. S., imperforate stricture. O. D., probe $1\frac{1}{2}$ millimetres in diameter passes with little difficulty; sacs not enlarged, epiphora O. V. Sac and gland were removed on left side. Removal of gland alone advised on right side. It is only three and one-half weeks since the operation, and there are still plain traces of the ecchymosis and swelling and by palpation the induration about the buried skin sutures can be felt. The temporary ptosis which follows the operation as a result of swelling of the lid has not yet entirely disappeared. This patient was discharged on the fifth day, to come later on for operation on right eye.

CASE IV. This colored man has had long and serious trouble with his lachrymal drainage, his frontal and other accessory sinuses. He broke his nose thirty years ago at the age of six. When eleven years old he had an extensive lachrymal abscess, O. S., followed by prolonged suppuration, probably from caries. He found one day that he could blow out into his eye when he blew his nose. He says the doctors had failed to stop the discharge, but by practising this blowing he soon healed it up himself. It stopped discharging into the conjunctival sac, but the discharge into the nose still exists on both sides, though it has been much relieved recently by removing the anterior end of the middle turbinate, securing better drainage. As you see, his eyes are very wide apart, nearly 50% more than the average. This is the result of the tremendous thickening of the base of the nose from the formation of new bone which has gone on for so many years. When the lachrymal sac was removed the nasal duct was found to pass, not behind the lower inner margin of the orbit, but to enter the bone an inch below the margin of the orbit on the anterior surface of the superior maxilla. The whole sac was subcutaneous.

This case was operated on only ten days ago, and you can see that, as is usually the case, the chief reaction from the operation is an ecchymosis of skin and conjunctiva, and a slight swelling of the loose areolar tissue of the upper lid which causes a temporary ptosis of variable amount. You can feel the buried skin sutures.

CASE V. The last case I have to show is the least successful one I have done. This girl was treated by probing steadily for over a year. She dreaded it and it wore on her health. She fainted on more than one occasion when the eye was probed; once she was unconscious for over an hour, she says. Both small and large probes were tried.

The sac was removed with difficulty. It was the second case I had done and I did not do it as neatly as I ought. The scar is less conspicuous than the scars of her lachrymal abscesses which were excised, but there is a slight tendency to cicatricial ectropion, though not enough to expose the conjunctiva. If you look carefully you will see that the lower lid at its inner third does not rest against the eyeball as closely as it should. This makes an opportunity for mucus to collect. There is considerable chronic conjunctivitis which supplies the mucus. If the conjunctivitis were faithfully treated this condition would be relieved. The cause of the sagging of the lid is probably damage done to the orbicularis at the time of the operation plus slight cicatricial contraction. Six months ago this could be easily seen and therefore the case was not classed as a success. It is steadily diminishing and today is hardly noticeable. The patient and her family regard it as a success. Being relieved from her previous condition she has neglected to treat the conjunctivitis. I have shown it that your impression may be a fair one, not founded on selected cases.

I wish to emphasize one more point. You will find if you interrogate these 5 patients (and the same is true of all the others I have operated on, some half dozen in number) that as far as they themselves are concerned they are sure that they are better. The evident sincerity and the emphasis with which they state this, and stick to it in spite of cross-ques-

tioning, constitute an unanswerable argument in favor of the operation.

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AN OPERATION FOR CATARACT.¹

BY EDWARD L. PARKS, M.D., BOSTON.

Ox the 14th of December, 1892, an Italian woman, thirty-five years old, was brought to my office by her brother. As she was nearly blind, she was led to a chair by my table. When asked if she could see me sitting before her, she replied that she could see only an indistinct form. I handed her my watch and asked her to tell me the time. With her right eye turned inward, the watch held closely to it on the other side of her nose, after a few minutes' study, she told me the time correctly.

A careful examination of both eyes was made. The right eye was undeveloped. In the left eye perception and projection of light were good. I diagnosed in the left eye a capsuloretaceous cataract. With Leiter's electric light I was unable to penetrate it or to discover how large a proportion was capsular and how large retaceous.

I talked to her substantially as follows: "It is a pity that a woman of your age should be blind. I will have nothing whatever to do with your right eye. I can do an operation on your left eye which will let in light, but I cannot promise that you will see. I will operate if you will give me authority to stop at any time and abandon the case, or to go on, as I choose."

Some days later her brother reported that she had liked the way I talked, and would like to have me operate immediately after Christmas. While thinking about the case, I received a specimen copy of a medical journal from Nashville, the leading article of which was by Landolt, of Paris, in whom I have the greatest confidence. His article was a discussion of the proper time to operate; but one of his conclusions was that you may operate at any time, provided you make a sufficiently large cut to remove the cataract. I determined to make a sufficiently large cut. At the same time I read the valuable contribution to "The American System of Surgery," by Thomson, of Philadelphia, and from it decided that the old-fashioned flap operation was best suited to this case.

At her home in Cambridge, assisted by her brother, who was not a medical man, I operated. She was laid upon an ironing board which rested upon two tables. I made a very large flap (*Lappenschchnitt* of the Germans) and a large iridectomy. The anterior chamber immediately filled with blood, and, having told her that it would disappear in about a week, I left her.

The wound healed very quickly, but it was fully a month before the blood was absorbed. Thirty-seven

days after the first operation, I did the second. Another large cut was made near the margin of the corner inwards. Fluid vitreous escaped. The cataract was found to be more capsular than retaceous. The capsule was tense, like a tightly stretched drum-head, and it parted readily, as if by magic, at the touch of the cystotome, leaving a clear, round pupil.

Forty-four hours after the operation the eye was opened and seen with dim light. The seventh day eye quiet. The eighth day cut perfectly healed. The seventeenth day saw well. To make a long story short, there was a steady improvement in the sight from this time onward.

The first operation was done December 26th, the second the 1st of February. April 8th, vision was $\frac{1}{16}$. May 6th, ordered plus 10 D. for near work. June 29th, with plus $5\frac{1}{2}$ D., vision equalled $\frac{1}{16}$.

In the summer of 1899 I met her in a bicycle suit. I asked her if she rode the bicycle. She said that she did, with her husband or her brother to accompany her. As she had ridden through Boylston Street in the afternoon, when most of the heavy teaming is done, she must have felt pretty confident.

February 14, 1900. Now without glass reads the newspapers. Vision $\frac{1}{16}$. She prefers 4 to $5\frac{1}{2}$ D. for distance.

She said that she "had consulted all the great specialists in Europe, and they all said that she would become totally blind and advised her to let it alone." At the time I saw her, her relatives in Italy were writing to her not to let any doctor touch her eyes.

REMARKS UPON SPINAL COCAINIZATION SUGGESTED BY CASES SEEN AT TUFFIER'S CLINIC IN PARIS, AUGUST, 1900.

BY MAURICE H. RICHARDSON, M.D., BOSTON.

At M. Tuffier's clinic at 10 A.M., one day in August, 1900, fifteen or twenty representative surgeons were present, among whom were Warren, Weir, Dennis, Murphy, Cushing, Mayo, Ochsner, Laplace and other Americans. The first patient was a woman of middle age, with a large abdominal tumor. She was seated upon the operating table, bending forward. The skin over the lumbar region was sterilized by scrubbing with soap and water, and later with an antiseptic, the nature of which I do not remember. A small, hollow needle about 3 inches in length was next inserted carefully into the spinal canal through a space to the right of the lumbar spine. The needle was slowly thrust in until thin fluid, slightly tinged with blood, escaped. The syringe, a small one, was then attached to the needle and the solution of cocaine was slowly introduced under gentle pressure. The place of introducing the needle, the amount and strength of the solution, are immaterial. I do not recall exactly these points, which, for purposes of this communication, are, as I say, unessential. The immediate effect of the procedure was not noticeable. There was no outcry and no visible effect upon the patient. She was at once placed recumbent and her abdomen sterilized. In the meantime M. Tuffier prepared himself. At the end of about ten minutes — perhaps less — with the patient in the horizontal position, two large ovarian cysts were removed, and the incision closed. At this time I had an opportunity of examining the pulse. It was barely perceptible; its rate was between

¹ Read before the Boston Society for Medical Improvement, December 10, 1900.

60 and 70. The face was pale, the expression anxious. During the whole operation there was no outcry, no struggling, no restlessness. In answer to repeated questions there was the invariable reply that there was no pain whatever. The operation lasted about twenty minutes and was skilfully performed. As a demonstration of complete anesthesia it was a brilliant success. As a whole, the operation and the operator impressed me—and I think, all present—most favorably. Nothing could be more satisfactory than this demonstration of the efficacy of the method of anesthesia.

The second patient was a woman of from thirty to thirty-five with a tumor of the left kidney. Cocaine was injected as in the previous case, with the same success. The patient said that she felt paralyzed. The operation was much more difficult than the other, but was brilliantly accomplished. The patient repeatedly answered that she felt no pain. She was, as I remember it, nauseated at or before the close of the operation. This was said to be a not unusual occurrence. The pulse was extremely feeble, but not accelerated. The face was pale, the expression anxious. M. Tuffier said that it was not unusual for the temperature to rise several degrees after the operation, but that it quickly subsided.

The impression made upon me at the time was great. The method of administration was quick and sure. The spinal canal was at once entered without greater suffering than would naturally be caused by the deep insertion of a small needle. There was no hemorrhage, or not more than enough to reddens slightly the cerebrospinal fluid. The rapidity and efficiency of the anesthesia were remarkable. The great abdominal operations were admirably borne; and yet the whole impression was distinctly unfavorable to this method of anesthesia. The patients appeared in actual danger. The facial expression, the pallor, the pulse, were not unlike those of a patient in deep shock. Such an appearance I have seen, and would perhaps expect after the removal of a renal tumor filling the left side of the abdomen, however mild and successful the anesthetic. I should not expect it after the removal of uncomplicated ovarian cysts under ether anesthesia. The condition would indicate the hypodermic or the intravenous infusion of normal salt solution, or at least of brisk stimulation and artificial heat.

On the other hand, the appearance of these patients I have seen in simple faintness, not resulting necessarily from pain, but from mental shock, or even from the sight of blood. The pulse and expression may have been owing simply to the realization and horror of what was going on.

The advantages of spinal over general anesthesia, however great it may be under certain circumstances, cannot be demonstrated except by years of observation and by thousands of experiments. I do not feel at all convinced that this method is without serious dangers. Time alone will show what and how great these dangers are. There are, it seems to me, definite indications for the adoption of the method—indications which will permit its adoption by even the most conservative. This limited field may, if increased knowledge proves safety, gradually become widened.

From the anatomical point of view, however, it is inconceivable that the introduction of the needle into the spinal canal can be without danger, especially if

the method is practised by every one. I recall the great plexuses of veins which surround the vertebrae and the dura mater of the cord, as I have demonstrated them many times by solidifying injections. The cauda equina, too, cannot but be liable to puncture or other injury by the introduction of the needle. Indeed, one of the Americans present told me that a patient of his suffered for several months from paralysis of the bladder after this method of anesthesia.

The extent and gravity of the danger can be known only by repeated use. Judging from the occasional effects upon the heart produced by subcutaneous injections of cocaine, there must be some danger at least of cardiac depression when the solution is intradural. The dangers from the subcutaneous use of cocaine are apparently slight, however. I have seen but 1 case in which there was cause for the least anxiety. The patient received a urethral injection of 4% solution of cocaine preparatory to the introduction of a sound. He became suddenly collapsed; the pulse was feeble, the face pale, the respiration sighing. His general appearance was not unlike that of M. Tuffier's patient. Under stimulation the disagreeable symptoms disappeared.

Finally, there is the danger of introducing sepsis into the spinal canal through the needle. In skilled hands this danger is so slight, however, that I should not object to spinal cocaineization on such grounds. The chief objection, after all, lies in the fact that a drug, the dangers of which are not fully known, is introduced into the spinal canal, whence it cannot possibly be removed, and where it must be left to work out its peculiar effects, however beneficial or however injurious these effects may be.

A feature of general anesthesia which is too little appreciated—which is, indeed, often forgotten, but which is one of its chief advantages—is that blessed oblivion which envelops the patient from the beginning to the end of the operation. He loses consciousness in his own bed; he wakes there; he escapes all those horrors of the operation which the imagination can depict and fear inspire.

Clinical Department.

THE PURULENT RHINITIS OF CHILDREN AS A SOURCE OF INFECTION IN CERVICAL ADENITIS.¹

BY CAROLUS M. CORB, M.D., BOSTON, MASS.

MARY E. B., age five years; was brought to my clinic at the Lynn Hospital July 13, 1900, with enlarged glands on both sides of the neck, just below the angle of the jaw. The mother said that she had noticed the enlargement for about ten days and immediately following an acute coryza. The family history was good, none of the near relatives having had tuberculosis in any form. The throat was free from inflammation, and the tonsils were not enlarged or diseased, but the mucous membrane of the nasal chambers was covered with a dried mucopurulent secretion.

The history of the case is as follows: The child was free from disease of the upper respiratory tract

¹ Read before the Essex South Branch of the Massachusetts Medical Society, December 21, 1900.

for the first two years of her life. At the age of two years she had diphtheria, and, as the mother expressed it, she had had trouble with her throat and nose ever since. I saw the child when she was four, and she then had enlarged tonsils, adenoids and the purulent rhinitis of children. I removed the tonsils and adenoids. The operation was done under ether and was thorough. Following the operation the breathing was very much relieved, but the purulent discharge from the nose did not entirely cease, although it was much less.

To sum up the history of the case, a child without any history of previous trouble with the nose or throat has diphtheria at the age of two years, and has a purulent discharge from the nose following this attack; two years later enlarged tonsils and adenoids are removed, and one year after the operation she still has a purulent discharge from the nose and a cervical adenitis following an acute coryza.

I have selected this case because it is typical of a class of cases which the general practitioner sees every week of his professional life. We are all familiar with the open-mouthed, pale, partially deaf, inattentive and mentally backward child, with half-opened eyes and an undeveloped face, and thanks to Wilhelm Meyer these children are no longer allowed to reach adult life handicapped by the effects of adenoid vegetations. That these growths may be the result of an infective disease in the nose or throat there can be no doubt, and it is equally true that the obstruction which they cause may tend to prolong a catarrhal condition in the nose. It is very probable that adenoid vegetations may be the source of infection in many cases of cervical adenitis, but it is not our purpose to discuss adenoid vegetations. That ground has been thoroughly worked out in the past, but in spite of the number of papers which have been written and the opinions which have been expressed, I still believe that there is something new to be said about the origin and effects of adenoids. Of late the tonsils have been thoroughly investigated as portals of infection through which cervical adenitis might originate, and the fact has been firmly established that many cases do originate in this way, but compared to the whole number of cases those caused by tonsillar infection are only a small percentage. There can be no doubt but that every case of adenitis in the cervical region is as truly the result of infection as adenitis in any other part of the body. Every physician today looks for the source of infection in each case where he finds enlarged glands, that is, he assumes at once that the adenitis is a symptom and not the primary disease, and while the inflamed gland may require attention, he directs his chief efforts to the cure of the primary disease. This is the rational and truly scientific method adopted in dealing with adenitis in every part of the body except in the neck.

It would be interesting to know how many operations for the removal or evacuation of enlarged or broken down cervical glands are done each year in this State alone. These operations are done with hardly any attempt to find the source of infection. If the patient has enlarged tonsils or adenoids these are removed, but the effort ends there, and the subsequent treatment of the adenitis is in direct opposition to modern surgical teaching. The plan of treatment usually followed in dealing with cervical adenitis is the merest empiricism. The patient is given iron

and cod-liver oil, because it is evident that he is suffering from sepsis, and various kinds of ointment are rubbed into the skin, and finally surgical intervention. Is it any wonder that these cases are protracted? But it may be contended that many of these cases recover with the treatment adopted or by the aid of surgery; this is undoubtedly true, but, on the other hand, it is equally true that many of them run a protracted course even after surgical intervention, and it may well be questioned whether the final healing of the adenitis is due to the treatment directed to the glands or to the spontaneous healing of the source of infection. I do not wish to say anything that can in any way be construed as speaking against operations on these glands, because these operations are often necessary, not only for the health of the patient but for cosmetic purposes as well, but I do wish to enter an earnest plea for the treatment of these cases on the same lines that govern the treatment of adenitis in other parts of the body. The operation will, if thoroughly done, relieve the patient from the danger arising from the glands already involved, but it will not prevent the involvement of other glands unless the source of infection is found and healed. The source of infection which causes cervical adenitis is very probably in close proximity to the glands involved, that is, the mouth, throat, nose or ear. There is, however, a small percentage of cases which are caused by general systemic infection, although this percentage is not so large as is generally supposed.

When we come to consider the sources of infection in cervical adenitis, we are met with the generally accepted belief that these cases are practically all due to tubercular infection, and the meaningless statement that the child is strumous or scrofulous. The words struma and scrofula have come to occupy the same place in our conversation with the friends of the patient that was formerly occupied by "congestion of the portal circulation," which the late Oliver Wendell Holmes wished had not passed out of use, because "they sounded so well, meant so little, and were so satisfying to the patient," and while these words may still have a limited use for this purpose, it will be as well for accuracy of statement in medicine when they pass out of use altogether. If we mean tubercular infection, why not say so, and if we mean something else, why not say that as well? There is no evidence that any considerable proportion of these cases of cervical adenitis is due to tubercular infection. If they are due to tubercular infection, it must occur in one of two ways, either as a general systemic infection or as a local infection from the parts immediately surrounding the neck. If due to systemic infection it would naturally follow that we should find manifestations of the disease in other parts of the body, and if due to local infection we should find the original lesion, or the scar tissue, the result of the original lesion, at the point of entrance of the infection. From the well-known tenacity with which tubercle bacilli persist in the tissues which they have once invaded, we might reasonably expect to find diseased tissue at the point of entrance, and this is what is actually found in many cases of diseased tonsils.

I do not intend at this time to discuss the whole subject of cervical adenitis, but I do wish, in this connection, to call your attention to the purulent or muco-

purulent diseases of the nasal cavities as a possible source of infection. Perhaps this can be done in no better way than to analyze the course and symptoms of the case which I have given. The child was free from catarrhal disease of the upper respiratory tract for the first two years of her life; at least the mother, a very intelligent woman, says that she never noticed any trouble of that kind; then she had diphtheria, and has had so-called catarrhal disease of the nose and throat ever since. I saw her when she was four years old and she then had enlarged tonsils, adenoids and purulent rhinitis of children. I cleared the throat and the breathing was much relieved, but the purulent rhinitis continued, although it was much less. One year later she returns with an acute cervical adenitis following an acute coryza. In this case we have a purulent rhinitis as a direct sequel of the attack of diphtheria, and we have therefore two questions for solution: (1) What is the source of the purulent discharge from the nose, and (2) what causal relation, if any, does the attack of diphtheria bear to this discharge? In answer to the first question it may be well to make the statement that a chronic nasal discharge, with a few exceptions which I will give later, always has its source in the nasal accessory sinuses. The exceptions to this statement are the cases of foreign bodies or of dead bone, which is essentially a foreign body, in the nose, and syphilitic and tubercular disease. The foreign bodies produce a profuse, purulent discharge, while the syphilitic and tubercular diseases produce a slight amount of discharge *per se*. I am well aware that syphilis is credited with causing a nasal discharge in a large number of cases, but if we take the trouble to differentiate the discharge caused by the actual syphilitic disease from that caused by the results of this disease within the nasal chambers, we shall be in a much better position to treat these patients intelligently. These results act as a predisposing cause of a nasal discharge in precisely the same way as obstruction to drainage from the cells produced by other causes acts, or a sequestrum may be left after a destructive syphilitic inflammation of the bone, which acts simply as a foreign body. It acquires no specific qualities on account of its origin and its complete removal has the same influence over the discharge that the removal of any foreign body has.

I will not go fully into a consideration of the predisposing and exciting causes of sinus disease as I have done it elsewhere very lately.² What causal relation does diphtheria bear to this discharge? The relation of diphtheria of the throat or nose to sinus disease presents itself in one of two ways: either there may be a true diphtheritic membrane formed in the accessory sinuses, especially in the antrum of Highmore during the attack of diphtheria (Weichselbaum, E. Frankel, Dmochowsky), or the sinuses may be intensely inflamed during the course of the diphtheria without true diphtheritic infection, the inflammation being due to a secondary infection by other bacteria (Zuckerkaudl). Here, then is the relation of the diphtheritic attack to the subsequent purulent discharge. In this case the attack of diphtheria was the exciting cause, but in other cases it may be acute coryza, influenza, croupous pneumonia, scarlet fever, measles, facial erysipelas, typhoid fever, cerebrospinal meningitis, foreign bodies in the nose, etc., in fact, any way

in which infection may reach the sinuses. Infection having taken place and the discharge once established, absorption will sooner or later occur, and the lymphatics of the nose being directly connected with those of the neck, a cervical adenitis may result at any time, and unless the purulent rhinitis is cured the cervical adenitis will run a protracted course. The purulent discharge from the nose may not cause a cervical adenitis for some time, because the retained secretion is very largely contained in bony cavities, but it eventually denudes the mucous membrane over which it flows and then some condition, as an acute cold, blocks the flow of the purulent discharge and absorption of the retained secretion takes place. If the source of the infection is in the nose, as it evidently was in this case, as there was no inflammation of the throat and no tonsils to be seen, and no pockets around the throat to retain the products of inflammation and no evidence of tuberculosis, then the importance of treating the nasal disease does not need to be insisted upon. It seems hardly necessary to add that so long as the source of infection remains unhealed that it is hardly reasonable to hope to cure the adenitis. It is very true that the infected glands can be removed and the process stopped in them, but this does not prevent others from becoming involved, and one would hardly care to remove the whole lymphatic system of the neck to prevent recurrence. It seems more in the line of modern surgical teaching to first find the source of infection, and to make the healing of this the objective point of the treatment. If this can be done, the treatment of cervical adenitis will be much easier, and its course much shortened, and while the removal of hopelessly involved or broken down glands will still be necessary, we shall be able to prevent the involvement of other glands.

Medical Progress.

REPORT ON PROGRESS IN OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

(Concluded from Vol. CXLIII, No. 25, p. 635.)

THE DOCTOR'S DUTIES TO PREGNANT WOMEN BEFORE LABOR.

Dr. AYERS¹ says women should be instructed to engage their doctors as soon as they consider themselves pregnant. Such patients should then be instructed, first, in the cardinal rules of gestation; frequent but never prolonged outdoor exercise and brief rests in the recumbent position, with low-heeled shoes and shoulder-strap support to the skirts, corsets being laid aside; a sensible diet that avoids an excess of meats; regulation of the bowels and steadiness in the perspiratory function. The chief cause of unintentional abortion in healthy pregnant is prolonged or overexertion on the feet, constipation, and perhaps coition. The nausea of pregnancy, so usual in primiparae, aids in many cases by its restraining influence the conservation of gestation. Young wives are prone to play bravado during the unshowable first months of pregnancy, and to try to do all they did previous to impregnation. Primary examinations should be made once a month from the third to the seventh

² Archives of Otolaryngology, vol. xxix, Nos. 2 and 3.

¹ International Medical Magazine, January, 1900.

month and every two weeks from then to the ninth month, then every week until labor. The most practical method for obtaining a warning of the need of a urinary examination is to instruct the patient to give immediate information of any reduction in the amount of urine passed in twenty-four hours. Examinations should note the twenty-four-hour amount, the specific gravity, the reduction, if any, of urea and the presence of albumin and casts. Very few cases of eclampsia would occur if proper attention were given to the urine.

The question of ante-partum examinations is a broad one, but it involves 50% of the obstetrician's usefulness. If the patient is a primipara the pelvis should be measured by the twenty-eighth week. We should obtain the diameters of the iliac crests, anterior superior spines, the external and internal diagonal conjugata, and in misshapen pelvis the external obliques, interschial and symphyseococcygeal diameters. Compare these diameters with the height and weight of the patient and her husband, their ages, and note the character of the mother's skeleton. A frame of light bones usually has a relatively large pelvic calibre, estimated from the external measurements, and vice versa.

In multiparae where the previous children were of full size and term and the labors normal these measurements are not required, but a comparison between the size of the fetal head and that of the pelvic cavity should be made a fortnight before labor, since there may be an overgrowth of the fetus.

The principal facts to be ascertained by abdominal examination are the position of the fetus, twins, fetal vitality, grades of hydramnion, condition of the bladder, tumors in the abdominal cavity, and complications involving the kidneys, liver, heart, lungs, etc. Fetal malposition is frequent in proportion to the amount of amniotic fluid present. Malpositions present at the seventh month, where there is much room for fetal gyrations, do not necessarily persist, since usually with time the fetus daily represents a gain in space occupied compared with the amniotic fluid. But women with malpositions of the fetus should be examined every two weeks. External version may be final, if performed when the fetus is getting fixed in a malposition. Twins are usually a surprise, but need seldom be so, and often cause dangerous complications in delivery and the confusion incident to the arrival of the unexpected guest. Two heads, two heart rates and innumerable extremities are full of valuable diagnostic suggestions.

In habitual premature fetal death a weekly record of the fetal pulse should be made from the sixth month to labor. Patients with hydramnion should have the anemia usually accompanying it combated, and should be instructed when labor pains first occur to lie as still as possible in bed until amniotic rupture takes place, in order to avoid prolapsus funis or malpresentation of the fetus. Abdominal tumors may not be noticed by the patient, but should not escape the examiner's eye.

At least one vaginal examination should be made a few weeks before labor time, with an eye alert for placenta previa, exostoses, fibroids, ovarian tumors, atresia, pelvic contraction, cancer, vaginitis, etc.

The nipples should be examined a month before labor, milk scabs, abrasions and fissures treated, and depressed nipples elongated by traction daily.

PROGRESS IN OBSTETRICS DURING THE PAST TWENTY-FIVE YEARS.

Professor Fritsch⁵ contributes an interesting paper on this topic for the anniversary number of the *Deutsche medicinische Wochenschrift*, January 4, 1900. The gist of his summary is as follows: Our therapy of abortion has become more active, the degree of interference is greater. Our views of Cesarean section have undergone great changes, and the mortality of the operation has sunk from 50% to 5%. Naturally antiseptics is held partly responsible for this great advance. The discussion has become bitter over the relative merits of the Porro and conservative operation on the womb, with a relative victory for the latter. Perforation as a relative indication has now become almost a crime. Symphyseotomy has not yet won a permanent place for itself, despite the labors of its able champions. The technique is perfect, but the indications remain uncertain. The Walcher position, according to Fritsch, is a much more valuable contribution to modern midwifery. We have not much to boast of in connection with eclampsia. The most important advance here is Leyden's discovery of the "pregnancy kidney." Fritsch believes that narcotics have killed many an eclamptic who might otherwise have recovered. In pelvimetry we now have the instrument of Skutch for obtaining the true conjugate, and are no longer compelled to guess at it. Bandl's labors towards a better understanding of uterine rupture deserve recognition, as do the demonstrations of Fehling and Latzko that osteomalacia may be cured respectively by the operation of castration and the internal exhibition of phosphorated oil. The advances in the management of puerperal infections due to the application of the principles of antiseptics and asepsis are too well known and understood to require much space here. Absolute sterilization of hands we know to be neither attainable or necessary. Bacteriologists have not helped the practitioner much thus far. Ahlfeld has doubtless done good service to the practitioner in his antagonism of Credé's teachings in management of the third stage of labor, with regard to expectancy. Finally, the improvement in society and journalistic work in connection with obstetrics is not the least advance along the line.

LABOR COMPLICATIONS AFTER FIXATION OF THE UTERUS.

Operations for fixation of the uterus have been so much in vogue during recent years that the results on subsequent pregnancies are now being observed and the dangers pointed out. In this connection Rühl⁶ points out some of the serious complications of labor as the result of both vaginal and ventrofixation of the uterus. He says that the danger is greatest when the top of the fundus is fixed to the anterior vaginal wall in the vaginal operation, and in the abdominal operation when the fundus is fixed to the abdominal wall just above the symphysis. The obstruction to labor may be so serious that although the pelvis is of normal dimensions, Cesarean section may be required. He notes that Cesarean section when performed for this cause has been attended by the very high mortality of 50%. In a normal pregnancy at the fortieth week the long axis of the uterus lies exactly at right angles to the plane of the pelvic

⁵ Obstetrics, February, 1900.

⁶ Centrbl. f. Gyn., 1896, No. 51; 1900, No. 13.

inlet. After fixation the fundus is much lower than it should be, while the cervix is drawn up and retroposed, with the result that the uterine axis may be at an angle of only about 40° with the plane of the inlet. When uterine contractions occur under these conditions the tendency is for the presenting part to be driven backwards against the sacrum, instead of downwards and backwards in the pelvic axis. The cervix may be drawn so far up and back as to lie above the level of the sacral promontory, and the true pelvis may be bridged over by the anterior wall of the uterus and vagina in such a way as to leave between the anterior lip of the cervix and the sacrum no room for the passage of the child, or for the manipulations necessary for artificial delivery. In these cases the author advises an anterior uterovaginal section, consisting of an incision passing through the anterior lip of the cervix, the anterior uterine wall and vagina, after as much natural dilatation of the cervix as possible has been obtained.

Kallmønger⁷ reports a case of Cesarean section after vaginal fixation in which at the seventh month there were symptoms of threatened miscarriage relieved by prolonged rest in bed, but at term labor began with the axis of the uterus running antero-posteriorly and the fetus lying transversely. After sixteen hours of labor no progress had been made and it was feared that the posterior wall of the uterus would rupture. Cesarean section was performed and in the operation the anterior wall of the uterus was not seen at all, while the posterior wall was as thin as paper. The woman did well, but the author recommends the early induction of premature labor.

A case of rupture of the uterus at the Munich Maternity after vaginal fixation is reported by Frickhanger.⁸ In this case dilatation was normal, but the head could not be reached by forceps and version was performed, a contraction ring being encountered. The child survived, but the mother died on the fifth day of peritonitis, due to rupture of the vagina and posterior part of cervix. The reporter concluded that on account of the vaginal fixation the anterior lip of the cervix could take no share in the dilatation, so that there was an unusual strain on the posterior lip and neighboring part of the vagina.

REDUCTION IN THE SIZE OF THE SHOULDERS IN DIFFICULT LABOR.

Bonnaire,⁹ in the *Presse médicale*, March 14, 1900, describes 2 cases in which cleidotomy division of the clavicle was performed in order to extract the fetal body after the head had been broken up by the basiotribe. In one case double cleidotomy was necessary, in the other unilateral sufficed. From 5 experiments on dead fetuses he found that the double operation reduced the size about 10 centimetres. Cleidotomy has as yet been performed only on the infant already dead, and it is indicated when the shoulders cannot be extracted by ordinary or other means, as in pelvic contraction, when they become impacted in the cavity after the head has been broken up, when the shoulders are excessively broad and when it is necessary to reduce to a minimum the efforts at extraction, as in rupture of the uterus. It is performed with strong

scissors or with a perforator. When the operation is impracticable through the folding forward of the shoulders or from other causes, Bonnaire recommends and has successfully practised another procedure called "supra-acromiotomy," or deep division of the soft parts over the anterior supra-acromial region. These operations are usually to be regarded as supplementary to cephalic embryotomy, but Bonnaire thinks that cleidotomy may be permitted even in the case of a living infant whose head has been born, but whose shoulders remain fixed, for in the experimental cases the subclavian artery has never been wounded nor the subclavian muscle cut.

PUERPERAL ECLAMPSIA TREATED BY DIURETIC INFUSIONS.

Dr. Jardine¹⁰ reports a series of 22 cases of eclampsia treated by diuretic infusions. He says that in the actual seizures of eclampsia diuretics by the mouth are too slow in action, and that for the past three years he has been giving saline infusions consisting of sodium chloride and potassium bicarbonate or sodium acetate. The infusions are given usually under the breast. In his first 12 cases he used potassium bicarbonate and sodium chloride in equal parts, a drachm to the pint. In the last 10 cases he has substituted sodium acetate for the bicarbonate of potash, using 1 drachm of it with 1 drachm of sodium chloride to the pint of sterilized water at a temperature of 104° . One to 3 pints may be used at a time and is repeated if necessary. Aseptic precautions are rigidly followed, but the author has never had any sloughing or abscess formation in 200 infusions. He feels confident of the diuretic action of the infusion, as in some of his cases from 60 to over 100 ounces of urine were measured in the first twenty-four hours. In several cases analysis of the urine before and after infusion gave a marked increase in urea and uric acid after infusion. In addition he gives chloroform, veratrum viride, chloral and bromide, and magnesium sulphate. The obstetric treatment is varied according to the condition of the patient. If there is no indication of labor he does not empty the uterus unless the convulsions continue, and then if dilatation is difficult the cervix is freely incised. Cesarean section he thinks unjustifiable in these cases, as the results have been anything but good. Of the 22 cases treated by diuretic infusion, most of which were very severe, all but 5 recovered, and 1 of these 5 died on the seventh day of perforating duodenal ulcer. This case being properly omitted, leaves a mortality of only 4 in 22 cases, which is noteworthy in a series of hospital cases.

PLACENTAL TRANSMISSION.

Doreland¹¹ reviews the subject of placental transmission of drugs and specific diseases, and from the meagre literature derives these very suggestive, if not conclusive, arguments:

While many drugs may be administered to the mother without any noticeable effect upon the fetus, there are certain substances that show a special tendency to traverse the placenta, and entering the fetoplacental circulation, exert a positive influence for good or evil according to the condition that may be present in the given instance. Maternal medication, therefore, is indicated in certain conditions, either in

⁷ British Medical Journal, 1899, vol. II, p. 31. Epitome of Medical Literature.

⁸ New York Medical Journal, April 14, 1900.

⁹ British Medical Journal, 1900, vol. I, p. 67. Epitome of Medical Literature.

¹⁰ British Medical Journal, May 26, 1900.

¹¹ The American Gynecological and Obstetrical Journal, June, 1900.

order to prevent the development of a similar condition in the fetus, or to counteract the effect of germs and their toxins already introduced into the fetal economy.

The drugs that have been found to effect the fetus in utero are notably opium, mercury, copper, lead, arsenic and the iodides. In appropriate doses they may be administered to the mothers in suitable pathologic conditions with beneficial results to both mother and child. Any morbid influence acting upon the mother either acutely, as in the case of the exanthemata, or more slowly, as in tuberculous and specific infection, will react deleteriously upon the product of conception and either destroy it through its overwhelming toxic action, or render it feeble and less resistant to subsequent and post-natal invasion, or the disease will run an atypical course in utero with or without apparent vestiges at birth.

The entrance into the fetal structures is accomplished through the agency of the fetoplaental circulation. It is probable that access is gained through bacterial action, the germs rendering the placental villi less resistant to invasion, whereby both the microbes and their toxins pass the natural barrier at the chorio-decidual junction.

As a rule the infectious diseases do not manifest their characteristic visceral lesions in the fetus, probably because of the passivity of these organs during antenatal existence. The germs, however, may be detected in large numbers by bacteriologic and microscopic examination.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

A. K. STONE, M.D., SECRETARY.

REGULAR meeting, Monday, December 10, 1900, Dr. E. H. BRADFORD in the chair.

DR. W. B. LANCASTER presented a short paper on

THE RADICAL TREATMENT OF LACHRYMAL DISEASES.¹

DR. C. H. WILLIAMS : I am very glad to have Dr. Lancaster bring this subject up because I think it is one which should have more attention. In many cases certainly the operation gives excellent results, better than in any other way. My brother Edward, who spent about a year at the clinic of Professor Völkers, tells me that the latter does the operation in many cases and thinks very highly of it. He generally removes only the sac and not the gland.

DR. STANDISH : I have had very little experience with the operation. Ten or twelve years ago I performed this operation in 3 or 4 cases. In each case I was unfortunate enough to get infection, and I never operated by this method again. Probably the infection was due to faulty technique, but it discouraged me.

DR. JACK : I can speak of 1 of these cases from personal knowledge — the young lady. I saw her for months. She went from my service to Dr. Lancaster's at the City Hospital. I tried all manner of things, and at the last tried to do the more radical operation of cutting the stricture all the way down,

and then using Theobald probes of large size. This was kept up a while, I thought with a little improvement, but she was still very bad when I left her. One could not do anything more radical than this, outside of the operation which Dr. Lancaster has described.

DR. EDWARD L. PARKS read a paper entitled

AN OPERATION FOR CATARACT.²

DR. H. BARTON JACOBS, of Baltimore, Md., late secretary of the American National Committee, read

A SHORT ACCOUNT OF THE RECENT INTERNATIONAL MEDICAL CONGRESS AT PARIS.³

DR. J. C. WARREN : I am very happy to testify to the accuracy of the extremely interesting paper of Dr. Jacobs. The feature which interested me more than any other in the congress was the assemblage of men. It seemed to me that this was one of the most attractive features to the stranger who had not visited any of the congresses in Europe or in this country for a great many years; that it was an exceptional opportunity to see the men who had sprung up in the last generation, and the gathering in Paris at the end of the century certainly offered an opportunity which was not likely to occur again for a long time. And such proved to be the case. I can bear testimony to the statement of Dr. Jacobs that the men who visited the congress were men of the highest standing in medicine throughout the world. They all took an active interest in the proceedings and took part themselves. The leaders of the various countries were there, and it was a grand opportunity to be able to see these men, hear them speak and speak to them. I think the social side of these congresses is a very important feature, and I think it was so felt by the men themselves, by the Frenchmen particularly. I heard many allusions to this feature of the congress, that although they recognized that a great deal of excellent work was being carried out, none the less interesting were the social gatherings where men could be introduced to one another and exchange views about methods of treatment, operations or scientific questions, that they would not be able to do in the more formal gathering. Dr. Jacobs has alluded to most of the social features which I had the pleasure of attending. The receptions at the Elysée Palace which I attended were most interesting and dignified. The early morning reception was a particularly interesting one, as it included a small number of select men from each country gathered in a hollow square around the reception hall of the palace, the President going from one group to another making a few graceful greetings to the representatives of each nationality. The afternoon reception at the Elysée which came at the end of the congress was really a most artistic and picturesque affair. The gardens are very beautiful. The palace stands at the head of a lawn which slopes gently away and is surrounded with fine trees. At the end of this was a temporary theatre in which the most classic dances were given : not simple ballet, but a most artistic representation. No Roman festival could have been more classic and imposing in its conception and execution.

The opening of the congress in the Salle des Fêtes

¹ See page 37 of the Journal.
² See page 29 of the Journal.

³ See page 34 of the Journal.

was also a very attractive feature of the congress. This is the largest room I was ever in, possibly excepting St. Peter's. It was a domeshaped affair, perfect circle, and of a diameter which made an individual seem very small indeed, and, although I am not familiar with the exact dimensions, it would take an enormous assemblage to fill it. The congress, containing several thousand, did not fill more than half of the room itself.

This meeting was certainly an interesting one, as it gave us an opportunity to see representatives of all the nations of the world coming forward and extending their greetings to the congress. The reception in the Luxembourg Palace was hardly to be considered as a success. It did not seem to me the French could handle very large bodies as well as we were able to do it at our Columbian Exposition.

The part that interested me most was naturally the surgical part, and our party visited several of the hospitals. Doyen's was one of a number of places we went to. No one could but be impressed with his mechanical ingenuity and great operative skill. One would perhaps be more impressed with this feature than with other qualities which go to make a great surgeon. He has worked very hard to hold his own against the red tape which every aspirant for surgical honors in Paris must bow to if he wishes to reach the top of the ladder. He is working entirely independently. He is a great mechanical genius and there is hardly an instrument in his hand not designed by him. His rapidity of operating was great and his skill certainly was exceptional.

Tutlier impressed me very much indeed — a charming gentleman, evidently one of the leading surgeons of Paris. He is a beautiful operator, and he carried out his method of anesthesia with great ease and skill. The operations I saw were very important, one double ovariectomy, another removal of the kidney, done rapidly and without effort on his part, and entirely successful as far as anesthesia was concerned. Both the patients, however, seemed to be in a condition of marked shock shortly after the operation — faces blanched, respiration shallow and hurried, eyes rolled up and the pulse almost imperceptible. I could not feel the pulse at the wrist in one of the cases, and the patient complained of distress and nausea. Tutlier turned it off with the expression, "mal de mer," and paid no attention to it, and the nurse carried the patient out in that condition and he maintained that they all did well. A patient in that condition in one of our wards would receive a good deal more attention than was given to them on that occasion.

I think no American surgeon could help being struck with the lack of perfection in details of aseptic and antiseptic technique in surgery at most of the Paris hospitals. They certainly do not compare with what one sees in the best clinics in this country and one can say the same of Great Britain. There was a distinct disappointment to all the visiting Americans that they did not see better work at the hospitals they visited. I do not speak of the North German hospitals, because I did not visit them, but those I did see in the middle parts of Europe I certainly was not impressed with. They have little idea in some of the countries of aseptic surgery; no apparatus for sterilizing on a large scale as we see in our large hospitals. The hospitals in Paris are mostly old, and it is only here and there in certain portions of them an attempt has been

made to bring them up to date and then in a way certainly not on a scale that would be at all satisfactory to an American surgeon.

DR. RICHARDSON: In reference to the clinic of M. Doyen I should like to say that I was very much impressed with it. I thought it as good surgery as I had ever seen. About his surgical judgment I know nothing. The first operation that he performed was opening the skull in a most effective way after it had once healed from a previous operation. We saw the beautiful first intention of his first incision. He thought that not quite enough bone had been taken out at the first operation and he therefore removed a little more. He showed us his electric saw, which worked to a charm. The hysterectomy and one or two other operations he did with great skill, and it seemed to me with great care, although he worked rapidly. He was rapid where a man may safely be rapid, and cautious where a man ought to be cautious. He was rapid until he got to the ureters, and then very careful, and once or twice, where he thought he might be in danger, he was slow and painstaking. The moving picture machine is a most vivid and an excellent way of teaching operative methods. One can get a perfect idea of every step of an operation. By means of this machine it would be possible to demonstrate the methods of every surgeon. If there were any step of the operation not understood, the machine could be stopped and any single photograph could be studied until it was fully understood.

DR. GEO. B. SHATTUCK: I was quite surprised to see my name on the programme as one who was to address the meeting this evening. I incline to explain its being put there on the supposition that I represent the considerable class who did not go to the congress. I was not there and I have no personal experiences or reminiscences to relate. I congratulate the meeting upon having had the pleasure and the profit of listening to Dr. Jacobs' account of the congress, an account which is extremely well drawn up, and which represents of course admirable facilities for giving us a description of what took place there. In the course of his paper he refers to a letter which was published in the *Medical Journal* here, and for the publication of which I am in a measure responsible. I think Dr. Jacobs exaggerates the effect — I hope he exaggerates the effect — which that letter may have had in diminishing the number of representatives from New England who attended the congress last summer. On the other hand, I should not be at all surprised if one might justly attribute in a measure to the publication of that letter, and to other similar statements, a part of the marked cordiality which was shown to visitors, and particularly to American visitors, although I have no question that under any circumstances Dr. Jacobs himself would have been well received. I think that it was high time that the better class of the French were brought to their senses. Liberty had degenerated into license there. I was in Paris about eighteen months ago, and I had an opportunity then to observe the remains of the exaggerated feeling which the French permitted themselves to entertain toward America and Americans during the progress of our Spanish War, and they had an excitability, a want of control, an absence of treating abstract political propositions or others where their interests and emotions are affected — of treating such in an abstract

fashion; the personality enters too much always, and they permitted it to enter in an excessive degree during our Spanish War, and subsequently for a considerable period during their differences with the English. And, as I say, in the exhibition of their feelings they had allowed liberty to degenerate into license, and had allowed the baser portion of the population, which is not a small one in Paris, to conduct itself in various ways in a manner which was at once disgusting, discreditable and disgraceful. If the treatment of foreigners and the sentiments shown toward foreigners had always been such in Paris and in France as they were at the time Dr. James Jackson and his fellow townsmen were there, in the thirties, about whom we all know well, and of whom I probably know as much as anybody, I doubt whether an indication would have arisen for the expression of such sentiments as it seemed necessary to express during this last summer. Again, it has been asked why Americans should concern themselves with incivilities to the English. There is one sufficient reason, if no more: the community of language. In a hostile atmosphere one English-speaking person is as bad as another.

I am glad that Dr. Jacobs, and those of our compatriots who were wise enough and fortunate enough to attend the congress, found everything so much to their satisfaction, and I am glad that even the weather adapted itself to their convenience and enjoyment. I have been in Paris more than once in July and August, but a cold wave during the first two weeks of August I have never encountered. I again congratulate Dr. Jacobs upon his experiences, and the society upon his felicitous manner of imparting them.

DR. BRADFORD: I know I express the opinion of the Americans who were in Paris, and also of the profession of this country, in extending thanks to Dr. Jacobs for his energy in arranging the American representation at the Paris Medical Congress. What he states in regard to the congress is not only true, but more could have been said if his modesty had not restrained the full measure of his enthusiasm. A comparison between this congress and that in Berlin would suggest many interesting deductions. The Berlin and the Paris congresses were probably the most notable medical congresses that have ever assembled. At Berlin there was the feeling that the visitor was in the presence of a strong, active, virile, scientific movement. It was also impressed upon the visitor that what Dr. Shattuck would perhaps take exception to was not wanting, and unbecoming at times in an atmosphere of the purest science. In Paris the visitor could feel that he was the guest of a most cultivated nation, extending a hospitality that was not only cordial, but imperial in the quality, grace and richness of his entertainment. No one could enter the *École de Médecine* and find himself in the place where so much of the advance in medicine in this century had its origin without a certain inspiration. At the Sorbonne it is impressed upon the visitor that this great university where Chaucer and Dante went to learn, the place where from Abelard to Renan, Descartes and Bichat to Pasteur and Roux, that which would help humanity has been for centuries carefully and earnestly considered, is today one of the greatest of existing educational influences. It is to be remembered that this congress of seven thousand physicians was simply one of several congresses, and that at the same

time the Sorbonne was entertaining there a congress of general education, higher and primary education, with delegates from everywhere in the world, and the thought suggested itself that perhaps from this educational Mt. Parnassus today comes the strongest movement for education that exists anywhere in any one locality. The great advantage of scientific congresses is to diminish prejudices. So much has been said as to the degeneracy of the Latin races that an exemplification of this might be expected by a visitor to Paris. The two hundred congresses which were held in Paris this summer in addition to the World's Exposition, the greatest and richest collection of human productions ever gathered, hardly justified such an opinion. On the contrary the feeling suggested itself that perhaps the Continental opinion had some justification, the Continental belief which regards the Anglo-Saxon and especially the American civilization as given over too much to material things on account of our great wealth, our great commercial and financial success, disregarding in a measure science and art, and not giving humanity the highest gifts of mental effort in proportion to our talents of energy and strength. It is folly to go to Paris to scorn. We must bow to the French in thanks for their great intelligence and activity as exemplified in the wonderful organization of this most remarkable medical congress. The society will, I know, join me in offering thanks to Dr. Jacobs for his kindness in coming here.

Recent Literature.

Medical Diseases of Infancy and Childhood. By DAWSON WILLIAMS, M.D., Physician to the East London Hospital for Children. New (second) edition. Specially revised for America by F. S. CHURCHILL, A.B., M.D., Instructor in Diseases of Children, Rush Medical College. In one 8vo volume of 538 pages, with 52 illustrations and 2 colored plates. Philadelphia and New York: Lea Brothers & Co. 1900.

This comparatively short book is, on the whole, fairly satisfactory. The author's point of view, however, seems that of ten or fifteen years ago rather than that of today. The strongest points in the book are the accurate and comprehensive clinical descriptions. They cannot fail to be most useful, especially to the beginner. The author has stated in his preface that pathological processes are essentially the same in children as in adults, and hence has given but little space to their description. In some instances it seems as if more would have been better. There is little tendency to make use of modern methods of diagnosis, the chief reliance being placed on symptomatology. This failure has been to a certain extent repaired by Dr. Churchill. Even he, however, has not taken up modern methods as thoroughly as he might have; for example, the leucocyte count is mentioned but twice as a means of differential diagnosis, and then superficially and inaccurately. Much space has been given to treatment, much of which is very good and all of which is suggestive. This must also prove of great assistance to the beginner. Too many drugs are mentioned, however, in the treatment of certain diseases,

in which they are certainly of but little value. There is a tendency also to polypharmacy.

The paper and print are good. The various diseases follow each other closely without any break in the text. The addition of a few pages would have avoided this crowding and added much to the appearance and clearness. The pictures are few and only mediocre. The arrangement of the various chapters is certainly a strange one. Diseases of the month are placed between the diseases of the heart and those of the upper respiratory tract. Tubercular meningitis is taken up under nervous diseases instead of with tuberculosis. Cerebrospinal meningitis, however, is properly classed with the acute infectious diseases.

The introductory remarks on the care of children are very good, and show the results of much practical experience. The chapter on the clinical examination of infants also contains many useful points which will be especially instructive to beginners. The chapter on the diseases incidental to birth is not so good. The part played by congestion in the causation of meningeal hemorrhage is not mentioned. The article on *melena neonatorum* is misleading. Dr. Churchill's explanatory note is much better. The chapter on food, except for the part written by Dr. Churchill, is rudimentary and far behind our present knowledge. The part written by Dr. Churchill is up to date and very good.

As would be expected in an English book, the chapters on the acute exanthemata are very good. The chapters on tuberculosis are, as a whole, pretty good. The article on tubercular peritonitis, however, is not up to the standard of the others on tuberculosis. The chronic ascitic form is not mentioned, and the fibrous form is not described, the caseating form alone being considered. The section on tuberculosis of the lungs is, on the contrary, extremely good.

The chapter on the diseases of the blood is incomplete and the descriptions, both of the symptoms and of the blood, poor. Leucocytosis, for example, is described under secondary anemia, and under splenic anemia is described secondary anemia with splenic enlargement rather than the true splenic anemia.

The chapter on dentition and the diseases of the mouth is especially good, as is also that on the diseases of the upper respiratory tract. Those dealing with the diseases of the lungs and pleura are also very good.

The chapters on the diseases of the gastro-enteric tract are not up to the standard of the rest of the book. No attempt has been made to separate the diseases of the stomach from those of the intestines, or functional diseases from organic. All the forms of diarrhea are inextricably mixed together so that the beginner could hardly get a correct idea of the different forms. This fault is redeemed to some extent by the reviser's notes, which are very much to the point, but because of the confusion elsewhere are somewhat difficult to apply. Infantile atrophy is classed among the chronic diseases of the gastro-enteric tract instead of as a disease of nutrition, and is given but one paragraph and no treatment.

The section dealing with the normal urine embodies the original researches of Dr. Churchill and contains much which is new to textbooks. In the chapters on the nervous system various symptoms and conditions have been put on a par with the true functional

diseases and treated as such; for example, deafness due to inflammation of the middle ear has been treated as a disease of the nervous system. But one cause, gastro-enteric toxemia, is recognized for tetany. The articles dealing with the organic diseases of the nervous system are fair, while those treating of the skin are good.

As already stated, the book is, on the whole, fairly satisfactory and especially strong in clinical description. The annotations of Dr. Churchill add much to its value and lead us to hope that he may some time give us a book of his own.

Refraction, and How to Refract. Including Sections on Optics, Retinoscopy, the Fitting of Spectacles and Eye Glasses, etc. By JAMES THORINGTON, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine, etc. Second edition. Pp. 301, with 200 illustrations, 13 of which are colored. Philadelphia: P. Blakiston's Son & Co. 1900.

The first edition of this work, published in November, 1899, was reviewed in these columns, and the fact that a second edition has been called for so soon would seem to show that the book may prove as popular as the work on "Retinoscopy" by the same author.

A Book of Detachable Diet Lists for Various Diseases. Compiled by JEROME B. THOMAS, JR., A.B., M.D., Instructor in Clinical Medicine, Long Island College Hospital, etc. Second edition, revised. Philadelphia: W. B. Saunders & Co. 1900.

This is a convenient list of diets, so printed and arranged that the physician may easily extract what he desires to prescribe in the way of food, freeing him from the necessity of writing out detailed directions. The only danger in such a plan is that the physician by degree loses initiative, but this after all may not be an unmitigated evil amidst the growing details of so-called general practice.

Insect Larvæ as Occasional Parasites in Man. By EHRICH PETER, M.D. Berlin: Louis Marcus, 1900.

This little book is an amplification of an article on the same subject in one of the German medical journals. It offers in convenient form an abstract of what is known of the action of larvæ on the skin and subcutaneous tissue, the mucous membrane of the mouth, nasal cavity and ear, and on the stomach and intestines. The writer has apparently made a careful search through the literature, and the book will be found most useful for reference. There is a complete bibliography appended.

Dermatohistological Technique. By MAX JOSEPH, M.D., and GEORGE LOEWENRACH, M.D. Second edition. Berlin: Louis Marcus, 1900.

The object of this book is to provide a guide both for the beginner in the histology of the skin, and for the more advanced investigator, and to furnish an abstract of all the more important technical methods. As no similar compilation exists, so far as we are aware, it should be welcomed as a real addition to dermatological literature. The fact that a second edition was demanded at the end of six months speaks for its success.

The International Textbook of Surgery. By American and British Authors. Edited by J. COLLINS WARREN, M.D., LL.D., Professor of Surgery in Harvard Medical School; Surgeon to the Massachusetts General Hospital, and A. PEARCE GOULD, M.S., F.R.C.S., Surgeon to the Middlesex Hospital; Lecturer on Practical Surgery and Teacher of Operative Surgery to the Middlesex Hospital Medical School, etc. Vol. II, Regional Surgery. Pp. 1,072, with 471 illustrations in the text, and 8 full-page plates in colors. Philadelphia: W. B. Saunders & Co. 1900.

This excellent volume fully justifies the expectations aroused by the publication of its predecessor (Vol. I), a review of which has already appeared in this JOURNAL.¹ It is the concluding volume of the work.

Its general characteristics, as regards presswork, illustrations, classification, indexing, etc., are similar to those noted in Vol. I.

It deals solely with regional surgery. The contributors are all men well known in this country and abroad. Many have written monographs of note, or have made extended investigation of the special subjects treated in the chapters assigned them by the editors. Particularly so are the writers of the chapters describing the surgery of the breast, appendix, hernia, ureter, kidney and ear. The articles devoted to military surgery, which includes a description of modern firearms and projectiles, to naval surgery, and to surgery and surgical operations in the tropics, make the work a thoroughly modern one, and are of especial interest at this moment on account of the attention which the events of the last two years have attracted to this branch of surgery.

The articles are all well written. As stated in describing Vol. I, the plan of paragraphing distinguishes the subdivision of subjects from the general text, and makes a book quite convenient for reference. The different articles contain the essential facts relating to the particular subject discussed that are found in modern surgical literature. Although some at first sight seem rather condensed, still, as the book is designed as a textbook, perhaps this is a feature to be commended rather than criticised.

The book represents work which is highly creditable to all concerned in its production.

On the Prevention of Eye Accidents Occurring in Trades. An Address Delivered at the Opening of the Section of Ophthalmology at the Annual Meeting of the British Medical Association, at Portsmouth, August, 1899. By SIMEON SNELL, F.R.C.S. (Edin.), Ophthalmic Surgeon to the Royal Infirmary, Sheffield; Professor of Ophthalmology, University College, Sheffield. Pp. 32, with 11 full-page illustrations. London: Ball, Sons & Danielsson, Ltd. 1900.

The author, living and practising in Sheffield, Eng., has naturally been much attracted to this subject, and writes from a larger experience than that of any confrère in any country in all probability.

The subject is treated forcefully, and means of preventing such accidents described and discussed. The little book is well worth the attention of all, whether physicians or laymen, interested in abating the dangers run by certain classes of workmen.

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THE RATIO OF PHYSICIANS TO THE POPULATION.

RECENT publications present an opportunity to learn the relative number of physicians to the population in the United States and in Germany, with a fair degree of accuracy, and to compare these numbers in the different States with each other.

Dr. Abbott's recent monograph, which was prepared for the Paris Exposition,¹ contains a table, the basis of which is "Polk's Register of Physicians in the United States." The relative figures were determined by comparing these figures with the population of each State as estimated for 1898, and may be considered as fairly correct, with the exception of Oklahoma and one or more new States in which the rate of increase was out of all proportion to that of former years.

The publication of a later edition of the "Register" in 1900 makes it possible to present on the following page a more accurate table, based upon the recent census of 1900.

From the following table it would appear that either the old aphorism that 1,000 inhabitants are required for the support of the average physician must be considered as out of date, or a large proportion of the profession are not earning a living, since the average for the United States at large as shown in the following table is 1 physician to each 655 inhabitants. Moreover the large annual product of the medical colleges is constantly tending to diminish this number of inhabitants to each physician.

An examination of the following table shows that California is the State which is most liberally supplied with medical men, the proportion there being 1 physician to 416 inhabitants, and the ratio in Colorado and Vermont is about the same, while the States which are the most sparsely supplied are South Carolina, North Dakota, North Carolina, New Mexico and

¹ The Past and Present Condition of Public Hygiene and State Medicine in the United States; being No. 19 of the Monographs on American Social Economics, prepared for the Paris Exposition of 1900.

¹ 1899, vol. cxliii, p. 257.

Alaska, with respectively 1 to 1,123, 1,132, 1,189, 1,395 and 2,349 inhabitants.

These conditions are clearly illustrated for the year 1898 by means of a chart in the pamphlet referred to. The two tables for 1898 and 1900 do not present very striking differences except in the States of Iowa, Kansas and Nebraska, the reasons for the difference being apparently due in the two former States to an unusual increase in the population, and in the latter to an unusual increase in the number of physicians.

Turning now to Germany, an entirely different condition is evident as shown by the recent publication of the Imperial Board of Health of the German Empire.² In that country, three enumerations of the physicians have been made at intervals of eleven years, one in 1876, one in 1887, and the last in April, 1898. The last enumeration was very comprehensive and included all persons employed in connection with the care and treatment of the sick, either in private practice or in hospitals or other institutions. The

The German documents also give a further classification in detail according to the density of the population of 1,005 districts.

In districts having more than 20,000 (cities), the number of the physicians had increased from 6,648 in 1887 to 12,651 in 1898, or 90%, the population increasing meanwhile only 48%.

In districts having from 5,000 to 20,000 inhabitants, the number of physicians had increased from 3,295 to 4,256, or 29%, the population increasing only 19%.

In the smaller districts having less than 5,000 in each, the physicians increased in the eleven years from 5,881 to 7,818, or 33%, while the population remained nearly stationary.

The number of homeopathic physicians in the German Empire is stated as 240, or less than 1% of the whole number of practitioners.

The veterinary surgeons were 3,813 in number, and are compared with the class of patients whose ills they are called upon to treat, there being in the Ger-

NUMBER OF INHABITANTS TO EACH REGISTERED PHYSICIAN, 1900.

Name of State.	Number of Inhabitants to each Physician.	Name of State.	Number of Inhabitants to each Physician.	Name of State.	Number of Inhabitants to each Physician.	Name of State.	Number of Inhabitants to each Physician.
California.	416	Maryland.	565	Delaware.	694	Alabama.	930
Colorado.	452	Michigan.	570	Nevada.	706	Wisconsin.	936
Vermont.	469	Indian Territory.	597	Oklahoma.	707	Utah.	944
Ohio.	489	New York.	603	Nebraska.	725	Wyoming.	964
Indiana.	494	Iowa.	609	Idaho.	749	Louisiana.	985
Missouri.	507	Texas.	612	Florida.	751	Minnesota.	1,004
Arkansas.	546	Kentucky.	625	Arizona.	754	Mississippi.	1,027
Kansas.	555	Oregon.	638	Washington.	762	South Carolina.	1,123
Tennessee.	556	UNITED STATES.	655	Georgia.	767	North Dakota.	1,132
Maine.	556	Pennsylvania.	662	Montana.	782	North Carolina.	1,189
Massachusetts.	561	West Virginia.	667	Virginia.	842	New Mexico.	1,396
Illinois.	562	Connecticut.	677	New Jersey.	856	Alaska.	2,349
New Hampshire.	564	Rhode Island.	692	South Dakota.	894		

circular calling for information was issued by the Imperial Board of Health of Germany and included the enumeration of the following persons:

Regular practising physicians: (a) Physicians in private practice; (b) physicians in institutions; homeopathic physicians; military and naval surgeons; other "approved" practitioners, including surgeons and country doctors; dentists; dentists' assistants; nurses, masseurs, etc.; veterinary surgeons, civil and military; midwives.

The foregoing are still further classified quite minutely.

Two excellent maps are also presented, showing the distribution of physicians in the German Empire.

In the empire at large the number of physicians had increased from 15,281 in 1887 to 24,725 in 1898, or more than 56%, while the population had increased only 11%. This last enumeration shows that the ratio of the number of physicians to the population in Germany is very much less than that which prevails in the United States, since in the German Empire there was in 1898 only 1 physician to each 2,111 inhabitants, while in the United States at the same time there was 1 for every 647 inhabitants.

² Medizinal-statistische Mittheilungen aus dem kaiserlichen Gesundheitsamte, Bd. VI., H. 1, Berlin, 1899.

man Empire 1 veterinary surgeon to every 1,240 horses, and 5,677 head of cattle.

An examination of the maps and accompanying tables shows that both physicians and midwives are distributed most liberally in Bavaria and the districts along the Rhine, while the districts which are most sparsely supplied are those of Northeastern Prussia and the Russian border.

PHYSICAL CULTURE.

HOWEVER it has come about, whether through the increasing devotion to athletics or for other reasons, it is clear that physical culture in the broad sense is occupying a more and more conspicuous place in education. This must certainly be regarded as an unqualified good, and chiefly because it is based on a system which may justly lay claim to a scientific basis. Physical training is gradually but surely becoming rational; the excesses to which competitive athletic events are always likely to lead will surely be modified by a knowledge of the physiological effects of training. Both directly and indirectly the present zeal for physical culture, designed not only to make the strong stronger, but also the weak strong, is doing much to-

ward the general development of the masses of young men and women. Institutions have, however, been slow in completely recognizing the dignity of this branch of education by establishing a definite department under the jurisdiction of a competent head. It is, therefore, of particular interest at this time that the Massachusetts Institute of Technology has taken action to install a new department devoted to physical culture. The formal announcement of this fact was made by President Pritchett at the annual dinner of the Alumni Association recently held in Boston. It was announced that the corporation had voted to give the land for the building, which is to be a memorial to the late General Walker, former president of the Institute. In this building is to be established the new department, provided the necessary endowment fund can be raised, under the charge of "a man who shall be able to do for the physical side of the students what the heads of other departments now do for the intellectual side." It is sincerely to be hoped, and there is small doubt that the hope will be realized, that this somewhat unique department of a great educational institution may be generously maintained. It will prove not only of service to the institution with which it is connected, but will undoubtedly serve as a stimulus toward the establishment of similar departments elsewhere. The time is undoubtedly ripe for just this line of work, and we are gratified to see that so worthy a memorial is to be erected to the lamented president of our most conspicuous technical school.

The tendency everywhere apparent is further shown by the recent meeting in New York of the various physical directors of the larger gymnasiums connected with our schools and colleges. The strength which comes from organization will no doubt show itself by renewed and systematic attempts toward raising the standard of this department of school and university work. The very general introduction of physical training into the public schools has already been productive of much benefit to the pupils. The idea, recently suggested for the Brookline, Mass., schools, of giving special treatment to pupils of imperfect physique, is also unquestionably a step in the right direction. The whole movement toward bringing about a symmetrical physical development, beginning with the very young, is in every way commendable.

In the hands of competent men there is small danger of attaching undue importance to this fundamental branch of a child's education.

MEDICAL NOTES.

ABSTRACT REPORT OF THE COMMITTEE ON THE LIBRARY OF THE NEW YORK ACADEMY OF MEDICINE. — Number of books in the library, November 30, 1900, 89,000 volumes, duplicates, 36,105 volumes, included; books added during year, not including duplicates, 3,649 volumes; in the circulating department 971 books and 832 journals were issued to 194 readers; 11,520 readers have registered during

the year in the reading room, and probably many others have used the library but not registered. The library is growing rapidly, the additions annually for the last four years being at least 3,500 volumes a year (in 1898, when the library of the New York Hospital was donated to the academy, 7,000 volumes) without including duplicates. Nine hundred and ninety-one journals in many languages are on file, and add 1,135 bound volumes this year to the shelves. Including the duplicates, the natural growth amounts to about 3,000 volumes, and at this rate there is only space left in the stack room for five years more. More space for the library is urgently needed, and it will be difficult to find this space in the present building. At present there are 13,430 feet of shelving available, of which less than 3,000 are unoccupied, and 600 feet of shelving are needed annually for the natural growth in new books. The labor of taking charge of this large collection of books will require an increase in the librarians' staff this coming year. More money is urgently needed, both for the purchase of books and for the running expenses.

DEATH OF AN ARMY NURSE. — Mrs. Anna Morris Holstein, a famous army nurse in the Civil War, widow of Major William Hayman Holstein, has recently died in Redhill, near Norristown, Pa., aged seventy-six. From 1862 until the close of the war Mrs. Holstein was engaged in the hospital service, and after the battle of Gettysburg she was matron in chief of a hospital in which 3,000 seriously wounded men were looked after. It is said to have been largely through her influence that Washington's headquarters at Valley Forge were purchased, restored and made accessible to the people.

PLAGUE IN VLADIVOSTOK. — The reports of an outbreak of plague at Vladivostok are confirmed. There had been up to January 4th 19 cases, of which 15 were fatal. Owing to a recrudescence of plague at Smyrna, a quarantine has been imposed by Turkey and Greece on arrivals from that port.

TWENTY-FIVE THOUSAND DEATHS FROM PLAGUE. — Lord Curzon, Viceroy of India, has stated that since the appearance of the bubonic plague, in 1898, 25,000 deaths from the disease have occurred in the Mysore State.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, January 9, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 192, scarlatina 55, measles 43, typhoid fever 24.

BOSTON MORTALITY REPORT. — The number of deaths reported to the Board of Health for the week ending January 5th was 239, as against 283 the corresponding week last year, showing a decrease of 44 deaths, and making the death rate for the week 22.2. The deaths from consumption were 24, pneumonia 34, whooping cough 2, heart disease 22, bronchitis 10, marasmus 4. There were 14 deaths from violent

causes. The number of children who died under one year was 38, under five years, 61, persons more than sixty years 51; deaths in public institutions 88.

ITEMS IN BOSTON LOAN BILL.—The mayor has approved, among others, the following items of the loan bill, recently submitted to him: Hospital Department (Boston City Hospital), \$100,000 for new surgical out-patient building; \$120,000 for a ward for patients requiring isolation; \$30,000 for a new wing at the Long Island Hospital; \$20,000 for a nurses' home at the same institution; \$75,000 for new building at the Boston Insane Hospital.

BOSTON MEDICAL LIBRARY.—The new building of the Boston Medical Library will be open for inspection of the public on Saturday, January 12th, 11 A. M. to 5 P. M. The dedication exercises, for which invitations have been issued, will take place in the evening.

NEW YORK.

HEALTH STATISTICS, 1900.—The following is a portion of a statement given out January 4th by Dr. Tracy, Registrar of Records in the Health Department: "The year set in with a high mortality, due to the recurrence of influenza, which began its ravages in December, 1899, and did not disappear until the following June. The epidemic culminated in March, but its decline was slow, and during the first five months of the year the deaths in the city numbered 4,987 more than those of the corresponding months of 1899. Of this increase, 2,053 were caused by acute inflammatory diseases of the organs of respiration, and the remainder, in all probability, by the depressing effect of the prevailing epidemic upon the course of other diseases. During the summer months the hot weather was much more severe and prolonged than in 1899, and as a natural consequence there were more deaths directly or indirectly caused by the heat. There were 294 deaths from sunstroke, against 141 in 1899, an increase of more than 100%, and yet the total excess of deaths in July, August and September of 1900 over 1899 (notwithstanding the increased population) was only 806, less than 5%, and from diarrheal diseases only 108, about 17%. There was an increase of about 50% in the deaths from measles, 25% from typhoid fever, and 10% from diphtheria and croup, these being no more than the normal variations to be expected from year to year, sometimes up and sometimes down, the totals in no case being large. There were 12 deaths from smallpox, against 18 in 1899." The death rate for 1900 was 20.53, as against 19.47 in 1899.

SMALLPOX.—The last monthly bulletin of the State Board of Health, issued January 3d, devotes considerable attention to the subject of smallpox. It says in part: "During the last three years we have had considerable experience with smallpox, commencing with an importation, in 1898, by a travelling theatrical troupe, among whose members the disease existed undiscovered until twenty localities in the western

part of the State had been visited, and, as a result, smallpox was distributed in fourteen counties; not less than 320 persons took the disease, and a year passed before it ceased to exist. During this current year [1900] smallpox has been brought to seventeen places from outside. Now, towards the close of November, prior to which the State had been free for three months from this disease, a repetition of the experience of 1898 on a smaller scale is threatening, in the appearance of another travelling troupe of colored minstrels from the South, in whose personnel smallpox has been discovered after having exhibited at eight places in the eastern part of the State, in three of which, Albany, Schenectady and Gloversville, an outbreak has followed. There has also been a considerable outbreak in a locality in New York City which this troupe touched in passing. The present comparative immunity of this State from smallpox is chiefly due to very general vaccination, secured by health authorities, especially in places where the disease has developed, and more widely by the operation of the law, now several years in effect, requiring the vaccination of school children."

MORTALITY STATISTICS FOR NOVEMBER.—The Health Department's reports show a reduction in the city's mortality for November as compared with October, the death rate in the latter month being 17.54 against 16.82 in November. This is also a decrease from the death rate in November of 1899, which was 17.63. The most marked decline is in the class of diarrheal diseases, the weekly average of deaths from which was 21.75 in November and 51 in October. The weekly average of deaths from phthisis decreased from 169.25 to 145.5; of deaths from typhoid fever, from 24.5 to 21.75; of deaths from whooping cough, from 5.25 to 1.5, and of deaths from measles, from 2 to 1.25. On the other hand the weekly average of deaths from pneumonia increased from 122.5 to 155.25, the mortality from this disease thus exceeding that from phthisis. The weekly average of deaths from bronchitis increased from 26.25 to 37.75 and there was also a very slight increase in the mortality from diphtheria and cancer. The weekly average of deaths from scarlet fever was exactly the same in the two months. Three deaths in the month of November are attributed to influenza, this being the first time that this disease has appeared as a cause of death since last spring.

PAVILION FOR CONTAGIOUS DISEASES, RANDALL'S ISLAND.—At a meeting of the Board of Health held December 27th a resolution was adopted favoring the construction of a pavilion for contagious diseases in connection with the Randall's Island Hospital for Children, under the care of the Charities Department, and a committee was appointed to confer with Commissioner Keller, of that department, in regard to the matter. It appears that among children suffering from contagious affections (principally measles) who were transferred to the North Brother Island and Willard Parker Hospitals, the mortality has of late

been excessive. Out of 32 such patients no less than 18 died, and it is believed that the risks will be greatly diminished if this class can be treated in wards in the vicinity of, but at a safe distance from, the institution on Randall's Island.

ANNUAL MEETING OF AMERICAN COLLEGE PHYSICAL DIRECTORS.—The annual meeting of American College Physical Directors was held on December 28th and 29th at Columbia University. The following reports by the chairmen of a number of committees appointed last year were received: On the Admissibility of Determining the Physical Condition of Candidates for Gymnastic and Athletic Exercise, Dr. Jay W. Seaver, of Yale; Strength Tests and Inspection of Instruments, Dr. Dudley A. Sargent, of Harvard; On the Adoption of Uniform Terminology and Nomenclature for Gymnastic Exercise, Dr. W. G. Anderson, of Yale; Credit for Gymnastic Training in College Work, Dr. W. A. Lambeth, of the University of Virginia; On the Relationship between Gymnastics and Athletics, Dr. W. G. Anderson, of Yale.

THE BENEFITS OF MODERN SURGERY.—Among the speakers at the annual meeting of the New York Orthopedic Dispensary and Hospital on January 4th were Bishop Potter and Governor Roosevelt. The former, in speaking of the benefits of modern surgery, stated that twenty-five years ago while in the Yosemite he met with an accident causing what he supposed at the time was a sprained ankle, and which had caused him more or less pain, attributed to gout, ever since. Within the past year he had found, through an x-ray examination at St. Luke's Hospital, that the trouble was in reality an ununited Pott's fracture.

GIFT TO THE NEW YORK OPHTHALMIC AND AURAL INSTITUTE.—Dr. Herman Knapp has conveyed, as a gift to the New York Ophthalmic and Aural Institute, the two adjoining buildings on Twelfth Street which have been occupied for many years by the institution. It was founded by Dr. Knapp in 1869, and in addition to a dispensary and hospital has maintained a school of ophthalmology and otology.

NEW WARD FOR TUBERCULOSIS AT BELLEVUE HOSPITAL.—A new ward, known as the Tuberculosis Pavilion, and accommodating 200 patients, was opened at Bellevue Hospital on January 1st, with three graduate nurses in attendance. There is still a considerable upheaval going on at Bellevue, growing out of the developments of the Hilliard case, and a vast amount of "investigating" is being done.

A CENTENARIAN.—Mrs. Ann Jane Slotte, of Brooklyn, was the first centenarian to die in 1901, her death occurring on January 2d. She was born in Ireland on July 12, 1800, and thus lived in three centuries. A son, Daniel, who died in 1882, was the "Dan" of Mark Twain's "Innocents Abroad."

DECREASE OF SMALLPOX.—In New York City fewer cases of smallpox have been reported during

the past week than in the previous week, and as much as three days elapsed without a single new case. It is estimated that at least a million persons have been vaccinated since Thanksgiving.

NEW YORK STATE MEDICAL ASSOCIATION'S JOURNAL.—This association has undertaken the publication of a monthly journal instead of annual transactions. The first number has been received.

GOVERNOR ODELL ADVOCATES ECONOMY.—In his first annual message Governor Odell has advocated a number of radical changes, principally on the score of economy.

OPENING OF NEW GOUVERNEUR HOSPITAL.—The formal opening of the fine new Gouverneur Hospital of the Charities Department took place on January 5th.

Miscellaneous.

THIRD PAN-AMERICAN MEDICAL CONGRESS.

The Third Pan-American Medical Congress will be held February 4th to 8th, inclusive.

The steamer *Seguranza*, of the Ward Line, leaves New York, January 30th, arriving in Cuba on February 3d, the day before the beginning of the congress. The new Ward Line steamer *Morro Castle*, holding 135 cabin passengers, leaves Havana on February 9th, reaching New York February 11th. The round trip is \$70. Any one going via this route will be absent from New York twelve days. All information regarding transportation may be had from Dr. H. L. E. Johnson, 1402 L Street, N. W., Washington, D. C. Any of the delegates going down by the Ward Line who desire it may, by a supplementary payment of \$25, return via Santiago. This trip will take from ten to twelve days, during which time the passengers live on the ship and have their meals there if they so desire. The party goes from Havana by rail to Cienfuegos in one afternoon, there taking the steamer to Santiago and from Santiago to Nassau in the Bahamas, and from Nassau to New York. The stay in these different ports will be for a day or more.

An auxiliary committee of ladies will assist in the entertainment of ladies accompanying delegates. The best hotels in Havana are the *Telegrafo*, *Mascotte*, *Inglaterra* and *Passaje*. Rates \$3.00 to \$5.00 per day for board and room, American plan, the prices depending on the room.

General Wood, the Governor-General of Cuba, formerly surgeon in the United States Army, will give a reception to the delegates, probably the day before the opening of the congress. He will also give orders that the fortifications of the island be shown to the delegates.

The sessions of the sections of the congress will begin on the morning of February 4th in the halls of the university and institute. In the evening the formal opening ceremonies of the entire congress, a general session, will take place at the Tacon Theatre, at which the various representatives of the different countries will be introduced, and speeches of welcome will be made by the officers of the congress as well as by the civil authorities.

According to present indications, it is judged that there will be about 1,500 delegates at the congress. Of these, probably 500 will be Cubans, 300 or 400 from the United States, 200 from Mexico, 100 from Argentine Republic and Uruguay, 50 from Brazil, 50 from Venezuela and as many more from Colombia and other countries.

It is requested that from this time on, titles of papers should be sent both to the general secretary of the congress, Dr. T. V. Coronado, 105 Prado, Havana, and to

the assistant U. S. secretary, Dr. Ramon Guiteras, 75 West 55th Street, New York City, in order that they may be entered in the final programme.

It is also requested that all physician delegates intending to go to Havana send their names to Dr. Guiteras, in order that he may determine how many will be present from this country.

Obituary.

GEORGE G. TARBELL, M.D.

In the death of Dr. George Grosvenor Tarbell on December 31, 1900, the communities in which he lived, Boston and Lincoln, lost a most valuable citizen who was faithful in an extraordinary degree to all the duties of citizenship; the medical profession a member who had filled in a marked manner many posts of honor. He graduated from Harvard College in the Class of 1862, entered the Harvard Medical School at once and graduated from it in 1865, having been one year of that time a medical interne at the Massachusetts General Hospital.

In response to an urgent call from Governor Andrew for surgeons in the Civil War, he became assistant surgeon and later surgeon of the Third Massachusetts Cavalry and served to the close of the war. He was a member of the Loyal Legion. In May, 1866, he began practice in Hingham, but removed to Boston in 1867. In April, 1868, he was appointed physician to out patients at the Massachusetts Hospital, and visiting physician in 1873. Years of most conscientious service he gave to the hospital; his advice and counsel were always valued by his colleagues. In the prime of his life, and ripe with experience and study of his cases, he resigned in 1891, not because he was weary in the service, but that the large clinical material in his wards could thereby be used in teaching the students of the Harvard Medical School, of whose teaching board he was not a member. He was then appointed by the trustees a consulting physician, which position he held at the time of his death. For many years he was one of the trustees of the Lincoln Public Library, whose fine building was given to the town by his uncle, Mr. George Grosvenor Tarbell, in 1884. To this institution he gave faithful and efficient service, and was president of the Board of Trustees at the time of his death.

Not alone in the practice of his profession was Dr. Tarbell a valued counsellor. Years of his life were given to the Massachusetts School for the Feeble-Minded. He became assistant superintendent of the school in January, 1878 and resigned in 1883. He was the executive head of the school for that period. He brought new life to the school; buildings were repaired, new school rooms and dormitories were built and an entirely new standard of work was established. In his early reports he strongly advocated the removal of the school from South Boston to the country. One year after his resignation as assistant superintendent he was made president of the Board of Trustees. Largely through his efforts the present site of the school at Waltham was secured by the State in 1886. The location was practically selected by him. His time and thought were given liberally to the preparation of the plans for the new buildings. He watched and directed every detail of arrangement and construction. Dr. Fernald, the present superintendent, writes: "I cannot express what Dr. Tarbell was to the school. His intimate knowledge of the 600 inmates and 120 officers and employees was such that he could call most of them by name. . . . Few of his friends knew how much time and thought he gave to the school. . . . He had attended every Christmas festival since 1878, except one when he was himself sick. The grief and sorrow of the unfortunate children at his death was most touching. . . . In his death they have lost their best friend."

The present institution, with the farm at Templeton, is a monument to his good judgment and painstaking care.

Correspondence.

THE ARMY BILL AND THE MEDICAL DEPARTMENT.

CINCINNATI, O., December 29, 1900.

MR. EDITOR:—Permit me through your columns to call the attention of the members of the American Medical Association to the fact that there is at present pending in Congress certain proposed legislation that seriously disturbs the present status and efficiency of the medical corps of the United States Army.

The proposed law is entitled, "An Act to Increase the Efficiency of the Military Establishment of the United States" (Senate Bill 4,300), and in a very general way modifies the existing organization of the army, while at the same time it provides for a damaging and offensively invidious discrimination against the medical corps. This fact is shown in the following particulars, namely: (1) It decreases the percentage composition of the corps in the grades of colonel from 3.1% to 2.4%; (2) it decreases the percentage composition of the corps in the grade of lieutenant-colonel from 5.2% to 3.7%; (3) it decreases the percentage composition of the corps in the grade of major from 26% to 18.6%; (4) it increases the percentage composition of the corps in the grade of assistant surgeon with the ranks of captain and first lieutenant from 65% to 74.7%.

The significance of these proposed changes can be understood when it is remembered that even under the existing law it requires more than eighteen years to reach the grade of surgeon with the rank of major, while under the proposed law it will require, at least, twenty-five years to reach the same grade and rank. With this fact reduced to a mathematical demonstration, the inevitable result will be (1) that the most worthy young men will not apply for commission, and (2) that the relatively less worthy men, who do enter the service, discouraged by the certain impossibility of reasonably prompt promotion, will resign, leaving their places to be filled by untrained and consequently less efficient men. The ultimate disaster from this contemplated change, however, will consist not alone in a lowered status of the medical service, but in (1) increased disease and death rate among the men; (2) a diminished and otherwise weakened force in the firing line, and (3) a material augmentation of the pension roll.

In view of the foregoing facts, and, in view of the fact that every other corps of the army is better graded than is the medical, every member of the American Medical Association and every member of the medical profession, is hereby earnestly solicited to send at once to his United States senator and congressman an urgent and emphatic protest against the proposed provisions in Senate Bill 4,300, relative to the medical corps of the United States Army.

(Signed)

CHAS. A. L. REED, M.D.,
President American Medical Association.

[The JOURNAL has already referred to the question in an editorial, December 20th, page 643.—Ed.]

CLIMATE IN PULMONARY TUBERCULOSIS.

Boston, January 4, 1901.

MR. EDITOR:—Since it has become evident that patients in the early stages of pulmonary tuberculosis may recover in any climate by proper hygiene and treatment, especially by outdoor life, and more especially in sanatoria, it seems as if there was danger that the climatic factor in treatment be overlooked or disregarded.

This, it seems to me, is unfortunate, for if there is any climate in which patients formerly recovered by simple

residence with little or no change in their daily life or occupation, it is certainly reasonable to infer that with modern methods of treatment they will recover more quickly and surely in that climate than if these methods were employed in one of poor conditions.¹

Therefore I think that while we can encourage poorer patients in the hope that they may recover at or near home by entering a sanatorium or even simply by leading an outdoor life, we are not doing our duty to those who can afford it, if we do not advise them to put themselves in the very best climatic conditions known, namely, especially dry air and sunshine.

Although in their enthusiasm over the results of sanatorium treatment in what would be designated as poor climates some heads of institutions have gone so far as to say that they believe that dryness or moisture has nothing to do with the arrest of the disease, I think that the evidence is to the contrary. Sunshine is still considered desirable by all, and a climate with two or three times as many sunny days in a year as another must, other things being equal, be superior. The only satisfactory test of the real comparative value of climatic factors will come when sanatoria shall be established with exactly the same rigid rules of admission and the same methods of treatment all over the world, in what have been considered the best climates as well as in the poorest.

If we know that for any reason a patient cannot put himself in the best possible climatic conditions, the subject need not be mentioned to him, but if we know that he can do so, the best course can be none too good to advise in treating this still very formidable disease. I have seen many recoveries from pulmonary tuberculosis under all conditions, at home with or without change of mode of life or occupation, and in all kinds of health resorts and institutions, but for quickness and thoroughness of recovery in properly selected early cases nothing in my experience approximates that which occurs in dry, sunny climates.

While I usually mention several alternate plans to a tuberculous patient, by adopting either one of which a possible arrest of the disease may be brought about, I state very decidedly my opinion of their relative value in his case, and throw the responsibility of choosing anything but the best upon him. He should at least be offered the best.

It should be borne in mind also that there are many delicate patients, especially those with advanced disease, to whom outdoor treatment in a rigorous climate may mean great suffering.

Yours respectfully,
FREDERICK I. KNIGHT, M.D.

OCULISTS AND OPTICIANS.

MEDFORD, MASS., November 23, 1900.

MR. EDITOR:—Several years ago, laws were enacted pertaining to the "Regulation of the Practice of Medicine within the Commonwealth of Massachusetts"; and even though we observe the enforcement of said laws by the Board of Registration of Medicine to a degree of merit, it would seem, however, that such laws have no existence, when we see the daily advertisements of the would-be specialists whose practice consists in the treatment of the optics.

Opticians have ventured into the field, advocating their competency (?) to examine the eyes, and assume to correct the errors of refraction without any knowledge of the anatomy of the eye. Department stores, also, have fallen into the line, adding further pretence and quackery to an innocent public; which is as absurd as it is ridiculous, for the simple reason that neither the optician nor the vender

¹ In using the statistical results of sanatorium treatment for comparative purposes, it must be borne in mind that some sanatoria receive only the most carefully selected incipient cases, and that the percentage of cures among such patients cannot properly be compared with that in institutions or health resorts where patients in all stages of the disease are received.

at the department store have any training in the knowledge of diagnosis relating to the science of ophthalmology wherewith to ascertain the conditions of the eyes and the eyesight; and no person is fitted or competent for such a responsible practice other than he who has fulfilled the requirements of a reputable college or university, and obtained the degree of M.D., and devoted special study to ophthalmology.

This is a serious matter, to which I have applied much attention during the past two years; and during the intervals of my investigation, I have met many subjects who have been duped by opticians, peddlers and department stores, whose eyes have been almost ruined from the ill effects of improper lenses, which upon the day of purchase appeared to be correct.

To the oculist alone belongs the propriety, professionally and legally, to examine the optics, and to prescribe the proper remedy which will be the result of his diagnosis. On the other hand, the part of the optician is simply a mechanical procedure, and to supply glasses, according as the physician may prescribe them for his patient.

The physician by his skill and knowledge of ocular therapeutics should always be the proper counsel to approach to realize the best results when there appears to be trouble with the eyes.

Medical authority emphasizes the importance of consulting the oculist, and not the optician, in all matters pertaining to the optics, and it is not generally considered that there is an absolute distinctive difference between the oculist and the optician which should be carefully dealt with.

This is an instance which, for the protection of the public, appeals to the colleges of pharmacy for immediate investigation, and to proceed to the inauguration of the requirements in the study fitting graduates as opticians, as well as pharmacists; and an eligible course cannot fail to involve the sanction and co-operation of the medical profession universally, and the hearty approval of all mankind.

History tells us that it was not until the year 1854 that any attempt was made by the medical profession to estimate visual power. The result of the problem led to more persevering attainments, until finally a science has developed through the diligent study of specialists, who by their fertile brains have become authors, and merited fame throughout the world, and given to our colleges and universities many volumes of valuable textbooks, treating exhaustively upon the subject of ophthalmology.

See to it, then, that this matter is dealt with as it should be, and, if necessary, let there be legislative means established to restrict peddlers, opticians and department stores from trifling with the optics by prescribing eyeglasses or to attempt to offer any support to aid defective vision.

Superintendents of public schools in many of our cities and towns have interested themselves most creditably in the importance of observing the impaired sight of pupils by the co-operation of teachers in the respective grades; and if there be any among them with abnormal vision they are at once directed to consult a competent physician or oculist to obtain the remedy and necessary assistance for correct vision.

The optician is not recognized other than in his proper sphere when he is called upon to supply lenses as per prescription. Therefore, I trust that what I have written will at once awaken an interest for the individual care, thought and study that finally will result in a protection against unscrupulous quackery, and be endorsed for the public good.

Would it not be well for practitioners in pharmacy to review this subject as a very important adjunct, and express their views to encourage the faculty at the Massachusetts College of Pharmacy to become interested, pursuant to adopting a course of study for pharmacists to become opticians?

Respectfully,
JAMES E. MCKEON,
Pharmacist and Optician.

METEOROLOGICAL RECORD

For the week ending December 29th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-	Ther-	Relative		Direction	Velocity	Wet'h.	Rainfall
	meter	meter,	humidity.		of wind.	of wind.	•	
	Daily mean.	Daily mean.	Maximum.	Minimum.	Daily mean.	Daily mean.	Daily mean.	Daily mean.
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* O., cloudy; C., clear; F., foggy; H., haze; S., smoke; R., rain; L., lightning; N., snow; + and - as received; rainfall. † Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 29, 1900.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					Diphtheria and croup.
				Infectious diseases.	Acute lung diseases.	Febrile diseases.	Typhoid fever.		
New York	3,437,202	1183	298	21.71	20.28	1.35	1.61	3.46	
Chicago	1,688,751	1,293,207	—	—	—	—	—	—	
Philadelphia	555,258	508,257	—	—	—	—	—	—	
St. Louis	568,257	196	45	22.95	20.91	5.10	2.04	3.06	
Baltimore	381,767	—	—	—	—	—	—	—	
Cleveland	352,247	—	—	—	—	—	—	—	
Buffalo	352,247	—	—	—	—	—	—	—	
Cincinnati	352,247	—	—	—	—	—	—	—	
Pittsburg	321,616	122	33	35.21	17.21	3.27	17.20	3.27	
Washington	258,415	—	—	—	—	—	—	—	
Milwaukee	258,415	—	—	—	—	—	—	—	
Providence	175,597	72	17	27.80	22.24	4.17	2.78	2.78	
Boston	560,392	200	43	26.00	16.50	6.00	6.00	6.00	
Worcester	118,431	38	9	26.30	7.83	5.56	7.83	7.83	
Fall River	104,861	—	—	—	—	—	—	—	
Lowell	94,869	30	10	10.21	28.16	—	—	2.56	
Cambridge	91,866	23	6	17.40	4.35	—	—	8.70	
Wilmington	68,513	—	—	—	—	—	—	—	
Lawrence	62,579	21	10	4.17	8.34	—	—	—	
New Bedford	62,412	36	9	2.92	16.68	—	—	2.78	
Springfield	62,049	12	6	16.66	25.00	—	—	8.33	
Salem	45,712	3	3	21.01	16.52	—	—	—	
Somerville	45,712	12	2	32.33	8.34	—	—	8.33	16.66
Holyoke	40,963	9	1	11.11	11.11	—	—	—	—
Brookton	37,173	13	1	30.76	7.68	—	—	—	7.69
Haverhill	35,676	15	5	13.32	16.66	—	—	—	—
Salem	24,062	16	5	12.50	—	—	—	—	—
Chelsea	33,664	4	—	25.00	—	—	—	—	—
Malden	33,664	11	5	21.42	7.11	—	—	—	7.14
Newton	31,574	4	3	28.56	14.28	—	—	—	7.14
Taunton	31,574	1	—	—	—	—	—	—	—
Gloucester	21,436	1	1	16.66	—	—	—	—	—
Everett	21,436	5	—	40.00	—	—	—	—	20.00
North Adams	21,436	1	—	50.00	—	—	—	—	—
Quincy	21,436	1	—	50.00	—	—	—	—	—
Waltham	21,436	13	5	7.69	23.07	—	—	—	7.69
Pittsfield	21,436	1	—	33.33	33.33	—	—	—	—
Brookline	19,167	1	—	28.56	12.50	—	—	—	—
Chicopee	18,211	1	—	—	—	—	—	—	—
Medford	18,211	1	—	—	—	—	—	—	—
Newburyport	18,211	1	—	—	—	—	—	—	—
Melrose	12,962	2	—	—	—	—	—	—	—

Deaths reported 2,121; under five years of age 529; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 145; acute lung diseases 306; consumption 248; diphtheria and croup 74; typhoid fever 60; diarrheal diseases 26; whooping cough 17; scarlet fever 12; cerebrospinal meningitis 7; measles 6; erysipelas 6.

From whooping cough New York and Pittsburg 5 each, Boston 3, Clinton 2, Chelsea and Everett 1 each. From cerebrospinal meningitis Worcester 3, New York and Gloucester 1 each. From scarlet fever New York and Boston 4 each, Baltimore, Pittsburg, Worcester and Somerville 1 each. From measles New York 5, New Bedford 1. From erysipelas New York 2, Lowell, Haverhill, Chelsea and Newton 1 each. From

typhoid fever Pittsburg 21, New York 19, Boston 12, Baltimore 4, Worcester 3, Providence 2, New Bedford, Springfield, Holyoke, Taunton and Chicopee 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,610,296, for the week ending December 15th, the death rate was 16.8. Deaths reported 3,744; acute diseases of the respiratory organs (London) 349, diphtheria 77, whooping cough 68, fever 58, measles 49, scarlet fever 42, diarrhea 31.

The death rates ranged from 8.6 in Norwich to 22.2 in Manchester; Birmingham 16.5, Bolton 21.3, Bradford 16.3, Cardiff 12.9, Croydon 11.9, Derby 15.0, Gateshead 20.0, Halifax 12.4, Hull 19.9, Leeds 17.5, Liverpool 20.0, London 16.5, Newcastle-on-Tyne 17.4, Nottingham 21.1, Plymouth 16.8, Portsmouth 13.6, Salford 17.7, Sheffield 18.7, Swansea 15.8, West Ham 12.6.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 5, 1901.

R. P. CRANDALL, surgeon, detached from the U. S. training ship "Constitution," upon reporting of relief, ordered to temporary duty in connection with recruiting at Milwaukee, Wis., and then home to wait orders.

W. A. McCLURG, surgeon, detached from the "Indiana" and to Naval Training Station, Newport, R. I., as the relief of Surgeon R. P. CRANDALL.

J. M. BRISTER, assistant surgeon, ordered to the "Independence," January 13, 1901.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JANUARY 8, 1901.

PURVISAGE, GEORGE, surgeon. Relieved from duty at Baltimore, Md., and directed to proceed to Washington, D. C., reporting at the bureau for duty. December 29, 1900.

WERTENAKER, C. P., passed assistant surgeon. To proceed to Shreveport, La., for special temporary duty. December 28, 1900.

STIMSON, W. G., passed assistant surgeon. To proceed to Denver, Col., for special temporary duty. January 1, 1901.

BROWN, B. W., passed assistant surgeon. Relieved from duty at Cape Charles Quarantine and directed to proceed to Baltimore, Md., and assume command of the service, relieving Surgeon GEORGE PURVISAGE. December 29, 1900.

WILLE, C. W., assistant surgeon. To assume temporary command of Cape Charles Quarantine, relieving Passed Assistant Surgeon B. W. BROWN. December 29, 1900.

AMESSE, J. W., assistant surgeon. On being relieved by Assistant Surgeon L. P. H. BAHRENBURG, directed to proceed to Manila, P. I., and report to chief quarantine officer for duty. January 2, 1901.

LOYD, B. J., assistant surgeon. Granted leave of absence for sixteen days from December 11th. January 3, 1901.

BAHRENBURG, L. P. H., assistant surgeon. Bureau order of December 27, 1900, directing Passed Assistant Surgeon Bahrenburg to proceed to Manila, revoked; and directed to proceed to Honolulu, H. I., reporting to the chief quarantine officer for duty. December 31, 1900.

BREADY, J. E., acting assistant surgeon. Granted leave of absence for four days from January 2, 1901. December 28, 1900.

KOLB, W. W., hospital steward. Granted leave of absence for thirty days from January 29th. January 2, 1901.

OLSEN, E. T., hospital steward. Granted leave of absence for five days. January 2, 1901.

CASUALTY.

A. R. BOOTH, acting assistant surgeon, died at Shreveport, La., December 27, 1901.

SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will hold a regular meeting on Wednesday, January 16, 1901, at the Boston Medical Library Building, 8 The Fenway, at 8 p. m. The meeting will be held in Sprague Hall, in the rear of the first floor of the building.

At 8 o'clock: Drs. F. W. White and Maynard Ladd will present a paper entitled "Whey Cream Mixtures in Infant Feeding."

At 8.15 o'clock: Drs. W. N. Bullard and C. W. Townsend will present a paper entitled "Convulsions in Children." Discussion by Drs. Roth, Wentworth and Morse.

HENRY F. HEWES, M.D., Secretary.

RECENT DEATH.

R. V. K. MONTFORD, M.D., clerk of the Board of Education and superintendent of the public schools of Newburgh, N. Y., died on December 28th. He was born in Fishkill village in 1835 and served as surgeon of the 124th Regiment, New York Volunteers, throughout the Civil War. He had been connected with the Newburgh schools for nearly thirty years.



THE NEW BUILDING OF THE BOSTON MEDICAL LIBRARY.

Addresses.

DEDICATION

OF THE

NEW BUILDING OF THE

BOSTON MEDICAL LIBRARY.¹

ADDRESS

BY

DAVID W. CHEEVER, M.D., LL.D.,

President of the Boston Medical Library Association.

MEMBERS OF THE BOSTON MEDICAL LIBRARY, OUR INVITED GUESTS, LADIES AND GENTLEMEN:—By the liberality of many citizens, women as well as men, whose gifts we gratefully acknowledge, and by the free offerings of our professional brethren, we have erected this commodious and safe depository for our medical library. It is with a peculiar feeling of thankfulness that I officially welcome here the physicians of Boston and of New England. The object for which we have striven is so vital to our welfare that a certain solemnity is appropriately mingled with our gratitude. Over and over again, in these later years of financial prosperity, have we seen vast schemes of benevolence, of religion and of education begun and finished promptly by the munificence of a single wealthy citizen. Such has not been our good fortune. We have received but one large gift and that from a lady who wishes to remain unknown.

"*Inter tedia et labores*," literally, have the doctors toiled to make this library and to give it a safe and suitable building. Our librarian will detail to you, as he alone can do, the long years of effort by which he has raised this to the fourth place among the medical libraries of this country.

It is my simple duty to welcome you here, and to recount, briefly, the importance and the advantages of our work.

A medical library is peculiar in that it must also be a contemporary and a periodical library. The present is even more valuable to it than the past, although the records of the past are inestimable. It has been well said that the burning of the library of Alexandria set civilization back through all the centuries of the Middle Ages. So, were all records of medicine blotted out, the next generation of doctors would begin as children over again. What has been discovered has been recorded, and were that lost, humanity would be reduced to the rough medical practice of the savage. It is impossible to set a money value on medical science, and without the records of science, there would be no medical art. Were anatomy, physiology and pathology lost, we should be groping in the first footsteps of ignorance. Were the history of all diseases, recorded in our books, destroyed, we should be only children as observers. But to the younger doctors who listen to me it will appear that the present is all important. And if we were suddenly deprived of the knowledge acquired in the last fifty, twenty, or even ten years, what a change would come over medicine! Anesthesia, antiseptic and bacteriology are now the paramount factors of all our progress. And the peculiarity of this species of knowledge is that it is ephemeral; it lives but a day;

it is not lost, but its seeds germinate in new discoveries the next day. What we know today may be obsolete tomorrow, simply because it is subject to daily investigation and daily modification.

This form of knowledge requires an ephemeral literature to record it. The monthly, the weekly periodical supply this knowledge. Hence the importance of a periodical library in medicine. More than five hundred such publications are taken here; read here; preserved here in files. This, then, constitutes a most valuable part of our library.

To allow the busy doctor and the student an opportunity to use this knowledge, it must be rendered accessible in commodious and quiet rooms, for reading, writing, excerpting. In our fine halls we can now offer the wisdom of the older authors, and the discoveries of almost every hospital and clinic and school in the world. Special subjects can be searched and exhausted; and the hurried doctor can drop in for half an hour and find the facts he is in search of, speedily and surely.

This is not all our function. A meeting house for physicians is also here provided; a medical centre, where professional intercourse will be aided by social features also.

I believe that the future influence of this Boston Medical Library on the doctors of New England will be beyond computation, in advancing science, softening prejudices and modifying opinions.

In 1874 six physicians met in the office of the late Dr. Henry I. Bowditch, and laid the foundation of this library association. Three of these gentlemen still serve us: Dr. F. I. Knight, as vice president; Dr. O. F. Wadsworth, as clerk; Dr. James R. Chadwick, as librarian. We may fittingly recall, also, that our assistant librarian, Dr. Edwin H. Brigham, is still in charge; having faithfully filled that office since 1875. Mrs. Collins, our cataloguer, has served us well for twenty-two years. Such permanence and reliability have been great helps in our progress. In 1877 an act of incorporation was obtained. Twelve of the fourteen original incorporators survive. We have lost three presidents by death: Dr. Oliver Wendell Holmes, presiding from 1875 to 1888; Dr. Hodges, presiding from 1888 to 1890; Dr. Minot, presiding from 1890 to 1896.

A quarter of a century has elapsed, and we have moved from Hamilton Place to Boylston Place, and thence, here. In this chaste and appropriate edifice we now are domiciled. That it is so well constructed we owe to the good taste of the architects, Messrs. Shaw & Hunnewell, aided by the suggestions and the oversight of our building committee, Drs. J. Collins Warren, J. R. Chadwick, Farrar C. Cobb. It is a noteworthy fact that we have completed our building for less than the estimated cost. This is unusual; and we owe it largely to the prudent management and practical knowledge of Dr. Farrar Cobb, whose experience in building a large hospital has well served him and us.

The young men in our ranks have pushed us on, and furnished that spur of enthusiasm which conservative age sometimes lacks. We owe also much of our financial success to the tact of our committee to solicit subscriptions, of which Dr. John Homans, 2d, is chairman. I consider that we have made a financial success, because we have collected by subscription about \$73,000.

¹ Saturday, January 12, 1901.

We have paid out \$125,000; and \$15,000 will complete our building and furnishing; thus bringing the total cost up to rising \$140,000. Sixty-seven thousand dollars are still due; but we have \$25,000 to meet this, in land we own, unsold, leaving a balance of debt of \$42,000. We have mortgaged this library, building and land, for \$50,000.

Our younger members have generously guaranteed the interest on \$25,000 for five years. And this leaves us a yearly burden of interest of about \$1,000. We are not so badly off then. Fifty thousand dollars would clear us of debt.

But looking forward to the future we need an endowment to buy books. Many physicians have given us their libraries; others will do so as time goes on. But we need modern contemporary books. We ought to have on our shelves every modern treatise and textbook, in English, French or German, as soon as published; medical students and doctors alike need this. The interest of a modest sum would buy all the new books worth buying. We need a fund with a yearly income to enable us to receive students freely; to give them a room to themselves. We want students to come here as well as doctors, and we want to be able to give them good facilities for study.

Our hall for business meetings has been beautifully fitted up in memory of Dr. Richard Sprague, by his mother and by the Hon. C. F. Sprague. Mrs. Field, the widow of our late genial associate, has furnished a room, as a memorial. Holmes Hall speaks for itself. I need not describe its excellence. Would that some one might decorate and furnish the hall we occupy this evening. From the walls of Holmes Hall, from other rooms, look down upon us the portraits of many of our medical forefathers and teachers: The Warrens, Bigelows, Jacksons, Homan, Shattucks, Wymans, Bowditchs, Cabots, Putnams, Storers, Ellis, Buckingham, Holmes! How can I cease the enumeration? These were scholarly doctors. We need to continue this patrician *Genus*. Science enlightens, but does not wholly satisfy; the humanities in education soften manners, nor allow them to be harsh.

The moral effect produced on the patient and the community by the learned, as well as gentlemanly, physician, is great and wholesome. Let the doctor cultivate books, and let the influence of this library help him to do so.

It is now my privilege to introduce to you our librarian. If any one name were named who had collected and created our library, it is he. He is a bibliophile, who travels over Europe with a list of missing numbers always in his pockets. Persistent as the bee, he never comes home without honey.

ADDRESS

BY

JAMES R. CHADWICK, M.D.,

Librarian of the Boston Medical Library.

"Hæc perit et imputantur." "The hours perish and you must account for them." These words, taken from the sun-dial at Oxford University, seem to express the sentiment with which you give me your attention today, when I speak to you, fellow-associates, in the name of the governing body of this library. Hours have lengthened into days, days into years, and

years have spanned the quarter of a century, since you laid upon our shoulders the burden of creating and building up a library to meet the wants of our profession in this community. Most of us have become silversides in the process of time and regard the ratio of sixteen to one as very moderate. A few are in position to follow the example of a friend of mine, who has discarded a brush and comb from his toilet set and claims that all he needs to do in the morning is to dust off the top of his head. A few, happily but few, of our early collaborators have fallen by the wayside and are no longer with us today to enjoy the full consummation of their efforts. I cannot mention them all; you know them — the impetuous, high-minded Bowditch, the beneficent Shattuck, the quiet, persistent Ellis, the sturdy Buckingham, the erudite Field, that dazzling genius Bigelow, and among the younger men, the scholarly Curtis, the wise Hooper, the whole-hearted, witty Wigglesworth.

Last to be mentioned, but first in all your minds today, is he who lent us the prestige of his name at the inception of our undertaking — Oliver Wendell Holmes, our first president, litterateur, poet, wit, and for thirty-five years professor of anatomy at the Harvard Medical School. Our debt to him can never be paid, but we intend to keep it alive in our memory by dedicating to him our principal reading room, to be known through all time as Holmes Hall. His bust in bronze, a replica of that made by R. E. Brooks for the Boston Public Library, looks down upon us from over the mantelpiece at one end, his portrait by Billings at the other. We have many mementoes of him scattered through the hall: the latch of the house in which he was born; the earliest known portrait of him, a daguerreotype taken by Whipple & Hawes about 1845; his first cast in bronze for me by the sculptor, T. H. Bartlett, with regard to which the latter tells an amusing and characteristic story. When Dr. Holmes was asked if he would hold a pen while the mould was being made, he said, "No," doubling up his fist like a prizefighter's. "Take it that way, which does not show the wrinkles of old age, does it?" His medical library of nearly 1,000 volumes, including many superb tomes of anatomical plates in which he took the keenest delight, will there find a suitable abiding place in accordance with his dying bequest in 1894.

In his poem "To the Portrait of a Lady" he says:

"I love sweet features: I will own
That I should like myself
To see my portrait on a wall,
Or bust upon a shelf;
But Nature sometimes makes us up
Of such sad odds and ends,
It really might be quite as well
Pushed up among one's friends."

His wish is gratified by us, his friends.

Happily, some of us, men of '75, survive to enjoy the pleasure of this moment, when we welcome you to the regal abode which your bounty has provided, in recognition of the library which our labors have brought together.

"The longest life" is said to be "a parcel of moments," so the largest library is but an aggregation of individual books. Exclusive of duplicates for home circulation, we have today upon our shelves about 33,000 volumes and 30,000 pamphlets; yet these figures give but a partial idea of our resources. To make this more clear I must bring to your minds the

change which time has brought about in the literature of medicine. Without dwelling upon the ponderous tomes in which was buried the medical lore of the early centuries after the discovery of printing, which your orator and president of twenty-two years ago dilated upon so learnedly and so wittily, I would ask you to come with me for a moment into the market place of Venice in the early part of the sixteenth century to scan a document, written in a legible hand, posted there and elsewhere in the city, for the perusal of those merchants who chose to pay a *gazetta* for the privilege. You would find that it gave the news brought back to Venice by some one of its adventurous captains, who had strayed beyond the limits defined in his rude chart, and made another land discovery in the far West or the far South. "The arrival of the ship in the Adriatic, the contents of its cargo, the price of commodities abroad, together with some account of a newly discovered island, its wonderful people and marvellous products would form the staple of the news-sheet of the hour."

When in 1536 the Venetian possessions in the East were attacked by the Turks, the first regular monthly journal was established by the government to supply news from the fleet, and men were paid to read the particulars at the principal points of the city, but no sheets were issued except such as were sanctioned by the Doge and his council. The officials were so jealous of the printing press, however, that it was nearly fifty years after this time that the first printed newspaper was published in the city and dispersed every month into most parts of Christendom.

It is probably true, as claimed by the Germans, that their nation was the first to actually publish a printed newspaper, a certain *Relation*, which appeared in Strassburg, fifty-two numbers of which, dating from the year 1609, are preserved in Heidelberg. The *Frankfurt Journal* was not published until 1615; the first English paper, the *Weekly News*, in 1623; the first French journal in 1630.

Be that as it may, the now universal *Gazette* is seen to have come from the small coin originally paid for the perusal of its manuscript predecessor. From this modest beginning has developed the enormous mass of periodicals which characterize the literature of medicine and most other branches of science at the present day. In medicine the greater part of this change has taken place in the nineteenth century.

When six of us young men met on December 21, 1874, to discuss the possibility of founding this library, and when we actually did found it on August 20, 1875, we were fully cognizant of this change that was rapidly taking place in the character of medical literature; we knew that the era of theories and systems in medicine was being pulverized into nothingness by the accumulation of crude facts and that these facts were to be found chiefly in periodical literature. Periodicals were then increasing at so rapid a rate that few private individuals could afford to obtain, or even give, them shelf room.

We did not at that time foresee that this difficulty was to be increased a hundredfold, not merely by the multiplication of individual periodicals — great as that might become — but by the publication of a colossal index to all previous medical literature, including every article in every one of the numerous periodicals.

In 1879 the library of the Surgeon-General's Office

in Washington, under the charge of an army surgeon, Dr. John S. Billings (whose presence here today is a fresh manifestation of his warm interest in our library), began the publication of an index catalogue of its collections, which comprised practically all medical literature up to that date. The first series of sixteen volumes, quarto, was completed in 1895; the new series comprising accessions since the publication of the first series has already reached the fifth volume.

Its value to medical scholars is inestimable, superseding, as it does, all the time-wasting labor that used to be expended in bibliographical research. By its aid we obtain a reference to every rare case that has been recorded since printing was discovered in A. D. 1450. But by indexing the articles and reports of cases in every periodical, past and present, obscure and famous, this catalogue has immensely extended the scope of medical research and created a demand for an array of books, and especially of periodicals, that is simply appalling.

I have dwelt at some length on this peculiarity of the medical literature of the present day that you might understand why it has been the constant aim of your librarian, during the past twenty-five years, to complete the files of all the important periodicals. His efforts have been attended with such success, despite the small funds at his disposal, that more than half of the volumes upon our shelves belong to that category. We are able to supply about seven-eighths of all the references to current literature demanded by our readers, even though they avail themselves of this great universal index.

It may pertinently be asked how our association, with practically no invested funds, has been able to achieve such results in the accumulation of books; for the table of curves suspended above me shows that in twenty-five years we have been able to outstrip many of the libraries which antedate us by many years in their foundation. Our library is already the fourth in size in the country, being exceeded only by that of the Surgeon-General's Office in Washington, that of the College of Physicians in Philadelphia, and that of the Academy of Medicine in New York.

I will tell you briefly. In the first place, we were fortunate enough to secure, at the onset, the custodianship of the libraries of all the societies pre-existing in the city. In the second place, most liberal contributions were made to us by many private individuals. In the third place, the completeness of our files of journals and transactions I attribute largely to the existence of the volume which I hold in my hand, my "want book," wherein, upon the left-hand page, is entered every periodical of which we have any part, while on the opposite page is entered every volume or number needed to complete the file of that particular journal. By invariably carrying this with me upon my travels in this country and Europe, I have been able gradually, at a trifling expenditure of money, to complete the files of all the leading periodicals of the world. I submit this to your special attention if you wish to know how to build up a medical library with practically no funds for the purchase of books.

So much for our accomplishment in the chief purpose for which we were brought into being. In some other ways we are making ourselves of use to the profession and to the community. For over twenty years we have been conducting a Directory for Nurses, which has been of immense value in putting,

at the shortest possible notice, the nurses of the State into communication with the physicians and their patients who wish to secure their services. Incidentally we have been able to raise the standard of nursing by putting a premium upon competence and training.

We have added to the amenities of professional life by supplying suitable halls for the meetings of the various medical societies and by hanging upon our walls the portraits of past worthies.

Within the past month we have received from Dr. Horatio R. Storer, of Newport, R. I., formerly of Boston, the gift of a most remarkable collection of medical medals, numbering 2,300 pieces. Only two other collections exist in the world at all commensurate with this, that of Dr. Joseph Brettauer, of Trieste, and that belonging to the library of the Surgeon-General's Office in Washington. Of the six other great collections that have been formed during the past two centuries, all have been scattered except that of Ruempelli, which was bequeathed to the Saankenbergische Gesellschaft of Frankfurt. Considered either from its historic interest, its esthetic merits, or its pecuniary value, I consider this gift as the most noteworthy that this association has thus far received. It is to be known as the Storer Collection of Medical Medals in memory of Dr. D. Humphreys Storer, the father of the donor, and is to be in charge of a son of the donor, Dr. Malcolm Storer, an accomplished numismatist.

We have a collection of many thousand autograph letters of past and present medical writers and practitioners, only awaiting the appearance of a custodian with time and enthusiasm to classify them and thus make them available to students of history at its original sources.

To recapitulate briefly: We started in, twenty-five years ago, with the one purpose of supplying the needs of the medical profession in the way of literature properly catalogued and otherwise made available to all students. The gift of this spacious building from the profession of this city is the best evidence that we have achieved our purpose. Shall we rest contented with the laurels which we have won? I venture to hope not. I think that we acted wisely in limiting the expenditure of our energies and of our money to the one purpose of building up a library, so long as that was the one thing most needed in the city. Now that we have secured the library and the best equipped building in the country in which to store it, we may properly consider whether the time has not come to enlarge the scope of our functions by assuming the rôle of a society in addition to that of a library.

A rich merchant of Athens gave the use of his house and gardens on the outskirts of that city to several philosophic friends for the site of their reunions. There Plato instructed his numerous disciples. This place was called "Academy" from the name of the owner, Academus. Cicero gave the same name to his country place near the lake of Avernus and devoted it to the same purpose. Now that we have a similar spacious domicile, surrounded by gardens, which we owe to the munificence of the city, I would propose that we follow the example of our remote ancestors and invite our philosophic brethren to hold their reunions in our halls, not as guests merely, but as integral parts of our association, and that we assume the name as well as the obligations of an academy.

It is not merely on account of the archeological parallel, over which my fancy thus plays, that I make this proposition to extend so radically the sphere of our activity. I have watched for many years the careers of similar institutions in other cities and have come to believe that the conjunction of the double attributes of a library and a society much more than doubles the usefulness of the institution. The authority and prestige enjoyed in their respective cities by the Academy of Medicine in New York, and the College of Physicians in Philadelphia, have no analogue in Boston. I remember being greatly impressed with this lack of an authoritative body of medical men in our midst when I was reading many years ago of the spread of a yellow-fever epidemic. The question of a quarantine against it was under discussion in Philadelphia by the State and city authorities, who referred the whole subject to the College of Physicians, which appointed from its numbers a committee of experts whose report was accepted by the government as final and its recommendations carried out. I could not help thinking at the time that had our State and City Boards of Health, in which we take justifiable pride, needed guidance, or even the support of popular opinion, in such an emergency, they would not have known to what body of medical men they could appeal with the assurance that the public would recognize that body as authoritative. Apart from this important rôle, which we have a chance to fill, our new building will enable us to develop the social side of the physician's life. We may become to a fuller extent than heretofore the centre of all activity among the medical men of the State.

But this subject requires more study and deeper consideration than it can receive on such an occasion as this, and it needs moreover the enthusiasm of youth to bring it to a happy issue. It is time that we, men of '75, stepped down from our official positions and laid upon more stalwart shoulders the burden of accomplishing the latter part of our dream.

"And ye who fill the places we once filled,
And follow in the furrows we once tilled,
Young men whose generous hearts are beating high,
We who are old and are about to die,
Salute you; hail you; take your hands in ours,
And crown you with our welcome as with flowers!

"How beautiful is youth! how bright it gleams
With illusions, aspirations, dreams!
Book of Beginnings, story without end,
Each maid a heroine, and each man a friend!
Aladdin's Lamp and Fortunatus' Purse,
That holds the treasures of the Universe!
All possibilities are in its hands,
No danger daunts it, and no foe withstands;
In its sublime audacity of faith,
'Be thou removed!' 'It to the mountain saith,
And with audacious feet, secure and proud,
Ascends the ladder leaning on the cloud!'"

PRESIDENT CHEEVER: We hope to make this building the permanent home of the Massachusetts Medical Society. The cohesive and conservative force of our parent organization is well represented in its president—the medico-legal pathologist, may I not say, of New England.

REMARKS

F. W. DRAPER, M.D.,

President of the Massachusetts Medical Society.

It is a congenial official duty, Mr. President, and an enviable personal honor, to respond to your call,

and, in the name of the Massachusetts Medical Society, to swell the chorus of congratulations which this occasion inspires. To one who has watched the evolution of this Medical Library from its beginning to its present moment, this jubilee is as appropriate as it is spontaneous. I recall the modest but hopeful way in which the library began its housekeeping in Hamilton Place. I remember in what an incredibly short time it burst its bounds, becoming so megalocheirous that all books in sight were gathered in; the result of this benevolent assimilation, this rapid expansion, was its removal to other and larger premises. How it has grown and prospered there, how it has faithfully fulfilled its mission, under somewhat trying conditions, while in that diverticulum of hidden dangers, that Bohemian midway pleasance, Boylston Place, you can all remember.

And now, following the westward example of every correct imperial course, it has made its second migration and has come here to what we may believe is its permanent home. And when we contemplate that home, its faultless architecture, its picturesque and dignified environment, its ample appointments, it is easy to join in expressions of gratification and to congratulate the library corporation upon this auspicious and most satisfactory achievement. Here the many thousand books which comprise this library have a fitting domicile, and one can almost hear them say, one to another, as they settle themselves contentedly in their permanent and harmonious places on the shelves, "Isn't this restful? Isn't this comfort?" Here the busy man in active practice can quickly find just the help he wants to take him over his clinical difficulties. Here the scholarly lover of good books can browse at his leisure in the well-tilled, overproductive fields of medical literature. Here the diligent seeker for facts finds in the files of current medical journals, gathered in this storehouse from all parts of the world, the latest record of research and observation. Here the ambitious undergraduate student of medicine, eager for knowledge, satisfies his longing.

And, then, there is another way in which this library meets the needs of medical men and appeals to their gratitude. I know of nothing quite so depressing in the experience of a sensitive physician as the absolutely heartless way in which his tried and trusted friends, the books in his medical library, are hustled and forced to the rear by new and strenuous candidates for favor. These older familiar guides and counsellors of his, whom he has loved and in whom he has confided, must be pushed aside to make room for the latest publication; senile obsolescence claims them as its victims while they are yet young. Something of the same sort is seen in the rapidly moving procession of new and revised editions of the standard works. You begin to get accustomed to Dr. Osler's classic volume when his second edition knocks at the door and seeks admission, and this has hardly settled in its place and become acquainted with its neighbors when the third edition is announced. And so it goes with all the writers whom we recognize as the leading authorities. The demand for new editions is good proof of the advance of medicine, but it requires an alert brain and a plethoric purse to do it justice. Thus it happens that most private libraries of medical books, belonging to physicians in middle life, contain many volumes too old to be usefully modern and

not old enough to be valuable on that account. And it is here that the Medical Library in this building will help us; because, for the modest annual assessment, every member can have the benefit of the latest thing in medical literature, either in original works or in new editions. And this is a very obvious advantage.

The reasons why the Massachusetts Medical Society should take special interest in the Medical Library are plain. In all its century and more of organized life, our venerable but ever vigorous State medical fellowship has been the consistent patron of sound medical literature, the zealous advocate of the best in medical education, the cordial exponent of medical progress; and in all these relations it is in closest sympathy with the fundamental spirit and purpose of this library. I would remind you, too, that the membership of this institution is largely composed of Fellows of the Massachusetts Medical Society; that its entire administration has been in their hands, and that the successful development and nurture of it have been under their guidance and control. It is not surprising, then, that the Massachusetts Medical Society takes an interest in this consummation of an enterprise which you, sir, and your associates have accomplished. And it is entirely proper that it should add its laurel wreath of special appreciation as a tribute to the man whom Dr. Oliver Wendell Holmes once described as the "untiring, imperturbable, tenacious, irrepresible, all-subduing agitator, who neither rested nor let others rest until the success of the library project was assured." The description fits Dr. Chadwick today as accurately as it did in 1878.

I must not forget to allude to another and very intimate relationship which the library sustains towards the society, the relationship of landlord and tenant, continuing under this roof an association which has been mutually satisfactory for many years; and I am glad to have this opportunity to make public acknowledgment of the liberal and altogether acceptable manner in which the tenant's needs have been met. As time goes by, these large and attractive halls will be the scene of meetings and of conferences representing the best thought of the medical men of this community. More than that — here will be found the very centre and focus of our highest medical interests, the home of our medical sodality, where the rust of exclusiveness and reserve will be rubbed away by social contact with our fellows, and where we may cultivate mutual respect and courtesy, taking counsel together and standing together for the highest good of our profession.

These are some of the considerations, Mr. President, which not only inspire gratitude and congratulation, but awaken the most cordial hope that the library will have increasing prosperity through all its future; that it will be an important factor in promoting the progress of medicine in this city, there is not a shadow of doubt.

PRESIDENT CHEEVER: The professor of medicine of Johns Hopkins University is himself one of the best examples of the scientific progress of our profession. As a clear and forceful writer, as a sound, and not too progressive, practitioner, as a lucid expounder in the clinic, he is well recognized in our United States. He

has honored us by his presence and has promised to address us.

REMARKS²

BY

WILLIAM OSLER, M.D., LL.D., F.R.S.,

Professor of Medicine in the Johns Hopkins University.

Those of us from other cities who bring congratulations this evening can hardly escape the tinglings of envy when we see this noble treasure house; but in my own case the bitter waters of jealousy which rise in my soul are at once diverted by two strong sensations. In the first place I have a feeling of lively gratitude towards this library. In 1876 as a youngster interested in certain clinical subjects to which I could find no reference in our library at McGill, I came to Boston, and I here found what I wanted, and I found moreover a cordial welcome and many friends. It was a small matter I was seeking, but I wished to make it as complete as possible, and I have always felt that this library helped me to a good start. It has always been such a pleasure in recurring visits to the library to find Dr. Brigham in charge, with the same kindly interest in visitors that he showed a quarter of a century ago. But the feeling which absorbs all others is one of deep satisfaction that our friend, Dr. Chadwick, has at last seen fulfilled the desire of his eyes. To few is given the tenacity of will which enables a man to pursue a cherished purpose through a quarter of a century — "*Olue Rast, aber olue Rast*" ('tis his favorite quotation); to fewer still is the fruition granted. Too often the reaper is not the sower. Too often the fate of those who labor at some object for the public good is to see their work pass into other hands, and to have others get the credit for enterprises which they have initiated and made possible. It has not been so with our friend, and it intensifies a thousandfold the pleasure of this occasion to feel the fitness, in every way, of the felicitations which have been offered to him.

It is hard for me to speak of the value of libraries in terms which would not seem exaggerated. Books have been my delight these thirty years, and from them I have received incalculable benefits. To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all. Only a maker of books can appreciate the labors of others at their true value. Those of us who have brought forth fat volumes should offer leucotomies at these shrines of Minerva Medica. What exsiccous, attenuated off-spring they would have been but for the pabulum furnished through the placental circulation of a library. How often can it be said of us with truth, "*Das beste was er ist verdankt er Anderen!*"

For the teacher and the worker a great library such as this is indispensable. They must know the world's best work and know it at once. They mint and make current coin the ore so widely scattered in journals, transactions and monographs. The splendid collections which now exist in five or six of our cities, and the unique opportunities of the Surgeon-General's Library have done much to give to American medicine its thoroughly eclectic character.

But when one considers the mending making of books, who does not sigh for the happy days of that thrice happy Sir William Browne whose pocket li-

brary sufficed for his life's needs; drawing from a Greek testament his divinity, from the aphorisms of Hippocrates his medicine and from an Elzevir Horace his good sense and vivacity. There should be in connection with every library a corps of instructors in the art of reading, who would, as a labor of love, teach the young idea how to read. An old writer says that there are four sorts of readers: "Sponges which attract all without distinguishing; Howre-glasses which receive and powre out as fast; Bagges which only retain the dregges of the spices and let the wine escape, and Sives which retain the best only." A man wastes a great many years before he reaches the 'sive' stage.

For the general practitioner a well-used library is one of the few correctives of the premature senility which is so apt to overtake him. Self-centred, self-taught, he leads a solitary life, and unless his everyday experience is controlled by careful reading or by the attrition of a medical society it soon ceases to be of the slightest value and becomes a mere accretion of isolated facts, without correlation. It is astonishing with how little reading a doctor can practise medicine, but it is not astonishing how badly he may do it. Not three months ago a physician living within an hour's ride of the Surgeon-General's Library brought his little girl, aged twelve, to me. The diagnosis of infantile myxedema required only half a glance. In placid contentment he had been practising twenty years in "Sleepy Hollow" and not even when his own flesh and blood was touched did he rouse from an apathy deep as Rip Van Winkle's sleep. In reply to questions: No, he had never seen anything in the journals about the thyroid gland; he had seen no pictures of cretinism or myxedema; in fact his mind was a blank on the whole subject. He had not been a reader, he said, but he was a practical man with very little time. I could not help thinking of John Bunyan's remarks on the elements of success in the practice of medicine. "Physicians," he says, "get neither name nor fame by the pricking of wheels or the picking out thistles, or by laying of plaisters to the scratch of a pin; every old woman can do this. But if they would have a name and a fame, if they will have it quickly, they must do some great and desperate cures. Let them fetch one to life that was dead, let them recover one to his wits that was mad, let them make one that was born blind to see, or let them give ripe wits to a fool — these are notable cures, and he that can do thus, if he doth thus first, he shall have the name and fame he deserves; he may lie abed till noon." Had my doctor friend been a reader he might have done a great and notable cure and even have given ripe wits to a fool! It is in utilizing the fresh knowledge of the journals that the young physician may attain quickly to the name and fame he desires.

There is a third class of men in the profession to whom books are dearer than to teachers or practitioners — a small, a silent band, but in reality the leaven of the whole lump. The profane call them bibliomaniaes, and in truth they are at times irresponsible and do not always know the difference between *meum* and *tuum*. In the presence of Dr. Billings or of Dr. Chadwick I dare not further characterize them. Loving books partly for their contents, partly for the sake of the authors, they not alone keep alive the sentiment of historical continuity in the profession, but they are the men who make possible such gatherings as the one

we are enjoying this evening. We need more men of their class, particularly in this country, where every one carries in his pocket the tape-measure of utility. Along two lines their work is valuable. By the historical method alone can many problems in medicine be approached profitably. For example, the student who dates his knowledge of tuberculosis from Koch may have a very correct, but he has a very incomplete, appreciation of the subject. Within a quarter of a century our libraries will have certain alcoves devoted to the historical consideration of the great diseases, which will give to the student that mental perspective which is so valuable an equipment in life. The past is a good nurse, as Lowell remarks, particularly for the weanlings of the fold.

" 'Tis man's worst deed
To let the things that have been run to waste
And in the unmeaning Present sink the Past."

But in a more excellent way these *laudatores temporis acti* render a royal service. For each one of us today, as in Plato's time, there is a higher as well as a lower education. The very marrow and fatness of books may not suffice to save a man from becoming a poor, mean-spirited devil, without a spark of fine professional feeling, and without a thought above the sordid issues of the day. The men I speak of keep alive in us an interest in the great men of the past and not alone in their works, which they cherish, but in their lives, which they emulate. They would remind us continually that in the records of no other profession is there to be found so large a number of men who have combined intellectual pre-eminence with nobility of character. This higher education so much needed today is not given in the schools, is not to be bought in the market place, but it has to be wrought out in each one of us for himself; it is the silent influence of character on character and in no way more potently than in the contemplation of the lives of the great and good of the past, in no way more than in "the touch divine of noble natures gone."

I should like to see in each library a select company of the Immortals set apart for special adoration. Each country might have its representatives in a sort of alcove of Fame, in which the great medical classics were gathered. Not necessarily books, more often the epoch-making contributions to be found in ephemeral journals. It is too early, perhaps, to make a selection of American medical classics, but it might be worth while to gather surrages on the contributions which should go upon the Roll of Honor. I did a few years ago make out a list of those I thought the most worthy to 1850, and it has a certain interest for us this evening. The native modesty of the Boston physician is well known, but in certain circles there has always been associated with it a curious psychical phenomenon, a conviction of the utter worthlessness of the *status præsens* in New England, as compared with conditions existing elsewhere. There is a variety today of the Back Bay Brahmin who delights in cherishing the belief that medically things are everywhere better than in Boston, and who is always ready to predict "an Asiatic removal of candlesticks," to borrow a phrase from Cotton Mather. Strange indeed would it have been had not such a plastic profession as ours felt the influences which moulded New England into the intellectual centre of the New World. In reality, nowhere in the country has the profession been adorned more plentifully with men of culture and

of character and, happily, not voluminous writers or exploiters of the products of other men's brains—they would manage to get a full share on the Roll of Fame which I have suggested. To 1850, I have counted some twenty contributions of the first rank, contributions which for one reason or another deserve to be called American medical classics. New England takes ten. But in medicine the men she has given to the other parts of the country have been better than books. Men like Nathan R. Smith, Austin Flint, Willard Parker, Alonzo Clark, Elisha Bartlett, John C. Dalton and others carried away from their New England homes a love of truth, a love of learning and above all a proper estimate of the personal character of the physician.

Dr. Johnson shrewdly remarked that ambition was usually proportionate to capacity, which is as true of a profession as it is of a man. What we have seen tonight reflects credit not less on your ambition than on your capacity. A library after all is a great catalyser, accelerating the nutrition and rate of progress in a profession, and I am sure you will find yourselves the better for the sacrifice you have made in securing this home for your books, this workshop for your members.

PRESIDENT CHEEVER: The librarian of the New York Public Library represents the largest collections of our land next to the Congressional Library. Fortunate for us and for medicine that he has given some of the best years of his life to our interests, and that in the Surgeon-General's Office and in the Army Museum and Library he has indexed the medical universe.

REMARKS

BY

J. S. BILLINGS, M.D., LL.D., D.C.L.,
Librarian of the New York Public Library.

No doubt we have all heard "platform figureheads"—of advanced years and much experience—commence their remarks on occasions like this by saying that one of the privileges of old age is the perspective, retrospective view which it gives of institutions, society and the world in general. I used to suppose that this was an excuse for, and explanation of, the attitude of sage and prophet assumed by the speaker, and that he enjoyed solid comfort in giving advice; but I am now beginning to appreciate how those old gentlemen really felt when they announced this important discovery. Most of them, I think, did not feel as wise as they looked, nor as certain and free from doubt as they did in their youth, but circumstance compelled them to speak, and this was a way to begin.

As I look back to the ceremonies of opening the then new building for this library in Boylston Place in 1878, I find that of the speakers on that occasion, I am the only one now present. President Eliot is still very much alive, although not here tonight; but Holmes, Ellis, Lyman, Smith, Henry I. Bowditch and Justin Winsor have passed away, and their biographies have been written. Fortunately, the results of their work remain and are enlarging, and one of these results we have before us tonight.

The medical prospect has changed somewhat within the last twenty-two years; there is a new literature, a new pathology, a new surgery, and new names for

some very old things. — Christian Science, for example, — but the old records have not lost all interest, and the special value of the library is that it contains both the old and the new. In his memorable address twenty-two years ago, Dr. Holmes rightly insisted that a library like this must exercise the largest hospitality, but this applies to gifts rather than to purchases. The funds for conducting a library, medical or other, are always insufficient, and the librarian, or library committee, must therefore exclude from the purchase lists many works which might be welcome additions if obtainable from other sources. The selection is sometimes difficult, and in making it, the work of other reference libraries in the vicinity, such as the public library, the university library, and some special libraries, must be considered. Even gifts must be scrutinized with reference to available space, and to their relative utility in other neighboring institutions. This library does not want a set of United States public documents, or of Massachusetts documents, although in each of these series there are a few things which it should secure. Curious things may be found in public documents. How many of you, I wonder, have ever heard of Herkimer Sternberg, and his great medical discovery, which is vaguely indicated in the following extract from Document No. 15 of the Assembly of the State of New York, dated January 15, 1859, being a report of the Committee on Medical Societies and Colleges, relative to the petition of Herkimer Sternberg for aid in publishing his manuscript of a proposed work. The committee reports "that they have had under their serious consideration the subject referred to them and have become satisfied if the prayer of the petitioner be granted, that the result of the scheme proposed by this Herkimer Sternberg, if successful, will be the annihilation of the medical profession, and thus the five or six thousand doctors of our State will be turned out upon the cold charities of an unfeeling world; that it will introduce the millennium several years before its proper advent in the regular order of business; that it will dislocate every joint in the system of the moral universe . . . and, therefore, the committee ask to be discharged from its further consideration."

In cities where there is no medical library, it is clearly the duty of the public library to provide some of the best medical books and periodicals for the use of the physicians of the city, as well as for the direct benefit of the public. It is, however, a matter of common experience that some lay readers are rather injured than benefited by reading medicine, and that it is best to restrict the use of certain classes of medical books. It simplifies the problems of the librarian of the public library when he knows that there is in the city a special medical library available for the use of physicians, and that he need only obtain those books which, if not exactly suitable for public use, are not calculated to do much harm. He will usually be glad to send to such a medical library the medical books of the eighteenth and most of the nineteenth century, old medical journals, miscellaneous medical pamphlets, theses, reports, etc., and to retain in the public library only those which have some interest in local history, or in other subjects besides medicine.

There are certain duties and responsibilities which rest upon a few large reference libraries which do not pertain to the great majority of city public libraries. For example, the average city library should collect

and preserve all the reports of hospitals in its own city as a matter of local history, but it should not waste time or energy over the reports of hospitals in other cities, but should send those that come in either to a medical library or to one of the great reference libraries of the country like the Boston Public, the New York Public, or the Congressional Library. These great libraries must collect and preserve such reports as a part of their collections relating to charities — private and public — an important branch of sociology, but they are only useful in this way when the collections are very large and permit of comparisons of methods and results from a wide area and for considerable periods of time.

The field of medicine is very broad, and the special medical library might properly include not only general biology with its general subdivisions of morphology, physiology, psychology and anthropology, but also much of the literature of botany, zoology, chemistry, physics, municipal engineering, building and other applied sciences — and in fact the great medical libraries of London, Paris, Berlin, St. Petersburg and Washington do include many of these subjects. But this requires more space and money than most medical libraries can afford to give, and hence it is usually best to leave most of these subjects to other special libraries.

The department of first importance in a library like this is that which contains its files of periodicals, not only because they contain the original records from which textbooks and monographs are made up, but they represent the feelings, views and wants of the great mass of the profession, and are the great sources for the medical history of the nineteenth century. Medicine is now the most cosmopolitan and international of all the arts and professions, and this is largely due to its periodicals. Moreover, its periodical literature is now more accessible than that of any other profession because of the indexes upon which Dr. Holmes so much insisted. All this has been fully recognized by your librarian, and you are very rich in this class of literature. Thanks to the efforts of the medical profession of Boston (aided by those of some other parts of the country), Congress was induced to order the printing of the Index Catalogue of the Washington Collection which was under consideration twenty-two years ago, and which I then thought might make six volumes. This Index Catalogue is not yet finished, only twenty volumes having been published; but it can give considerable employment to the bibliographical student even now, and has probably added to the practical utility of this library, but perhaps not always to the perfect joy and content of its readers.

The fact that the physicians of Boston have another library besides this one to care for, as shown by their action with regard to the Index Catalogue, is one that I venture to remind you of because the needs of your National Medical Library are liable to be overlooked. Just now it is in urgent need of shelving for its additions, some of which are being stored in window sills or on the floor, which is bad for the books and for the readers.

Requests for funds to provide this shelving have been presented at the last two sessions of Congress, but received no attention. An estimate is before the present Congress for \$9,000 to supply this shelving, and if the Massachusetts representatives and senators

hear from their medical constituents that this is a matter in which they are interested, there is no doubt that it will be done.

Your Washington Medical Library now contains 136,000 volumes and 230,000 pamphlets—decidedly the largest and best library of its kind in the world—and ought to be kept up to date in good shape.

When I tried to say something on the occasion of the opening of this library in the Boylston Place Building, I well remember that I was very much embarrassed and not a little afraid, and would have been very glad to have been merely a listener.

On the present occasion, while I am in trouble to find the right words in which to express my thoughts and feelings, I am very glad indeed to have the opportunity to congratulate you upon the result of the work of the Boston Medical Library Association during the last twenty-five years, and I do congratulate you most heartily and sincerely. The collection of books, of portraits, of medals, the building in its plan, structure and furnishings, are all things of which you have good right to be proud, and with which you may rest satisfied for several weeks to come.

As you all know, these results are largely due to the fact that one man having abundance of energy and public spirit, with much knowledge and an insatiable thirst for more, and with a fairly definite idea of what he wanted, has been working incessantly for the last quarter of a century towards this end. I congratulate you upon your wisdom in letting him thus work, and in helping him to carry out this plan. His power for good has not been limited to Boston, for by way of recreation he has devoted some of his time to stirring up and stimulating other librarians like myself, when he thought they needed it, or when he had some superfluous energy to dispose of, which was often. In this and other ways, he has given material and valuable assistance to other libraries, more than any of you are aware of, and it is not my personal affection for him, great as that is, but a sense of what is just and right, which leads me to say to you that, while the Boston Medical Library has been his special pet, for which no trouble was too great to take, and no sacrifice too great to make, all other medical libraries in this country are more or less indebted for their progress and prosperity to your librarian, Dr. James R. Chadwick.

PRESIDENT CHEEVER: The genial professor of therapeutics from Philadelphia will now address us. He is also a professor of nervous diseases, but he will omit that branch on this occasion. As representing the oldest medical centre in America, and still among the most modern, I take especial pleasure in introducing him to you.

REMARKS

BY

H. C. WOOD, M.D., LL.D.,

College of Physicians of Philadelphia; Professor of Nervous Diseases and Therapeutics, University of Pennsylvania.

MR. PRESIDENT AND GENTLEMEN WHO HAVE ASSISTED IN THE CREATION OF THE BOSTON MEDICAL LIBRARY.—It is with a high sense of the honor conferred upon me that I bring greetings and congratulations in this, the opening of the twentieth century,

to you, the fruit of whose labors is seen in the substantial edifice and the loaded bookshelves which surround us; greetings and congratulations from the College of Physicians of Philadelphia.

In doing this I desire to express most warmly my appreciation of the great work which has been done largely through the efforts of a few men among you, and in a comparatively brief period. It may well be questioned whether so rapidly a successful effort has been equalled upon the American Continent, and I trust that it will be understood that what I have to say in regard to the institution which I represent is said in no spirit of egotism, but simply as the effort of age, perhaps senile and garrulous, to read lessons to the young through its own experience.

The College of Physicians of Philadelphia was born January 2, 1787, amidst surroundings most primitive, and has grown with the growth of American civilization. That the founders of the college had very clear ideas as to the necessity of a medical library for the increase of medical knowledge, and for the perfection of medical units, is shown by the fact that during the first year of its existence the college discussed the subject, and a few weeks later, namely, on March 3, 1788, by the formal acceptance of the gift from Dr. John Morgan of 24 volumes, by the approval of a regular plan for a library, and by the appropriation of fifty pounds—Colonial—for the purchase of books, laid the foundation of that collection of medical books which is today the most valuable of its kind in the United States, save only the one in Washington belonging to the Federal Government. In the library of the college at Philadelphia there are at present 61,359, or including duplicates, 65,499 volumes, besides unbound pamphlets; there is also an especial fund of \$50,000 for the purchase of new books.

It has seemed to me, in thinking over what I know of the profession in Boston, that possibly it might be well for the association of physicians which has been successful in the creation of the library about us to widen the scope of its operations, and thereby do great good and indirectly assist the library itself. So far as can be seen, if the founders of the College of Physicians had made the creation of the library their sole object, the library would have soon perished as one born out of due time. It has been the cohesive influence of aims other than those purely scholastic which has bound together successive generations of medical practitioners in Philadelphia so firmly as to make possible the gathering together of medical books; an object which was perhaps secondary in the minds of the founders, and besides which in their acts is clearly foreshadowed a threefold intent.

Plainly first among the results which it was hoped to attain was by fostering intercourse amongst fellows of the college to increase that personal friendship and amity which restrains far more powerfully tendencies to professional jealousy and undue rivalry than can any written law of ethics or any inculcation of precepts of professional conduct even during the educational period of life; the result has been that there are few members of the college who do not value the friendship and esteem of their fellows as their choicest possessions, and that the relations between members of the profession in Philadelphia are among the most perfect in the world.

The second object, for the attainment of which the

college was seemingly organized, was for the stimulation in its members of professional zeal in study and in doing what they could for the enlargement of the boundaries of medical knowledge. Even if time allowed, it would be scarcely becoming in me to show how successful the years have been in this respect, nor yet is it needful; the history of medicine in Philadelphia must be sufficiently known to you to recognize that in no other centre in the United States have there been more men of national or international fame, or more success either in actually increasing knowledge or in preparing it as brain food for the rank and file of the profession.

The third intent, which was early manifested in the acts of the college, was to afford a body of physicians, the conjoint local reputation of whose members would be sufficient to give overwhelming weight to any deliberate expression of opinion made by the assembly upon matters medical in which the general public was concerned.

A few months after the foundation of the library, namely, in April, 1789, the influence of the college was first brought to bear upon the public authorities. The old records show that at the time there was a widespread epidemic of influenza in Philadelphia; that the President of the United States was to visit the city on his way from Mt. Vernon to New York, where he was to be inaugurated; and that among other ceremonies a general illumination was proposed; but that on the representation of the college that the late night exposure in the month of April would undoubtedly increase the number of victims of the prevailing disease, the proposed illumination was abandoned. The action of the college and its results may after all have been matters of no great importance, but they were drifting straws, showing the set of the current of public opinion; a current which later in the same year led the Legislature of Pennsylvania to formally apply to the college for assistance in the enactment of the State laws for the prevention of the introduction of infectious diseases.

To make further citations of similar instances of correlation between the College of Physicians and the governmental authorities of the State or of the city would require simply a going over the records of the history of the college, but I have been sternly warned not to overpass ten minutes of time, so I forbear; only calling attention to the fact that the College of Physicians has frequently taken part in governmental procedures, and that the degree of attentiveness of the governmental ear to its voice has usually been a fair measure of the wisdom and the honesty of the governmental brain. As politics in the modern sense of the word has grown among us to be more and more of a special business, so has the governmental ear been dulled; as city or State governments have risen or ebbed in the standard of their purity, so have the admonitions of the college been listened to or neglected; and usually has the community reaped the reward or paid the penalty for such action, since in most cases the decisions of the college have been correct.

Such, gentlemen, is the brief lesson which I would read to you from the long and successful history of the College of Physicians of Philadelphia; led by it I venture to urge that for the continuing success of your library, for the internal benefit of the profession in Boston, for the advancement of medical knowledge

within your bounds, for the general good of the community in which you dwell, the association should broaden its scope, so that it should become not simply a library association but a veritable collegium, whose fellows pass through life hand in hand, in all fidelity inciting each other to good works.

May I further add that the history of the Philadelphia College indicates that in such broadening certain matters must be attended to. It seems to be primarily essential that all school fellowships and affiliations be laid aside in the membership. Alumni associations are well, but they have here no place. The graduate of Harvard must for the time being forget his Alma Mater in a wider brotherhood, so that whether a man be a Boston graduate, or come from the far-off University of Tokyo, or from the school of Göttingen, he shall be equally available for membership in the association and for honors in its body politic. On the other hand, almost equally essential is it that no attempt be made to interfere with what may be considered the normal political aggregation of physicians in the United States, namely, the county medical societies, growing upward to the State societies, and then to the general association in the United States. In the county medical societies every legalized physician, who is willing to be honest and upright in his profession, should have the right to take part, but in the proposed organization the standard of membership should be higher; so that membership in the association should be looked upon as an honor, because it stands not only for high professional purity and ethicality, but also for high professional zeal and culture. It is given to but few to be professional leaders, but many can be honest medical gentlemen, highly cultured students, and thoroughly conscientious physicians; of such and of such only should be the membership in the suggested College of Physicians of Boston.

PRESIDENT CHEEVER: It is a good omen for us that a doctor of medicine is even a temporary ruler of Harvard University. Medicine and our Medical Library are well represented in the corporation. But in the acting president we have a conspicuous example of sanitary, professional and executive ability.

REMARKS

BY

HENRY P. WALCOTT, M.D.,

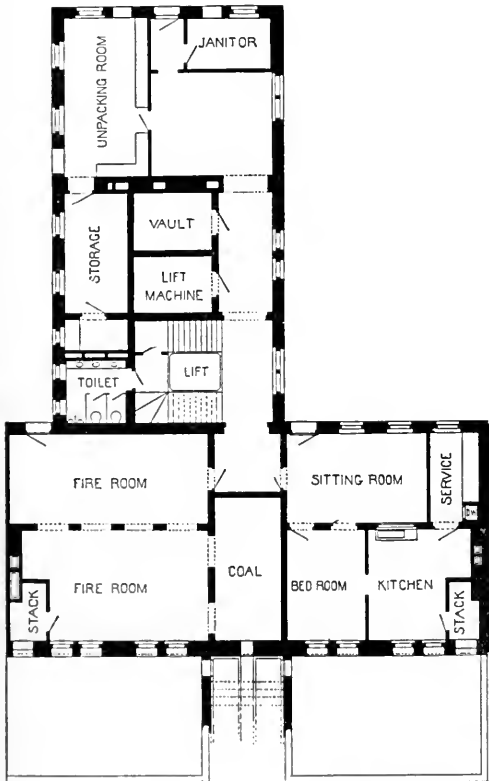
Acting President of Harvard University.

THE opening of a library devoted to the general purposes of literature, history and art would compel the representative of a great teaching body to say something about the appeal which such collections make to the cultivated and intelligent members of the community. We cannot, however, say that this collection of books will ever appeal to us in the higher sense in which the masters of literature have swayed their worlds.

You shall find no author here who has made a figment of his imagination as real as an actual personage of history.

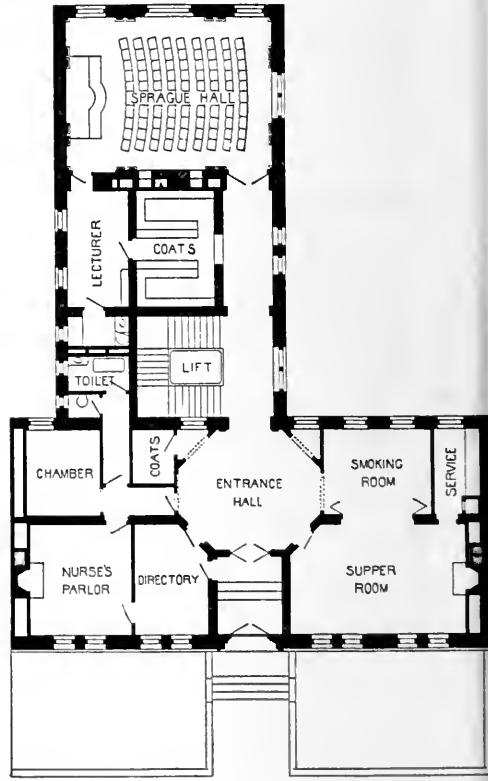
The diseases of the human race, and I may add, too, those of the domesticated animals, have an interest that needs no play of the imagination and not even the graces of style. The description, however, must

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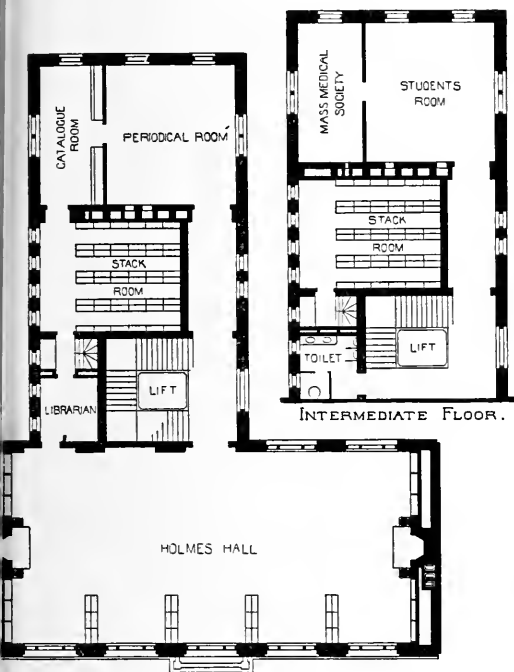
rect.

Such, gentlemen, is the brief lesson which I would read to you from the long and successful history of the College of Physicians of Philadelphia; led by it I venture to urge that for the continuing success of your library, for the internal benefit of the profession in Boston, for the advancement of medical knowledge

You shall find no author here who has made a figment of his imagination as real as an actual personage of history.

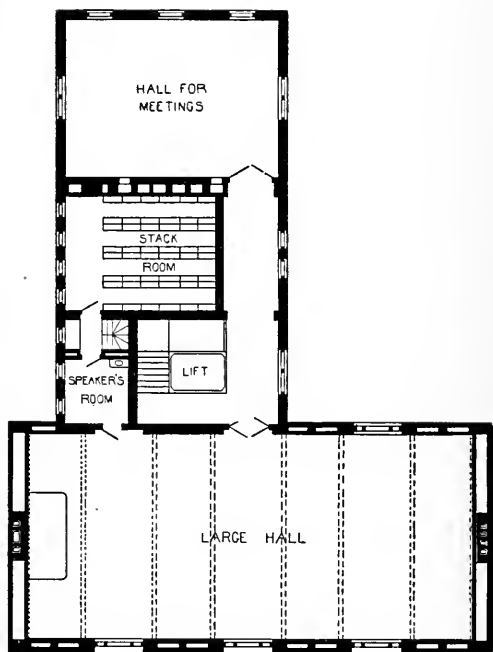
The diseases of the human race, and I may add, too, those of the domesticated animals, have an interest that needs no play of the imagination and not even the graces of style. The description, however, must

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books as have become of historical interest only.

The explanation of this seeming lack of care on the part of the university for her Medical School, in which she takes a just pride, is undoubtedly to be found in the fact that the resources of this library have been most freely given to the teachers and students of the school. The authorities of the uni-

ways,

Your friend,
S. WEIR MITCHELL.

A CENTENARIAN. — John B. Laing died in Chicago January 9th, at the reputed age of one hundred years.

have scientific accuracy, and that implies competent authority.

We read in vain the matchless pages of Thucydides to discover the real nature of the plague at Athens; the great historian could not adequately describe a disease which he not only saw, but from which he had himself suffered. Our pious ancestors resolved that "good learning should not perish from among us," and so founded the schools at Cambridge. The first substantial help was given by John Harvard, but little less precious than his bequest in money was the legacy of his books. It is well, then, that we should here cherish books, and it may be interesting to consider for a moment how Harvard College has used its libraries.

In my own college days the librarians were little more than watch dogs of the collections under their charge. Beyond the volumes of Reis's *Cyclopaedia*, the *North American Review* and some of the English quarterlies, students were rarely allowed access to the actual presence of the books; twice a week we were allowed to take out books for use in our rooms.

The result was that the faithful officers turned over to their successors the unused and well preserved contents of the shelves. A generation has passed away, and I can now read in the latest report of the college librarian the following statement:

"The number of books but continues to increase at a fairly steady rate. Borrowing has doubtless been encouraged by the large number of attractive books, both old and new, that are constantly kept on open shelves in the delivery room, where every one who comes into the library is tempted to look them over."

The whole number of students in Cambridge is 3,151; number taking books, 2,488. The collection is open both daytime and evening through the week and also on the afternoon of Sunday. The university library is credited with the possession of 548,000 books; of these, however, only 379,000 are deposited in the general collection in Grove Hall. The rest are in the various departments and laboratory libraries; the Law School has 50,000 volumes; the Museum of Zoölogy, 34,000; the Divinity School, 30,000; the Astronomical Observatory, 9,000; the Gray Herbarium, 7,500, and last, and in this case least, the Medical School, is said to have 2,240.

Beyond this system of department libraries there is another and more extensive system of laboratory and classroom libraries, twenty-four in number, varying in size from the library of history, political economy and sociology of 4,500 volumes, down to the Preachers' Library in Wadsworth House of less than 100 volumes.

In this enumeration, the striking fact is the absolute poverty of the Medical Library as compared with the collection with which a comparison may be justly sought—the zoölogical library built up under the fostering care of its great and generous curator; a working library only, which is annually turning back into the great receptacle in Grove Hall such books as have become of historical interest only.

The explanation of this seeming lack of care on the part of the university for her Medical School, in which she takes a just pride, is undoubtedly to be found in the fact that the resources of this library have been most freely given to the teachers and students of the school. The authorities of the uni-

versity may well consider whether some equitable arrangement may not be possible for giving to the library an equivalent for the valuable and necessary assistance so freely and generously bestowed.

PRESIDENT CHEEVER: We had hoped to have with us tonight the Holmes of Philadelphia, himself both a lover and an author of books, a valued contributor to medical and to general literature, a master of style in prose and in verse. I ask Dr. Chadwick to read a letter from Dr. S. Weir Mitchell.

LETTER

FROM

S. WEIR MITCHELL, M.D., LL.D.

PHILADELPHIA, December 29, 1900.

NOTHING, my dear Chadwick, except engagements, not to be broken, keeps me from being among those who in person congratulate the profession on the opening of your new library. To you more than to any other I send my congratulations, for to this end you have given costly days out of a busy life.

I see as I grow old, or may I say older, how few are the young medical men whose tastes are scholarly, and who, like Holmes and our own lamented Da Costa, are familiar with the fathers and find pleasure in the old books—the quaint books, the sense and the vagaries of the past. Without a great library few can afford these intellectual playgrounds, or, indeed, acquire the material for such indulgence.

May your new building and growing wealth of books tempt many into paths where some of us have found unlooked for treasures of interest and even of practical value; for indeed the dying century did not invent common sense, and genius is of every age.

I often remember with regret the great waste of time in my younger days when there were no great libraries, and when John Billings had not indexed the medical thought of all the centuries. The enormous labor then involved in any mere literary research as to facts no one can imagine today. A great library of medicine is truly a labor-saving machine, and over your library and over its new home you should rejoice because a great library, well managed, practically lengthens life by saving time.

My thin thread of New England blood seems to be tingling with friendly pride as I reflect on what the profession has here accomplished. I send you my greeting from the city I love best to that I love next best, and wish you all, and the newly instituted library, long, useful and honored days.

As I pause to assure you how truly I am yours I am conscious that I really have more and better things to say; but as like as not others will have said them, and I leave therefore to the eloquence of suggestive imagination all the fine things which I am tempted to say and will not.

Believe me, my dear Chadwick, always and in all ways,

Your friend,
S. WEIR MITCHELL.

A CENTENARIAN.—John B. Laing died in Chicago January 9th, at the reputed age of one hundred years.

Clinical Department.

NOTE ON THE TREATMENT OF EPIDERMOID CANCER BY THE RÖNTGEN RAYS.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

RECENTLY I have had the opportunity in this JOURNAL of directing attention to the value of the x-rays in the treatment of lupus and since that time further experience has confirmed my belief in it as a therapeutic agent in lupus vulgaris.

I desire now to state my conviction that the x-rays are of value in the treatment of certain forms of cancer. Their usefulness in relieving pain in cancerous growths was demonstrated in Germany some time since, and in the *Philadelphia Medical Journal* of December 8 and 15, 1900, Drs. Wallace Johnson and Walter H. Merrill have presented an excellent article on the x-rays in the treatment of cancer. My experience differs from theirs in some respects, but before referring to it I will consider one or two points relating to face cancer. It is well known that this form of cancer may yield to treatment with caustics and as they insist on the importance of causing a burn, it would seem quite possible that the good results they have obtained might have been due to the caustic action which they state it is essential to excite. They produce a mild inflammation, gradually increasing its severity till there is a burn of such depth that it would require six weeks to heal on a healthy skin.

My experience at the Boston City Hospital indicates that we have either in the x-rays themselves or in some other form of radiation from an excited Crookes' tube a valuable therapeutic agent in epithelioma and that the beneficent action of the x-rays can be brought about without causing a burn. The patients to which I chiefly refer entered the Boston City Hospital in the service of Dr. H. L. Burrell, who at my suggestion had a small piece of the growth taken out and submitted to Dr. Mallory; the latter reported that the growths were epidermoid carcinoma. Then Dr. Burrell most kindly had the patients transferred to my care. I have convinced myself that without causing any pain and without the delay or inconvenience to the patient of an x-ray burn we can accomplish excellent results with this new method of treatment. Foul and nearly unbearable odors cease, the discharge becomes less and the growth steadily diminishes in size.

The earlier this treatment is undertaken the better. It is not improbable that we shall find its curative action limited to superficial growths, though as a means of relieving the painful features of the disease in other forms it may be of some use.

The delay in seeking medical advice for the treatment of a new growth in its earliest stages has been caused in many cases by the dread of the knife, but there is nothing to be feared in the use of the x-rays if they are properly applied; that is to say if the apparatus, especially the Crookes' tube, is suitable, the distance of the patient and the duration of the exposure are properly chosen and other necessary precautions are taken.

Later on I shall present in more detail the results of the use of the x-rays in the treatment of cancer.

Medical Progress.

REPORT ON THE DISEASES OF CHILDREN.

BY T. M. ROTCH, M.D., BOSTON.

KOPLIK'S SIGN IN MEASLES.

WIDOWITCH¹ has studied the diagnostic value of Koplik's spots in a recent epidemic of measles at Gratz. He examined 158 cases. The spots were found in 140 of the cases, 88.6%, and were absent in 18, 11.4%. Other prodromal symptoms which confirm the diagnosis were found in 115 of the cases in which the spots were present. In the other 25 cases it was the only prodromal symptom present.

He concludes, therefore, that Koplik's sign is not pathognomonic since it was wanting in one-tenth of the cases, and most often was associated with other prodromal symptoms. He also found it 10 times in 135 cases of rubella, in 1 case of follicular angina, and in another of stridulous laryngitis. He thinks this occurrence in other diseases diminishes its value. [Even if not pathognomonic, a sign which is found in nearly 90% of the cases of measles, not infrequently without the presence of other prodromal symptoms, is certainly of the greatest diagnostic value. Too much reliance, moreover, cannot be placed on the observation of the spots in 10 cases of rubella, for the diagnosis between measles and rubella is notoriously difficult.]

Rolly² found the sign from four days to six hours before the eruption in 24 of 78 cases of measles. In 11 cases in which it was not observed the examination was not made until from twenty-four hours before the eruption to four days after, too late a period from which to form definite conclusions as to the presence or absence of the sign at an earlier stage of the disease. He never found the spots in scarlatina, bronchitis, diphtheria, aphthous stomatitis, or numerous other diseases.

Hirsh³ concludes that Koplik's sign is always present in the beginning of measles. The spots are present from twelve hours to five days before the cutaneous outbreak. The number of these spots bears no relation to the severity of the attack. They are found in no other condition of health or disease.

Maroney⁴ studied 140 cases of measles, and concludes that Koplik's spots are an absolutely pathognomonic sign of measles from which a positive diagnosis can be made at an early stage of the disease. In the great majority of cases they appear before the skin eruption, and in almost one-half the cases before coryza or conjunctivitis. Their recognition allows early isolation, and provides a means of limiting epidemics in hospitals and institutions.

Ross⁵ concludes from the study of 15 cases that Koplik's sign is most valuable, rendering an early diagnosis possible before the appearance of the exanthem. It is of assistance in differentiating true measles from rotheln, erythema and scarlet fever, and also from diseases which simulate measles in their early stages, such as influenza and simple colds.

¹ Wien. klin. Woch., 1899, No. 37.

² Münch. med. Woch., 1899, No. 38.

³ Philadelphia Medical Journal, August 25, 1900.

⁴ Yale Medical Journal, October, 1900.

⁵ Columbus Medical Journal, vol. xxiv, No. 2.

THE PRESENCE OF DIPHThERIA BACILLI IN THE MOUTHS OF HEALTHY INDIVIDUALS.

Kober⁶ has made an extended study in Flügge's laboratory regarding the frequency with which diphtheria bacilli are observed in healthy throats. He examined 128 persons who had been exposed to diphtheria and 600 who had not knowingly been exposed. The diagnosis of the presence of Klebs-Löffler bacilli was made by cultures upon serum and microscopic examination after six hours, by Neisser's double stain with cultures from nine to eighteen hours old, by the acidity test and by inoculation of guinea pigs. He found diphtheria bacilli in healthy throats much less often than had previous observers. In his series they were found in only 8% of the persons exposed to diphtheria, and in only 2½% of those not exposed to diphtheria. It was found on further inquiry that two-thirds of those who were thought not to have been exposed had really been exposed directly or indirectly to the focus of the disease. Excluding these, the proportion of unexposed individuals having the bacilli in their throats is reduced to .83 of 1%. The organisms found in the throats of those known to have been exposed were all virulent; two-thirds of those found in the non-exposed were non-virulent.

THYMUS DULNESS.

Blumen Reich⁷ studied the thymus dulness on more than 100 children, some ante mortem and some post mortem. He found that post-mortem examinations were as satisfactory as ante-mortem. He used light percussion and percussed for the absolute, and not the relative dulness. According to him the thymus gives rise to an area of dulness which is irregularly triangular in outline, the base being made by the line connecting the two sternoclavicular articulations, the blunt apex situated at the level of the second rib or slightly below it, and the sides a little beyond the edges of the sternum. The larger half of the triangle of dulness usually falls to the left side. When the limit of dulness given above varies by one or more centimetres or obscures the pulmonary resonance between the upper line of cardiac dulness and the lower lateral limit of thymus dulness, an enlargement of the thymus gland is indicated. The thymus dulness is present until the end of the fifth year, after which it is inconstant. He found that swollen lymph nodes in the anterior mediastinum do not cause dulness, but that cheesy lymph nodes do.

PRIMARY SPLENOMEGALY.

Boviard⁸ under this title, or endothelial hyperplasia of the spleen, describes 2 cases of his own in children, and 4 others collected from literature. His 2 cases were sisters. In one the disease began at three years, and death occurred at sixteen years after splenectomy; in the other it began at two years, and the child was alive four years later. He gives the symptomatology, based on the observation of his own and of the other cases, as follows: Slow progressive enlargement of the spleen beginning in childhood; enlargement of the liver secondary to that of the spleen, which may be considerable but not reaching the extent of the splenic affection; simple anemia,

the only changes observed in the blood being those associated with any chronic enlargement of the spleen: softening of the gums with oozing of blood and repeated epistaxis; in some cases cutaneous hemorrhage and icterus; finally symptoms referable to the mechanical effect of the splenic enlargement—pain in the abdomen, disturbance of the functions of the stomach and bowels, dyspnea, dysuria, and cramps in the legs. The disease is not fatal *per se*. From the history of the patients and collected observations he concludes that the enlargement of the liver is secondary to that of the spleen.

The autopsy of his fatal case showed that the organs were essentially normal except the spleen, liver and abdominal lymph nodes. The characteristic feature of the pathological process in the spleen, liver and lymph nodes was the multiplication of endothelial cells associated in the cases of both spleen and liver with a great increase in the connective tissue of the organ. He concludes that the process is not a new growth, but an endothelial hyperplasia of the spleen, and that it may be associated with like changes in the retroperitoneal and mesenteric lymph nodes and in the connective tissue of the liver. He thinks that it is a definite, distinct disease and can be differentiated from any previously described, including splenic anemia. At present, however, the only sufficient distinction of the type of the disease is the pathology. That is altogether different from anything else to be found in medical literature.

SCLEROSIS OF THE PANCREAS FOLLOWING CHRONIC GASTRO-ENTERITIS.

Arraga and Vinas⁹ having noticed the frequency of changes in the pancreas in children dying of chronic gastro-enteritis, they studied the pancreas carefully in 10 cases from two to eight years old. They found it to be hard, more or less diminished in volume, and the seat of a chronic angiopancreatitis, as demonstrated by microscopic examination. The inflammatory process apparently spread from the intestine through Wirsung's duct to the pancreas. The acini suffered less than the ducts. They maintain that the pancreatic lesion is of the first importance in the symptomatology, prognosis and treatment of gastro-enteritis.

EXTRACT OF THE SUPRARENAL CAPSULES IN THE TREATMENT OF RHACHITIS.

Stoeltzner¹⁰ studied the action of suprarenal extract in the treatment of rachitis in Heubner's clinic. He arrived at the following conclusions:

- (1) Suprarenal extract influences very favorably the general condition, the vasomotor excitability, and the craniotabes. All these symptoms are often considerably relieved in one or two weeks.
- (2) Children soon begin to sit up, to walk and to run. The softness of the thoracic bones disappears very rapidly, and the delayed teeth appear.
- (3) The epiphyseal enlargements and the deformities of the head, thorax and extremities are but little influenced.
- (4) Spasm of the glottis is seldom much helped.
- (5) The amelioration of the symptoms is most marked during the first week of treatment; later, it is less rapid.

⁶ Zeitschr. f. Hyg., Bd. xxxi, S. 433.

⁷ Virchow's Archiv, Bd. cxi, S. 25.

⁸ American Journal of the Medical Sciences, vol. cxx, p. 377.

⁹ Arch. de méd. des enfants, vol. iii, No. 7.

¹⁰ Jahrb. f. Kinderheilk., 1900, Bd. i, S. 73, 199.

(6) Improvement ceases or there is a return of the symptoms if treatment is interrupted. Improvement begins again with the renewal of treatment.

(7) Even in cases complicated by syphilis, enteritis or bronchitis, this treatment helps the rachitis considerably.

THE ELIMINATION IN INFANTS IN THE URINE OF SUGARS INTRODUCED SUBCUTANEOUSLY OR BY THE DIGESTIVE TRACT.

Nobécourt¹¹ calls attention to the fact that while the conditions which regulate absorption, assimilation and elimination of various forms of sugar have been thoroughly studied in the adult, very little work of the kind has been done in infants. He has therefore undertaken an investigation of the subject with reference to the first three years of life. He arrives at the following conclusions:

(1) The intestinal mucous membrane of the infant has a powerful converting power as regards lactose. It transforms considerable quantities of lactose introduced into the intestines with the milk, and is capable of transforming single doses much larger than are ever contained in an ordinary breast feeding. In general this power is more marked in the young infant than in the adult, but there are numerous exceptions.

(2) The intestinal mucosa of the infant possesses also the power of inverting saccharose. It seems as active in one case as in the other, if the dilution is the same. Glycosuria was never observed in the normal infant with lactose or saccharose. In some rachitides alimentary glycosuria was produced with glucose. At this age the organism has a more marked action upon glucose than in adult life. This action does not seem to be limited to the liver but extends to all the tissues.

CONTRIBUTIONS TO THE STUDY OF THE TOXIC ACTION OF MILK OF TUBERCULAR ANIMALS.

Jemma¹² presented a preliminary report of some experiments he had performed upon rabbits to determine what action a tubercular milk sterilized at 100° C. would have when administered daily as a food. Small rabbits several days old were used. One set of animals was fed on sterilized milk to which had been added tubercle bacilli which had previously been subjected to a temperature of 100° C. for fifteen minutes; a second set of animals was fed on sterilized milk without the addition of tubercle bacilli; a third set was allowed to nurse from their mothers. Jemma states that the rabbits which had been fed on the milk containing the dead bacilli gained very little in weight and after fifteen or twenty days some of them died in a state of advanced cachexia; others continued cachectic and died of a marked degree of marasmus, even though the absorption of the bacilli had been suspended. The autopsies showed a mild enteritis, characterized by a redness of the intestinal mucous membrane and a fatty degeneration of the liver. The two control sets of rabbits neither lost in weight nor appeared at all disturbed. The conclusion is drawn that the sterilization of a tubercular milk at 100° C. cannot counteract the injurious action of the toxins, and that for infants the only milk which should be used should be that from cows which have been proved free from tuberculous by the tuberculin test.

THE EXANTHEMATIC FORM OF TYPHOID FEVER IN CHILDHOOD.

Weill and Lesieur¹³ describe at considerable length the chief peculiarities of this form of typhoid fever, which are the early appearance and generalization of the eruption together with the mildness or absence of digestive symptoms. In most cases there are no symptoms, objective or subjective, attributable to the digestive tract. The liver is not enlarged, the spleen not at all, or but little increased in size. In some cases, however, the digestive symptoms are more marked, but even in the severe cases they diminish or disappear when the eruption becomes generalized. The prognosis is good, recovery being the rule within fifteen or twenty days. The fever rarely continues longer than three weeks. Relapses sometimes occur, but are insignificant.

No complications were seen in this form of typhoid. Fifty-eight of these cases were seen among 280 cases of typhoid fever during six years; 22 were mild, 15 of medium severity, 12 grave, and 9 had relapses. This form is easily distinguishable from the ordinary form of typhoid in children, both mild and severe. The abundance of the rose spots is a favorable prognostic sign only if it coincides with the absence or diminution of digestive disturbances. It has the same significance even in cases which appear to be grave.

Reports of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

STATED meeting, December 4, 1900, FREDERICK PETERSON, M.D., president.

THE TERMINAL CONDITION IN A CASE OF DIPLEGIA.

DR. WILLIAM M. LESZYNSKY presented a man, twenty-one years of age, in whom the chief feature of interest was a trembling of the hands, which had existed as long as he could remember. Nothing was known of his early history except that he had always been nervous. His mother had died of cancer of the uterus. The trembling had always been more marked on the left side, and his condition was apparently growing steadily worse. On careful examination no disturbance of sensibility could be detected. There was excellent muscular development on the left side and a spinal curvature, probably arising from the use of one side more than the other. There were no signs of atrophy. There was some asymmetry of the cranium. There was no disturbance of vision, but concentric contraction of the visual field. There was no nystagmus, and the pupils and fundi were normal. There was a positive tremor when at rest, and a more active tremor on motion. He holds the left arm in extension, but close scrutiny shows that all of the rigidity is in the extensors. The elbow jerk was elicited only on the right side. Both knee jerks were exaggerated. Ankle clonus had been demonstrated on both sides, though much more marked on the left. Dr. Leszynsky said that this man had probably recovered from a paralysis that he had had at one time, and was now suffering from a terminal condition of infant-

¹¹ *Rev. mens. des mal. de l'enfance*, 1900, vol. xviii, p. 161.

¹² Paper read before the *Congrès contra la Tuberculose*, held at Naples in April, 1900.

¹³ *Rev. mens. des mal. de l'enfance*, vol. xviii, No. 626.

tile palsy. Undoubtedly there was a good deal of functional disturbance added to the organic trouble.

DR. M. ALLEN STARR thought the case was an athetosis on the left side, and that probably the same lesion, to a minor degree, was present on the opposite side. It was apparently a post-diplegic condition.

DR. B. ONUF called attention to the lordosis and the unusual muscular development of the deltoids.

DR. E. D. FISHER also looked upon the case as one of cerebral diplegia, most marked on the left side, and with the athetoid movements often seen in such cases. This extreme muscular development seemed to him not at all uncommon in this class of cases. He would like to know concerning the electrical reactions.

DR. B. SACHS said that there could be no doubt that the left side was the centre of disturbance, and it was also probable that a part of the tremor was functional. The condition of the muscles in the scapular region seemed to him fully accounted for by the spinal curvature present.

DR. F. PETERSON agreed with the diagnosis of post-paralytic athetoid form of movement. Where the paralysis was small he thought these finer movements were more apt to be present.

DR. LESZYNSKY regarded the remarks of Dr. Sachs a sufficient answer to those of Dr. Onuf. He had not yet tested the electrical reactions. It seemed to him that this man could be benefited if properly trained. Hypnotism had been suggested, and it seemed to him worthy of trial. The method used for ataxics would probably prove beneficial; it had just been commenced.

REPORT OF TWO CASES OF SPINAL TUMOR WITH OPERATION AND REMOVAL.

DR. M. ALLEN STARR said that five years ago he had been able to collect 145 cases of spinal tumor, in 22 of which operation had been undertaken. In the cases forming the subject of the present paper the symptom pain had been very prominent, and this together with the symptoms of pressure on the cord had allowed of the diagnosis being made.

CASE I. Mrs. E. W., thirty-five years of age, had been in good health previous to March, 1899, at which time she had begun to suffer from paroxysms of pain near the heart at night. They were not brought on by exertion, but were much increased by touching a region to the left of the nipple. From September, 1899, to May, 1900, she had been treated by many physicians for angina pectoris, hysteria and other disorders. Nitroglycerin had always intensified the pain. On May 10th, Dr. Theodore Janeway had examined her, and found her in an extremely nervous condition and suffering from constant pain. The left knee jerk was exaggerated. Over the left side of the dorsal spine was extreme sensitiveness from the first to the eighth dorsal spine, and over the corresponding intercostal nerves at the angles of the ribs. There was no affection of the arms and the internal organs were normal.

When examined by Dr. Starr on October 26th, she was suffering much from pain at the level of the fifth and sixth intercostal nerves, much more marked on the left side. There was very marked tenderness over the dorsal region from the first to the seventh dorsal spine. A condition of partial anesthesia was found on the trunk and total anesthesia in the legs. Her legs were quite powerless, but there was no atrophy of the muscles. Ankle clonus was present on both sides, and both limbs were cold, blue and edematous. She had recently been unable to control the sphincters. Dr. Janeway had made a diagnosis of tumor of the spinal cord at the fifth dorsal segment.

On October 22d she was operated upon by Dr. McCosh at the Presbyterian Hospital. On dividing the dura an extremely edematous state of the pia was observed, with one white plaque lying upon it. The cord was smaller and whiter than normal, and was not pulsating. No tumor was found. Three days later the wound was enlarged upward and the dura found to pulsate freely at the upper level, but not lower down. A tumor, 1½ inches in length, lay upon the cord. It was oval, had a distinct capsule, and was removed *en masse* without difficulty. Subsequent examination showed it to be a fibroma. The cord had been reduced to about one-half its diameter beneath the tumor. No attempt was made by nature to heal the first operation wound, and in spite of great care an extensive bed sore developed over the hip. In the second week after operation the constricted feeling became less marked. The operation wound healed very slowly. In the fourth week after the operation she had constant fever, probably because of the extensive bed sores. The spinal incision healed about this time, but she died a few days later.

The autopsy showed a softened condition of the cord opposite the exit of the second dorsal nerve from the dura, and the fifth and fourth dorsal nerves could be traced into this area. Owing to the rudimentary condition of the spine of the third cervical vertebra, an error of one vertebra had been made in the count at the time of operation. The case seemed to emphasize the fact that there should be no delay in operating for spinal tumor after the diagnosis had been reached. In this case the delay had arisen from an effort to try the effect of antisyphilitic treatment, the husband being known to be syphilitic. Bed sores had developed before the operation, and had continued to extend in spite of it, and had eventually caused death from sepsis. Gummata of the spinal cord is quite rare, only 25 cases having been found in a series of 400 cases. The tumor had been found about 2 inches higher than had been anticipated. Reed's table had been used as a guide at the first operation, but according to Bruns, the operation should be done two segments above the upper limit of pain. This advice was nearer the truth in the present case. The level of the pain was about 8 inches lower than the level of the tumor; hence in operating for spinal tumor the level of the cord should be exposed at least 4 inches higher than the level of the spinal nerve in which pain is found.

CASE II. Mrs. K., forty-six years of age, had been in good health until May, 1900, when after a slight injury she had been delivered of a dead child. Soon afterward she had begun to suffer pain over the left hip, and this pain had extended down to the left knee. It had caused insomnia and progressive loss of health. In September she had noted numbness of the left foot.

On October 16th, on admission to the Presbyterian Hospital, she was pale and feeble, and seemed to be suffering from paroxysms of pain over the left trochanter and that side of the sacrum. There was a drop foot due to paralysis of the peronei and anterior tibial muscles. The bladder required catheterization, and the rectum had to be emptied by enema. There was an area of anesthesia down the back of the left thigh and leg, and a smaller area was found on the right side. Under mixed treatment the paralysis extended and the pain became more severe. An area of tenderness to pressure was found over the second, third and fourth lumbar vertebrae, and pressure here aggravated the pain in the hip. It seemed probable from these facts that there was a tumor pressing on the cauda equina, and extending as high as the level of the exit of the second lumbar nerve. The functions of the sacral nerves and last lumbar nerve were evidently affected on the left side. A diagnosis of a caudal lesion was reached because of the level of the pain.

On November 15th Dr. McCosh removed the spines and arches of the second, third and fourth lumbar vertebrae. Dissection showed a tumor involving both the soft and hard tissues of this region. The spines and arches had been eroded by the tumor, which subsequently proved to be an endothelioma. This tumor had invaded the spinal canal and produced pressure on the dura.

The patient was in a critical condition for two days after operation, but since then had improved rapidly, and had had no pain since the operation. A considerable degree of atrophy had developed in both peronei. The wound had healed perfectly and there was no evidence of recurrence. It was reasonable to hope for recovery unless there should be speedy recurrence.

Out of 145 cases of spinal tumor that he had collected, the history had been fairly clear in 122. In 76 cases an operation should have been feasible, and according to the pathological report in 75% the tumors could have been removed.

Dr. A. J. McCosh said that he had found spinal surgery much more satisfactory than brain surgery; certainly the localization of the lesions had been more satisfactory. It was difficult to say, however, that a lesion is situated at any one segment of the spinal cord, but as a portion of the cord equal to three or four vertebrae must be exposed a slight error in localization is not of great importance. He had had recently a case presenting symptoms almost exactly like those of the first case reported in the paper. The line of anesthesia had been almost the same, but there had been no paralysis of the arms. The autopsy showed a crushing injury of the cord between the fourth and sixth cervical vertebrae. The ordinary rules laid down had indicated a lesion much lower down, and he had in this way been misled at the operation. He had not found laminectomy a very serious operation as a rule, most of the patients having exhibited comparatively little shock; hence, one should not hesitate in advising the operation when the diagnosis was sufficiently clear. He agreed thoroughly with what Dr. Starr had said about the inadvisability of delaying the operation for weeks in order to give antisyphilitic treatment a trial. He had met with a number of cases in which he believed the fatal result was attributable to such delay. When bed-sores were already present the case was practically hopeless, the patient almost invariably dying from sepsis. It is well to remember that tumors of the cord are usually found higher up than the estimated level. By beginning above and working downward, it seemed to him that the healing process would be favored. He was not of the opinion that there was any good ground for believing that the operation of laminectomy so weakens the spine as to lead to disability. Mention was made of one of his cases in which a man was engaged at an occupation requiring the frequent lifting of heavy weights, yet he had felt no inconvenience as a result of the operation upon his spinal column.

Dr. PEARCE BAILEY reported this case of a man, forty-one years of age, who has been treated for some time previously for a variety of troubles. When seen in May he had stated that about fifteen months previously he had begun to have intense pain on the inner side of the left thigh. There had been an interval of a few months in which this pain had almost subsided. There was slight atrophy in the left leg; the left knee jerk was absent; there was very slight anesthesia. The case seemed to be one of tumor of the cauda equina. Dr. McCosh had operated upon him on the 22d of May. He had removed the last dorsal and the first and second lumbar vertebrae, and had exposed what had looked at first like a blood clot, but microscopical examination had proved this to be a round-cell sarcoma. Although it was probable that

all of this sarcoma had not been removed, the man had done extremely well all these months; was free from pain and had resumed his occupation.

Dr. SACHS coincided with those who had advised against delaying in these cases in order to try specific treatment. He was thoroughly in favor of operating just as soon as the diagnosis had been established with reasonable clearness. It was a great mistake in his opinion to look upon operation as a *dernier ressort*. Gummata of the cord was quite rare, and even in these cases very little had been accomplished by the administration of the iodides; hence, such treatment might very well be neglected. In one of his cases in which the operation had been done quite early the man had been restored promptly to health. In another case he had not been allowed to operate early, and the recovery had been far from satisfactory. It seemed to him that a little too much importance was attached to the mere matter of localization; the important question was in regard to the nature of the morbid process and whether or not a tumor is present. In Pott's disease the sensory disturbances were sometimes quite as marked as where there was a tumor of the cord. Pain was the important symptom, but this was applicable more particularly to dorsal rather than to ventral tumors. He was not prepared to speak regarding the relative frequency of these two forms of tumor. He was of the opinion that a very extensive laminectomy could be done without causing notable disability or deformity. Early operation, he felt sure, would make spinal surgery much more satisfactory than brain surgery.

Dr. THEODORE C. JANEWAY said that he regretted very much that in his cases the diagnosis of spinal tumor had not been made sooner. There had been pain a year previously, but the pain had disappeared for a considerable time, and when he had first seen her she had been so extremely nervous that the question of hysteria had been seriously considered at first. The case had progressed very rapidly during the part of the summer in which he had not seen her.

AN ANALYSIS OF THE SYMPTOMS OBSERVED IN CASES OF TUBERCULOUS MENINGITIS AT THE BABIES' HOSPITAL.

Dr. C. A. HERTER read a paper with this title. There were 24 cases of tuberculous meningitis, and in 15 of these there were autopsies. In these 15 cases, 6 were at the age of eight months; 7 were one year old or under. In 9 cases of tuberculous meningitis without autopsy, 6 were five months old. These figures showed that tuberculous meningitis was not so rare in the first year of life as had been supposed by some writers. Nineteen of the cases had run their course in less than one month. The fontanelle had been markedly distended in 7 of the 24 cases, and in 3 there had been a marked excess of fluid found at autopsy. In 1 case the fontanelle had been depressed—a case sick for four or five months. In 6 cases there had been a delay in the closure of the fontanelle. Vomiting had been noted in 19 of the 24 cases, and had been the first symptom in 11 cases. In 5 in which there was no vomiting the autopsy showed nothing different from the cases that had presented vomiting. In 11 cases there had been marked constipation. In cases coming to autopsy there had also been tuberculous lesions in the intestine. In several of the cases there were tuberculous ulcers of the colon, and yet

constipation instead of diarrhea had been present. The pupils were unequal in 12 of the 24 cases, and dilated in the others. The pupils were contracted in only 2 cases. Nystagmus was observed in 4 cases, and strabismus in 10 cases. In the cases showing strabismus there were marked lesions at the base and in the interpeduncular space. There were general convulsions in 50%. There was no case which did not present either rigidity or convulsions. In cases without meningitis, but with tubercles in the brain, convulsions were not so common. Paralysis was noted in 10 of the 24 cases of tuberculous meningitis, and was monoplegic in a number. The variability of these palsies was a rather notable feature. In the cases without meningitis, but with tubercles in the brain, no palsies or paralyses were noted. The *tâche cérébrale* was noted in 7 cases and flushing of the face in 10 cases. All the cases of tuberculous meningitis with autopsy had presented stupor or coma, or more or less irregularity of respiration, while these had not been observed in any of the cases with tubercles, but without meningitis. Hyperesthesia had been noted in only 1 case, and in only 1 had there been a well-developed cephalic cry. Retraction of the abdomen had been noted to a greater or less degree in 15 of the cases of tuberculous meningitis, but not at all in the other cases. The fever had not been high in the uncomplicated cases, and the pulse had shown nothing distinctive. In the cases without meningitis marked opisthotonos and convulsions had been the rule, and early vomiting had been much less frequent than where meningitis was present. Only 2 or 3 of the cases had presented solitary tubercles. In all of the autopsy cases the cerebral tuberculosis had been clearly secondary. The intestine was the seat of tuberculous lesions in 11 of the 13 cases in which the intestine was examined. The knee jerks were increased in a large proportion of cases, and absent in only 2. An interesting feature was that at times the knee jerks would be alternately exaggerated and absent.

DR. LESZYŃSKI said that he had made some observations in children under three years with regard to the knee jerk, and had noted that in the early stages the knee jerks had seemed to be absent, but as soon as the pressure symptoms appeared the knee jerks became exaggerated and remained so until death.

DR. SACHS said that the diagnosis of tuberculous meningitis was usually delayed by the general practitioner because he overlooked, as a rule, the cranial nerve symptoms so commonly found quite early in these cases, and waited for some of the more common and typical symptoms. He would like to know whether examination of the fundus and lumbar puncture had been of any diagnostic aid.

DR. HERTER replied that lumbar puncture had been practised in a few instances, and in 2 or 3 tubercle bacilli had been found. The examination of the fundus had been undertaken in so few cases that no deductions could be made. None of the cases diagnosed as tuberculous meningitis had recovered.

DR. SACHS said that in a series of cases of sporadic meningitis lumbar puncture had been made, and the diplococcus had been found in almost every instance. He had been surprised also at the large number of recoveries in these cases of sporadic meningitis in which the diplococcus had been found. Their clinical course had been greatly at variance with the older descriptions of cerebrospinal meningitis.

The onset had been very violent, the fever lasting often a week or more, and then recovery was rapid.

DR. HERTER said that in the cases he had seen there had been a much more violent onset than in tuberculous meningitis.

Recent Literature.

Diseases of the Eye. By EDWARD NETTLESHIP, F.R.C.S., Ophthalmic Surgeon at St. Thomas's Hospital, London; Surgeon to the Royal London Ophthalmic Hospital, etc. New (sixth) American from the sixth English edition, thoroughly revised by WILLIAM CAMPBELL POSEY, M.D. With a Supplement on the Detection of Color Blindness by WILLIAM THOMSON, M.D., Professor of Ophthalmology in the Jefferson Medical College, Philadelphia. Just ready. Pp. 562, with 192 illustrations, and 5 colored plates. Philadelphia and New York: Lea Brothers & Co. 1900.

Mr. Spicer so well accomplished a revision of the sixth edition three years ago that it has been thought well to offer still another, which, however, comes to us from Dr. William C. Posey. In this recent volume attention has been given especially to the methods of examination and the therapeutic measures employed by practitioners in this country, and although the subject matter, as a whole, shows but little change, all that is new regarding the bacteriological origin of certain diseases has been introduced. Dr. Thomson has thoroughly revised his section relating to the visual tests for railroad employes, while in an appendix will be found a concise statement of the laws governing the visual tests for admission into the public services of the United States, which have been obtained from the authorities at Washington, and are for the first time presented in a collected form. The methods employed in examining the eyes of school children in different American cities have been added.

The Treatment of Fractures. By W. L. ESTES, A.M., M.D., Director and Physician, and Surgeon in Chief of St. Luke's Hospital, South Bethlehem, Pa. Pp. 220. Illustrated. International Journal of Surgery Co. 1900.

This book discusses the treatment of fractures. The "mechanics" of fractures are considered only when necessary to elucidate or suggest proper treatment. The writer holds that reduction of deformity and fixation is not the whole treatment of a fracture, but that the entire condition, local and general, and every indication must be borne in mind. His data for this volume, he states, have been derived from a review of modern authorities and a personal experience of fifteen years of hospital work.

The book is indexed, but is not divided into numbered chapters, and contains no "table of contents." The classification made is an anatomical one. After a few pages devoted to treatment in general, the main part of the book is devoted to the consideration of specific fractures, arranged in the following order: Cranium, face, trunk, upper extremity, lower extremity. The concluding pages deal with compound and complicated fractures.

The book contains many practical suggestions and many truths. It is a presentation of personal ideas and convictions rather than a discussion of the subject from a broad standpoint.

The author has had apparently a large experience in the treatment of railway and machinery accidents. His description of his methods in dealing with these severe and often extremely complicated injuries, not only the emergency or "first-aid" handling of the patient, but also the full or permanent treatment of the case, is full of excellent ideas. His results as published show that of 67 cases of complicated fractures of the extremities of all degrees of severity, 51 recovered with useful limbs; in 9 patients the limb was saved but with its function not fully restored; 2 subsequently required amputation and 1 died. This is an excellent record, and a demonstration of a method which justly claims careful consideration. The aseptic and operative technique as described is good, but in some details differs from that employed by many surgeons.

In regard to the treatment of simple fractures, also, the writer's experience and personal study of the conditions encountered have developed points relating to mechanical indications for and varieties of apparatus, bandages, etc., which are always of interest, at least, if not of value. He is apparently one who has done his own thinking, and not followed passively and blindly the routine road.

Kurzfassendes Lehrbuch der Kinderheilkunde für Aerzte und Studierende. Von DR. CARL SEITZ, a. o. Universitätsprofessor und Vorstand der Kinderpoliklinik am Reisingerianum in München. Pp. viii, 499. Second enlarged and entirely revised edition. Berlin: S. Karger. 1901.

In the preface to the first edition the author stated that his object was to describe the various diseases of children as completely as possible, and yet as briefly as practicable. He has certainly accomplished this object most admirably. The book is not a small one, as the title would suggest, but a good-sized volume. In this second edition it has been thoroughly revised and in many places entirely rewritten. We know of no book on the diseases of children which contains more condensed, accurate and up-to-date information than the one under consideration.

The book is divided into two parts; the first dealing with general considerations, the second with special diseases.

In the first part the first chapter treats of the anatomical and physiological peculiarities of children, and is remarkably good. The second deals with the care and feeding of infants. The general remarks regarding the digestion and feeding of infants are excellent; the methods of feeding, however, are not up to the best standard of this country. The third chapter, describing the methods of physical examination in children, is admirable, and one of the best we have seen on this subject. The next chapter, dealing with the treatment of sick children, is not as good as the others. In fact, throughout the book the weak point is treatment.

The chapters of the second part, in which special diseases are described, are so uniformly good that it is difficult to discriminate. The classification of disease is, on the whole, very satisfactory, although we hardly see why myxedema, Graves's disease, and the

various anemias should be grouped among the "general diseases." The strongest point in this part of the book is the differential diagnosis. In diagnosis the greatest stress is laid, as it should be, on physical examination and not on symptomatology. The modern methods of laboratory diagnosis are all mentioned and their importance and usefulness emphasized. The sections dealing with physical diagnosis are excellent, and worthy of careful study.

The work is certainly a most admirable one, and well worthy of a place among the most used books of both the student and the practitioner.

Ringworm in the Light of Recent Research. By MALCOLM MORRIS. With 22 microphotographs and 1 colored plate. London, Paris and Melbourne: Cassell & Co. 1900.

This work of Morris's has only just reached us, but it is not too late for a word of recognition of its merits. Mr. Morris has made investigations of his own on the subject of ringworm, and has reached the conclusion that there can be no doubt of the plurality of the ringworm fungi, although he is by no means prepared to accept all the subdivisions and varieties proposed by Sabouraud and others. His opinion is that, "There are at least two, probably three, possibly more, distinct species of fungi which produce the disease in different cases." The work gives an admirable epitome of our present knowledge of ringworm and of the recent advances that have been made in its investigation. The microphotographs are of very great value. There are some interesting chapters on diagnosis and treatment, and on the prevention of the affection in schools.

A Compend of Diseases of the Skin. By JAY F. SCHAMBERG, A.B., M.D. Second edition, revised and enlarged, with 105 illustrations. Philadelphia: P. Blakiston's Son & Co. 1900.

This second edition of Schamberg's "Compend of Diseases of the Skin" has just appeared, revised and enlarged, with the addition of a number of new photographs. Its merits are not beneath those of the very numerous similar publications that are constantly appearing.

A Practical Treatise on Fractures and Dislocations. By LEWIS A. STIMSON, B.A., M.D., LL.D. (Yale), Professor of Surgery in Cornell University Medical College, New York; Surgeon to the New York and Hudson Street Hospitals; Consulting Surgeon to Bellevue, St. John's and Christ's Hospitals; Corresponding Member of the Société de Chirurgie of Paris. Third edition, revised and enlarged. With 336 illustrations and 32 plates in monotype. New York and Philadelphia: Lea Brothers & Co. 1900.

This is the third edition of this book. In the second edition the book was largely re-written and important additions have been made to this last edition. The part which deals with fractures, especially in the classification and arrangement of the chapters on fractures of the skull, has been essentially rewritten. The chapter on the advance of our knowledge on the traumatic hematomyelia is, in this edition, well presented and forms an important addition to our knowledge of the prognosis and treatment of injuries of the spinal cord.

The book is well illustrated, a number of new plates

having been added, principally of skiagrams. There are still many ancient and respected cuts of fractures and forms of splints which do not add essentially to the value of the book.

Dr. Stimson's work on fractures and dislocations is now an authority. It is a book which can be turned to by any one who wishes to make a thorough research in any given subject. It is judiciously written and well presents the known knowledge of this important subject. The experience gained in the House of Relief (Hudson Street Hospital) "where traumatic cases are so numerous as to include all the ordinary forms of injury, and most of those which are rare" will, we hope, allow the writer to replace some, at least, of the cuts which are only time-honored and are not of any great value.

A Manual of Operative Surgery. By LEWIS A. STIMSON, B.A., M.D., Surgeon to the New York and Hudson Street Hospitals; Consulting Surgeon to Bellevue, St. John's and Christ's Hospitals; Professor of Surgery in Cornell University; Corresponding Member of the Société de Chirurgie, Paris, and JOHN ROGERS, JR., B.A., M.D., Surgeon of Gouverneur Hospital, New York; Instructor in Surgery, Cornell University. Fourth and revised edition, with 293 illustrations. Philadelphia: Lea Brothers & Co. 1900.

This octavo volume of 582 pages has now reached its fourth edition. It is an excellent, condensed handbook of operative surgery. The descriptions of operations are simple and definite, governed by the author's experience, and, while the larger books give more lengthy descriptions, yet in many instances the descriptions are all sufficient to one who is somewhat familiar with operative surgery. Except for completeness we see no particular advantage in including operations of the eye and ear in a book of this description. However, the book is undoubtedly constructed for the use of general practitioners, who may be called upon to do any and all operations. The book is fairly well illustrated, and, as the author says, many of the ancient cuts have been eliminated.

Surgery, its Theory and Practice. By WILLIAM JOHNSON WALSHAM, F.R.C.S. (Eng.), M.B. and C. M. (Aberd.), Surgeon and Lecturer on Surgery, St. Bartholomew's Hospital; Member of Court of Examiners, Royal College of Surgeons of England; Consulting Surgeon to the Metropolitan Hospital, to the Hospital for Hip Disease, Sevenoaks, and to the Cottage Hospital, Bromley; late Surgeon in Charge of the Orthopedic Department and Lecturer on Anatomy, St. Bartholomew's Hospital; Examiner in Anatomy to the Conjoint Board of the Royal College of Physicians and Royal College of Surgeons. With 483 illustrations, including 16 skiagram plates. Seventh edition. Philadelphia: P. Blakiston's Son & Co. 1900.

This is the seventh edition of this book. The author has rewritten many of the sections and much of the material which had become obsolete has been omitted. Many skiagrams have been introduced and evidently great care has been taken to bring the book up to date. As a condensed presentation of the subject of surgery, it is only fairly satisfactory, many of the methods and much of the apparatus being antiquated.

THE BOSTON Medical and Surgical Journal

THURSDAY, JANUARY 17, 1901

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THE BOSTON MEDICAL LIBRARY.

THE formal opening of the new building of the Boston Medical Library which took place Saturday evening, January 12th, was an event the full significance of which we are as yet not fully able to appreciate. Boston has for many years struggled to maintain a creditable library in a building which had become wholly inadequate and in a situation whose character had so changed as to justify its being not inaptly described by one of the speakers of the evening as a "diverticulum of hidden dangers, a Bohemian midway pleasure." To be suddenly transferred from this unfortunate position to its present location on one of the city's most attractive streets, commanding a view of exceptional beauty, is a transformation which the most sanguine believer in the fitness of things could contemplate only with satisfaction tempered by surprise. How this was accomplished was told in detail at the exercises attending the opening of the new building, the full report of which is given in other columns of this issue. We will only emphasize here the good fortune of the building committee in being able to command the devoted services of a medical colleague, Dr. Farrar Cobb, with large experience in the details of the construction of buildings for medical institutions; he, in great measure, wrought the miracle of providing an architectural product at less than estimated cost.

As was to be expected, the attendance at these exercises was large and representative; it is perhaps more worthy of comment that the various addresses and remarks made by the chosen speakers were most admirably suited to the occasion, and did not once lapse into the commonplace. They were throughout dignified, at times humorous, but never tiresome. Dr. Wood, of Philadelphia, was the only absentee, but we have fortunately not thereby lost his address. The exercises were held in the large upper hall, as yet unfinished; its bare walls and girders were a mute but eloquent appeal to the assembled audience to provide at no distant time for the proper adornment of this

important room, for which the modest sum of \$5,000 is required.

In striking contrast to this commodious but as yet incomplete hall is the main reading room, which is to be known as Holmes Hall, in honor of the steadfast friend and first president of the library. No doubt many deserve the credit for this room, but to whomsoever credit is due, there can be no question that it is a success from every point of view. Dr. Holmes is evidently the presiding genius, for his portrait looks down from one end and his bust from the other, while everywhere are further reminders of Boston's literary doctor—many of them due to the fostering foresight of Dr. Chadwick. It was hard to believe that this room had not been in use for years, so assiduously had its shelves been filled with books, and its various decorations completed. The recently acquired collection of medical medals presented by Dr. Storer will when finally in place afford a unique object of interest to Holmes Hall.

The skillful arrangement of the smaller rooms to be used for various purposes connected with the library—among them Sprague Hall, for the smaller meetings of medical societies—reflects equal credit upon the designers of the building. It is, in fact, hard to see how the most ambitious among us could demand a more elaborate and complete receptacle for our books and medical treasures of all sorts, or a more satisfactory literary workshop. Even Dr. Billings, who knows wherof he speaks, comforted us with the assurance that we "may rest satisfied for several weeks to come."

True as all this is, and justifiable as are self-congratulations at this time on what has been so successfully accomplished, the fact must not for a moment be lost sight of that much more remains to be done; that with new privileges come new responsibilities of a very definite sort. The library must be supported as never before; it must continually have new books, and widen its scope of usefulness in every possible direction. To this end a renewed interest must be taken in its affairs by every one, whether remotely or intimately connected with it, an interest which, no doubt, the new building will do much to stimulate.

A suggestion in this line was made both by Dr. Wood, speaking for the College of Physicians of Philadelphia, and by Dr. Chadwick, Librarian of the Boston Library. Both of these gentlemen urged the desirability of widening the scope of the library with the view of establishing ultimately an association of physicians, whose voice would have weight in other matters than those pertaining merely to books. This means a very distinct expansion over the organization which at present exists. Dr. Chadwick urged that the library henceforth invite men working in allied fields to form a part of the proposed larger association, which then might properly assume the name and the obligations of an academy. The library should thereby become the real centre of the medical activity of the entire State, or we might go still

further and say, of New England. It is clear, as Dr. Chadwick said, that the subject is a large one, demanding careful consideration and active enthusiasm before such a general plan may become an accomplished fact. In the meantime it behooves us to recognize our new responsibilities and by all ways in our power to enhance the usefulness of the library merely as a library, and also by broadening the present organization lay at least the foundation of an institution which shall represent the widest medical interests. We are confident that such a consummation is both possible and desirable.

THE RESPONSIBILITY OF THE DOCTOR.

WE have recently been edited by somewhat heated accounts in certain of our daily contemporaries regarding the alleged unjustifiable action of several physicians, who refused attendance upon a dying man. Beyond the sensational newspaper reports we know nothing of the actual facts of the case. A man died from suffocation due apparently to the lodgment of food in the larynx; several physicians were summoned in haste; it is claimed that they declined to go; the man was beyond relief when a doctor finally arrived on the scene, but we are led to suppose that his life might have been saved had skilled assistance been immediately obtainable. One of the physicians summoned is said to have expressed his willingness to respond to the call, if he were paid a small fee in advance.

Whatever the merits of this particular case may have been, there is clearly involved in the incident a principle of importance. It is generally assumed by the laity that a physician is bound to respond to a call for his services whenever made, and however inconvenient to himself, regardless of a possible fee. It goes without saying that physicians usually live up to this assumption, hence the popular clamor when for any reason they assert their prerogatives as free men, and decline their services. It is a notorious fact, and one which every individual's experience demonstrates, that the business standards which regulate payment for services rendered are peculiarly inoperative in the case of physicians. Some people, not all by any means, have an extraordinarily lax conscience when the doctor presents his bill. Is it to be wondered at, therefore, that even doctors occasionally turn, and request a preliminary guarantee of the honesty of their patients, and particularly when those patients are wholly unknown to them? This, as a general practice, we should deprecate; it is not at all likely, nor is it desirable, that the lawyer's retainer, for example, be adopted as a routine practice by the physician, but it is equally evident that a doctor is quite within his right when he makes such a demand, and especially is this true of the emergency case. It is altogether desirable that people at large should be made to feel that a physician's services have a money value, which

must under all conditions be respected. How far we are from this state of things is evident from the popular clamor which an incident like the foregoing excites. The physician's side of the question is quite forgotten in sympathy for the unfortunate man who died.

It is a gratification to quote the following reasonable remarks from the editorial columns of a lay journal. "They (doctors) are almost completely at the mercy of the public and the public shows them little mercy in return for their oftentimes merciful attention. At any hour of the day or night the doctor is expected to be ready to answer rush calls for medical attendance, and is not surprised when, in return for his services, he gets nothing more substantial than promises, the majority of which are never fulfilled. Is it to be wondered at that, after meeting with hundreds of such experiences, he decides to refuse emergency calls from strangers unless he makes certain of at least a small recompense? To such an extent is this disregard of obligation to medical men carried that it is surprising that most of them are so generous with their time and services."

MEDICAL NOTES.

SMALLPOX.—On January 9th 267 cases of smallpox were reported in the State of Kansas. The disease is of a more severe type than existed last winter. In the city of Galveston, Texas, there are a number of cases of smallpox. The disease was probably brought to Galveston by the influx of a large number of country negroes. Every bale of cotton, also, that comes from the Senegambia district is liable to convey the malady and several cases have been traced to this source. General vaccination is being strongly urged. The disease is not of a virulent type.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, January 16, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 143, scarlatina 39, measles 62, typhoid fever 16.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending January 12th was 233 as against 240 the corresponding week last year, showing a decrease of 7 deaths, and making the death rate for the week 21.67. The deaths from consumption were 29, pneumonia 35, whooping cough 1, heart disease 19, bronchitis 9, marasmus 5. There were 12 deaths from violent causes. The number of children who died under one year was 42, under five years 68, persons more than sixty years 57; deaths in public institutions 56.

CASES OF INFECTIOUS DISEASES REPORTED IN 1899 AND 1900.—Diphtheria and croup, 1900,

4,977; 1899, 2,836. Scarlet fever, 1900, 1,710; 1899, 1,381. Phthisis pulmonalis, from May 17, 1900, 815; 1899, ——. Typhoid fever, 1900, 730; 1899, 765. Measles, 1900, 2,465; 1899, 4,110. Total number of deaths, 1900, 11,678; 1899, 11,167. Rate per one thousand, 1900, 20.82; 1899, 20.12. Diphtheria and croup, 1900, 537; 1899, 304. Scarlet fever, 1900, 181; 1899, 74. Typhoid fever, 1900, 143; 1899, 165. Measles, 1900, 88; 1899, 33. Phthisis pulmonalis, 1900, 1,407; 1899, 1,236.

APPROPRIATION FOR THE RUTLAND STATE SANATORIUM FOR TUBERCULOSIS.—The Massachusetts State Board of Charity has reported to the legislature recommending an appropriation of \$110,000 for a building at the Rutland Sanatorium to provide for 250 patients instead of 200 as at present. This includes provision for an administration building, for a laboratory and other much needed details. The report recommends that the institution be visited regularly by the board.

DIPHTHERIA AND SCARLET FEVER STATISTICS, SOMERVILLE, MASS.—The Somerville Board of Health reports 520 cases of diphtheria and 231 of scarlet fever for 1900. The number of deaths was 967, showing an increase of 166 over 1899. There is still a large number of diphtheria and scarlet fever cases in Somerville.

GLANDERS IN SOUTH FRAMINGHAM.—Considerable agitation exists among farmers over the reported existence of glanders in the district about South Framingham, Mass. The Massachusetts Cattle Commission is making an expert investigation of the source of the infection.

SMALLPOX IN BRIDGEPORT, CONN.—Precautions are being taken to prevent a threatened epidemic of smallpox in Bridgeport. The health officers have established compulsory quarantine for all suspected cases. The disease is supposed to have been introduced from New York.

NEW YORK.

SUPERINTENDENT OF BELLEVUE.—Dr. George Taylor Stewart, for several years past superintendent of the Metropolitan Hospital on Blackwell's Island, has been appointed by Charities Commissioner Keller to the superintendency of Bellevue, Harlem, Gouverneur and Fordham hospitals. The former superintendent of Bellevue, Mr. O'Rourke, has been appointed deputy superintendent under Dr. Stewart. Dr. Robert W. Hill, who was detailed by the State Board of Charities to investigate conditions at Bellevue Hospital, on January 9th made a report in which he severely criticised the management of that institution. In the course of it he said: "Outside of the medical staff there seems to have been no pride in the service, and in consequence the whole tone of the institution has been very low. The investigation has shown that the whole system at Bellevue has been radically wrong."

¹ This includes general tuberculosis.

Nothing save a complete change throughout the staff of employes will be satisfactory, for with a few notable exceptions, inefficiency, callousness and idleness characterize those who are employed to do the work of the hospital. The tests of efficiency and zeal, of character and sobriety, have not been applied, and it is by these that the new superintendent can make Bellevue what it should be—a model hospital. New buildings are needed, but a new spirit and motive far more."

SMALLPOX AND VACCINATION.—Recently a mail carrier was found in the Melrose Lodging House on upper Third Avenue, suffering from smallpox. The Health Board officials promptly removed the patient and vaccinated every one in the building with the exception of two lodgers who refused vaccination. About a week afterwards, on January 8th, one of these men was attacked by smallpox, and on the following day the other, while of the many others who were equally exposed to the disease not one has as yet contracted it. The total deaths from smallpox since the beginning of the present outbreak now number 16.

INFLUENZA.—In consequence of the prevalence of influenza the Hospital Saturday and Sunday Association has issued a special appeal to the public for prompt and generous contributions for the thirty-nine hospitals which it represents, in order to enable them to meet the extraordinary expenses incidental to the epidemic, which has prostrated a large number of nurses and helpers. During the week ending January 6th, 1900, 8 deaths from influenza were reported in the city. In the corresponding week of this year there were 36.

TUBERCULOSIS AT THE ELMIRA REFORMATORY.—According to the report of the new Board of Managers of the Elmira Reformatory, tuberculosis has increased to an alarming degree among the prisoners, and the spread of the disease is attributed largely to the laxity of the prison physicians in not carefully examining the physical condition of the convicts on their arrival and in not separating the healthy from the diseased. The report also shows that insanity is on the increase in the institution.

STATE HOSPITAL FOR TUBERCULOSIS.—On January 10th the State Board of Health and the State Forest Preserve Board announced their approval of the site finally recommended by the trustees of the State Hospital for the Treatment of Incipient Pulmonary Tuberculosis for that institution. It is located at Raybrook, three miles southeast of Saranac village, and embraces 521 acres; while most of the property immediately adjoining is State land.

ALLEGED CENTENARIANS.—John Magee, born in Ireland January 1, 1800, died in Brooklyn January 9th. Nicholas McQuillen, also born in Ireland, died at Southold, Long Island, on January 11th, at the reputed age of one hundred and three. Mrs. Lucy Polard, of New Brunswick, N. J., a pensioner of the

War of 1812, in which her husband fought, died on January 10th, at the age of one hundred and one.

PRIVATE SANITARIUM FOR TUBERCULOSIS.—The first meeting in aid of the Stony Wolde Sanitarium for consumptive women and children was held at the residence of Dr. George F. Shady, on December 10th, and was addressed by Dr. H. M. Biggs and others. It is proposed to raise a fund of \$100,000, and purchase a hotel and cottages already built at Kushagua Lake, Franklin County, in the Adirondacks.

COLUMBIA UNIVERSITY.—At the monthly meeting of the trustees of Columbia University, held January 7th, the following appointments were announced in the Medical Department: Dr. James D. Voorhees, secretary of the faculty; Dr. Ernest V. Hubbard, assistant in pathology; Dr. Stuart P. Jessup, assistant in normal histology.

CARNEGIE LABORATORY.—At the meeting of the Council of the University of the City of New York, held the same day, it was announced that the alterations in the Carnegie Laboratory had been completed. The upper portion has been rebuilt, and the entire building refitted for the purposes of a bacteriological laboratory, through the generosity of Mr. Carnegie, the original donor.

MEDICAL ASSOCIATION OF GREATER NEW YORK.—At the annual meeting of the Medical Association of the Greater City of New York, held January 14th, Dr. J. Blake White was re-elected chairman for the Borough of Manhattan. The membership of the society, which by its bylaws is limited to 500, now amounts to 416.

Episcallanp.

THE STUDY OF PSYCHIATRY IN NEW YORK STATE.

At a meeting of the New York Neurological Society held January 1, 1901, the following report was read and unanimously adopted: The committee of the New York Neurological Society, appointed at the request of the president of the New York Commission on Lunacy, to offer suggestions as to a scheme of scientific study of mental diseases in connection with the State hospitals for the insane, begs leave to report as follows:

(1) It is to the interests of the State that original research work should be carried on in relation to insanity, in order that the science should be advanced, and better methods of prevention, treatment and cure discovered. This is of direct interest to the taxpayer, upon whom falls the burden of the care of the insane.

(2) There should be one central laboratory in the State, wherein the energies of the best scientific men in the various departments of medicine related to insanity should be devoted wholly and exclusively to the prosecution of original research.

(3) Such a laboratory, combining the labors of well-qualified workers in general pathology, neuro-

pathology, psychology, chemistry, anthropology, and other requisite branches, should be able to produce from year to year results which would be creditable to the State as a patron of science, as well as invaluable in advancing the knowledge of the methods of treatment and cure of mental disorders.

(4) Each hospital for the insane should have upon its staff of medical officers one physician whose sole duty it should be to conduct ordinary autopsies and to carry on the routine duties of a clinicopathological microscopist.

(5) The central laboratory, or pathological institute, should be freely open to any qualified scientific men, for the prosecution of original research work, under the direction of the laboratory experts, preference always being given to the qualified men in the State hospitals. But systematic teaching of fundamental principles should not be required from any of the departments of the laboratory. The scientific men in charge of the various departments of the pathological institute should devote all their energies to original investigation, and not be taxed, hampered, or interfered with by medical men who are able to obtain instruction in fundamental principles elsewhere, without cost to the State.

(6) The central laboratory for original research should be a part of a reception hospital for the insane, situated on Manhattan Island. — *Medical Record*.

CACODYLATE OF SODIUM AS A "CURE" FOR PHTHISIS.

THE *Medical Press and Circular* comments as follows upon the new preparation known as cacodylate of sodium, which has been used for other disorders than tuberculosis of the lungs, and is certainly to be regarded as a preparation to be used with caution:

"Of all the so-called 'cures' for consumption that have been foisted on much defrauded humanity none can be more dangerous than the cacodylate of sodium. As a matter of fact that compound, which contains no less than 55% of arsenous acid, is advertised in the public newspapers as a harmless cure for all stages of consumption. Dr. Murrell has put the matter to the test by prescribing 1 grain of the cacodylate thrice daily to a patient suffering from advanced lung tuberculosis. This small dose produced dangerous symptoms of arsenical poisoning, and, needless to say, left the tuberculous mischief unaffected. In his original paper advocating the use of the drug Gautier advocated the use of .75 gramme hypodermically several times a day, and stated that no arsenical poisoning resulted. Similar large doses (10 grains) are actually advised by the druggists who are advertising the cacodylate of sodium in the general press as a 'cure' for consumption. In view of Dr. Murrell's experience it is clear that the vendors of this fallacious and dangerous remedy are incurring a most serious responsibility. After the publication of this timely warning by an eminent authority upon the action of poisons, no druggist selling the cacodylate otherwise than on prescription can be absolved from any evil consequences that may follow from the administration of the drug. It is hardly possible to give too much publicity to the facts of this death-trap remedy, which affords a striking proof of the danger of self-medication."

Correspondence.

THE SUPRARENAL CAPSULE IN ORGANIC HEART DISEASE.

NEW YORK, January 7, 1901.

MR. EDITOR: I intend to publish a second paper on the use of the suprarenal capsule in organic heart disease. Will you kindly ask the readers of your JOURNAL to send me the reports of their cases as follows: (1) The condition of the heart and pulse rate; (2) the effect on the heart and pulse and pulse rate within ten minutes after the suprarenal powder, three grains, is chewed and swallowed, without water, by the patient.

Yours truly,
SAMUEL FLOERSHEIM, M.D.

218 East 46th Street.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, JANUARY 5, 1901.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Average lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.	
New York . .	3,437,202	1405	351	20.07	22.62	1.28	1.28	3.63	
Chicago . .	1,698,575	—	—	—	—	—	—	—	
Philadelphia .	1,293,697	453	106	25.63	13.48	.66	3.53	4.42	
St. Louis . .	575,228	—	—	—	—	—	—	—	
Baltimore . .	508,987	186	65	23.67	13.45	.10	.22	.11	
Cleveland . .	381,768	—	—	—	—	—	—	—	
Buffalo . .	352,357	—	—	—	—	—	—	—	
Cincinnati . .	325,902	—	—	—	—	—	—	—	
Pittsburg . .	321,616	105	39	33.33	28.56	—	12.37	3.80	
Washington .	278,718	—	—	—	—	—	—	—	
Milwaukee . .	285,316	—	—	—	—	—	—	—	
Providence . .	173,907	69	17	25.10	14.59	—	4.35	4.35	
Boston . .	560,892	239	64	25.08	18.39	1.67	1.67	9.20	
Worcester . .	118,421	44	13	29.43	6.81	2.27	4.54	6.81	
Fall River . .	104,863	—	—	—	—	—	—	—	
Lowell . .	94,869	21	9	23.13	21.88	—	—	9.23	
Cambridge . .	91,886	15	3	40.00	13.33	—	—	13.33	
Lynn . .	68,513	—	—	—	—	—	—	—	
Lawrence . .	62,559	29	11	17.24	6.89	—	—	—	
New Bedford .	62,442	27	10	18.50	18.50	—	—	3.45	
Springfield .	62,059	17	10	11.76	15.50	—	5.88	—	
Somerville . .	61,643	20	4	35.00	10.00	—	—	15.00	
Holyoke . .	45,712	—	—	—	—	—	—	—	
Brockton . .	40,063	3	1	33.33	—	—	—	—	
Haverhill . .	37,175	10	2	30.00	10.00	—	—	20.00	
Salem . .	35,556	13	4	7.69	30.76	—	—	7.69	
Chelsea . .	34,072	8	—	—	—	—	—	—	
Malden . .	33,664	9	3	11.11	11.11	—	—	—	
Newton . .	33,587	14	3	14.28	14.28	—	—	—	
Fitchburg . .	31,531	9	2	22.22	22.22	—	—	—	
Taunton . .	31,036	12	3	16.67	16.67	—	—	—	
Gloucester . .	26,121	2	1	50.00	—	—	—	—	
Everett . .	24,886	9	—	—	22.22	—	—	—	
North Adams .	24,200	5	2	60.00	—	—	—	—	
Quincy . .	23,899	7	—	28.57	—	—	—	—	
Waltham . .	23,481	7	12	42.85	—	—	28.57	14.29	
Pittsfield . .	21,796	—	—	—	—	—	—	—	
Brookline . .	19,935	—	—	—	—	—	—	—	
Chicopee . .	19,167	9	2	33.33	—	—	—	11.11	
Medford . .	18,244	—	—	—	—	—	—	—	
Newburyport .	14,578	5	1	—	20.00	—	—	—	
Melrose . .	12,962	4	—	—	—	—	—	—	

Deaths reported 2,777; under five years of age 726; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 624, acute lung diseases 531, consumption 321, diphtheria and croup 121, typhoid fever 63, diarrheal diseases 41, scarlet fever 28, whooping cough 14, cerebrospinal meningitis 7.

From whooping cough Philadelphia and Pittsburg 3 each, New York and Boston 2 each, Providence, Worcester, Somerville and Chicopee 1 each. From cerebrospinal meningitis Pittsburg and Boston 2 each, Philadelphia, Gloucester and North Adams 1 each. From scarlet fever New York 18, Boston 4, Philadelphia 3, Baltimore 2, Worcester 1. From typhoid fever New York 18, Philadelphia 16, Pittsburg 13, Baltimore and Boston 4 each, Providence 3, Worcester and Waltham 2 each, Springfield 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,610,206, for the week ending

December 22d, the death rate was 16.1. Deaths recorded 3,590; acute diseases of the respiratory organs (London) 306, diphtheria 103, whooping cough 76, fever 52, measles 48, diarrhea 39, scarlet fever 33.

The death rates ranged from 10.1 in Derby to 22.3 in Birkenhead; Birmingham 17.5, Brighton 15.1, Bristol 15.2, Cardiff 14.5, Croydon 13.9, Gateshead 15.3, Halifax 15.5, Hull 15.3, Leeds 15.6, Liverpool 19.6, London 15.7, Manchester 18.9, Newcastle-on-Tyne 16.2, Norwich 12.3, Nottingham 15.7, Oldham 17.3, Plymouth 12.8, Portsmouth 13.4, Salford 22.2, Sheffield 18.8, Sunderland 15.2, Swansea 17.8, West Ham 11.6.

METEOROLOGICAL RECORD

For the week ending January 5th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Ther- mometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Wet'th. °.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8 00 A. M.	Daily mean.	8 00 A. M.	8 00 P. M.	8 00 A. M.	8 00 P. M.	8 00 A. M.	8 00 P. M.	
S...30	29.93	37	46	28	60	75	68	S.W.	S.W.	9	7	C.	O.
M...31	29.77	40	43	37	96	68	91	N.W.	S.W.	6	7	R.	O.
T...1	30.26	30	42	19	68	58	63	N.W.	S.W.	6	7	R.	O.
W...2	30.49	34	42	17	59	42	43	S.W.	N.W.	12	15	O.	C.
T...3	30.67	14	23	6	43	33	39	N.	S.W.	11	6	C.	C.
F...4	30.23	22	32	12	61	43	52	S.W.	S.W.	12	12	C.	C.
S...5	30.27	24	30	19	77	32	54	N.	W.	8	12	C.	C.

* O, clouds; C, clear; F, fog; H, haze; S, smoke; R, rain; T, threat; N, snow. † Ind. ca. trace of rainfall. ☉ Mean for week.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 12, 1901.

F. ANDERSON, surgeon, ordered home and to wait orders, when recruiting duty is completed.

C. H. T. LOWNDS, surgeon, detached from the Naval Academy, January 14th, and ordered to the "Lancaster," via steamer from New York City of January 19th.

C. DEHL, surgeon, detached from the "Lancaster" and ordered home and to wait orders.

B. R. WARD, passed assistant surgeon, detached from the Naval Hospital, Mare Island, Cal., January 17th, and to the Boston Yard.

J. B. DENNIS, assistant surgeon, ordered to the Naval Academy, January 14th.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JANUARY 10, 1901.

WASDIN, EUGENE, surgeon. Granted leave of absence for fifteen days from January 14th. January 5, 1901.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Fontainebleau, Miss., for special temporary duty. January 5, 1901.

STIMPSON, W. G., passed assistant surgeon. To proceed to Cripple Creek, Col., for special temporary duty. January 4, 1901.

NYDEGGER, J. A., passed assistant surgeon. To proceed to Chicago, Ill., and report to medical officer in command for duty and assignment to quarters. January 5, 1901.

DECKER, C. E., assistant surgeon. Granted seven days' extension of sick leave from January 4th. January 7, 1901.

ANDERSON, J. F., assistant surgeon. Having been assigned to duty in the Immigration Service at Liverpool, Eng., relieved from duty in the U. S. Consulate at that port. January 5, 1901.

WALELEY, W. S., acting assistant surgeon. Granted leave of absence for three days. January 8, 1901.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the society will be held in Sprague Hall at the Medical Library Building on The Fenway, on Monday, January 21st, at 8.15 P. M.

Paper by Dr. James G. Munford, "The Story of the Boston Society for Medical Improvement."

Remarks by Drs. James C. White, Morrill Wyman, Clarence J. Blake, Reginald H. Fitz, George B. Shattuck.

All interested in the medical history of Boston are invited to be present.

ARTHUR K. STONE, M.D., Secretary, 657 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Obstetrics and Diseases of Women will meet on Wednesday, January 23, 1901, at 8 P. M., in Sprague Hall, Boston Medical Library Building, 4 The Fenway.

Papers: Dr. H. O. Marcy, "Gynecology: Its Contribution to General Surgery."

Dr. Emma L. Call: "An Emergency Case of Cesarean Section in a Face Presentation Complicated with Uterine Fibroid."

Dr. E. A. Higgins: "My Experience with Antistreptococcus Serum in Puerperal Sepsis."

W. H. GRANT, M.D., Secretary, 419 Boylston Street.

RECENT DEATHS.

LUCIUS J. W. LEE, M.D., of Brooklyn, N. Y., a grandnephew of the late Prof. S. D. Gross, of Philadelphia, died of pneumonia on January 7th, in his sixty-fifth year. He was born in Easton, Pa., and was graduated from the Medical Department of the University of Pennsylvania. During the Civil War Dr. Lee served on the medical staff of Douglas Hospital, in Washington, D. C.

THOMAS BROWN WHEELER, M.D., of Montreal, died suddenly at the Murray Hill Hotel, New York, on January 10th, of apoplexy. He was seventy years old.

BOOKS AND PAMPHLETS RECEIVED.

The Harvard University Catalogue, 1900-01. Cambridge, 1901.

Railway Surgery in America. By Clark Bell, Esq., LL.D. Reprint. 1900.

Anginen durch den Friedländer'schen Bacillus. Von Dr. Emil Mayer. Reprint. 1900.

Abdominal vs. Vaginal Hysterectomy. By Henry O. Walker, M.D., Detroit, Mich. Reprint. 1900.

Contributions of Irving C. Rosse, M.D., Washington, D. C., 1871-1900. One hundred and five titles.

Neglected Clinical Opportunities in American Medical Centres. By S. A. Koopf, M.D., New York. Reprint.

Mothers' and Babies' Hospital and Dispensary, Annual Report from January 1, 1899, to October 1, 1900.

Forty-fifth Annual Report of the Trustees of the Northampton Insane Hospital for the Year ending September 30, 1900.

Hernia, Undescended Testicle, Appendicitis and Gangrene of Bowel; Operation and Recovery. By C. W. Little, M.D. Reprint. 1900.

Panama and the Sierras; A Doctor's Wander Days. By G. Frank Lydston, M.D. Illustrated. Chicago: The Riverfront Press. 1900.

The Thirty-first Annual Report of the State Board of Health of Massachusetts. Boston: Wright & Potter Printing Co., State Printers. 1900.

Abstract of the Proceedings of the National Convention of 1900 for Revising the United States Pharmacopoeia, held at Washington, May 2, 3 and 4, 1900.

The Necessity of Expert Supervision of Medical Items Printed in the Daily Newspapers. By Walter L. Fyle, A.M., M.D., Philadelphia. Reprint. 1900.

Indications for the Drainage in Diseases of the Biliary Passages and the Technique of Operation. By J. E. Summers, Jr., M.D., Omaha, Neb. Reprint. 1900.

The Remote Results of Conservative Operations on the Ovaries and Tubes; An Analysis of Eighty-five Cases. By W. L. Burrage, M.D., Boston. Reprint. 1900.

Estimation of the Amount of Injury to the Earning Capacity of the Individual from Partial or Complete Loss of Vision. By Howard F. Hunsell, A.M., M.D., Philadelphia, Pa. Reprint. 1900.

A Contribution to the Study of the Insect Fauna of Human Excrement, with Especial Reference to the Spread of Typhoid Fever by Flies. By L. O. Howard, Ph.D., Washington, D. C. 1900.

Thirty-second Annual Report of the Secretary of State of the Registration of Births and Deaths, Marriages and Divorces in Michigan for the Year 1898. Justus S. Stearns, Secretary of State. Edited by Cressy L. Wilbur, M.D. Lansing, Mich.: By Authority. 1900.

The Physician as a Scientist. A Compact Operating Case for Military Service, with a Description of Several New Instruments for the Same. Restitution of the Continuity of the Tibia by Transplantation of the Patella into an Extensive Osteomyelitic Defect. By N. Senn, M.D., Ph.D., LL.D., Chicago. Reprints. 1900.

Original Articles.

A SHORT ABSTRACT OF THE EARLY HISTORY OF MEDICINE IN MASSACHUSETTS TO THE YEAR 1800.¹

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

I AM indebted for my facts to the "History of Medicine in America," by James Thatcher, M.D.; the first volume of the Massachusetts Medical Society publication; "History of Early Medicine," by Josiah Bartlett, M.D.; and the second volume of the *Massachusetts Medical Society Transactions*.

The landing of the first emigrants at Plymouth, Mass., was December 22, 1620. More than a century and a half elapsed after the first settlement of the colonies before a single effort was made either by public authority or by the enterprise of individuals for the establishment of institutions for the education of physicians, or the regulation of the practice of medicine.² Our ancestors were strongly impressed with the importance of general education, and it was their constant solicitude to provide for institutions of learning as far as was practicable. But the welfare of the church and their political economy were made paramount to all other considerations. The peculiar motives which prompted their emigration to this country, the difficult circumstances they were called upon to encounter, and the depressed state of medical science in the countries whence they came, will furnish the most ample apology for their neglect of the means of improved medical education. Our colleges turned out graduates who repaired to Europe to complete their medical education in the public medical schools, and to qualify themselves to practise in the colonies.³

No medical libraries existed anywhere in the country, and it was seldom that students could have access even to the elementary works necessary to their instruction. No medical journal was published in America till near the close of the eighteenth century through which physicians could communicate the results of their experience or make known their improvements and discoveries; not even a newspaper was printed till the year 1704.⁴ Hence it is not strange that we are so little acquainted with the character and practice of our predecessors.

The first physician of whom we have any account among the colonists was Dr. Samuel Fuller. He formed one of the company who came over in the first ship, and was a deacon in Rev. John Robinson's church. Whether he had enjoyed a collegiate education is uncertain, but he is said to have been well qualified in his profession; he was zealous in the cause of religion, and eminently useful as a physician and surgeon. He extended his benevolent labors not only to the sick among his intimate friends at Plymouth and the aborigines in the vicinity, but in 1628 and 1629, by the request of Governor Endicott, he

twice visited the new settlement at Salem, where he manifested his skill and success in practice among the numerous sufferers from scurvy and other diseases introduced there by the ships on their arrival. He received the entire approbation of Governor Endicott, and his letters of thanks for his useful services. In a letter to Governor Bradford, June 28, 1630, Dr. Fuller says: "I have been to Matapan (now Dorchester) and let some 20 of these people blood." What disease prevailed among them to require the loss of blood in the warm season of June we are unable to determine. In the year 1632 the settlers at Plymouth were visited by a disease which they called an infectious fever, of which upwards of 20 men, women and children died, among them being their pious and excellent physician, Dr. Fuller. The same disease proved very fatal also among the native Indians.

In the year 1633 Dr. Giles Firmer was a deacon in the Boston church and was esteemed as an able physician and a man of learning. In 1637 Dr. John Fisk arrived and settled in Salem, where he sustained a respectable character as a clergyman and physician. William Gager accompanied Governor Winthrop to Boston in the position of surgeon, where he died greatly lamented. At the first commencement at Harvard College, in 1642, Samuel Bellingham and Henry Saltonstall were graduated, and were afterwards honored with the degree of M.D. at European universities, and both were reputed learned and skilful physicians. Leonard Hoar was graduated at Harvard College, and repaired to England, where he studied medicine and received the degree of M.D. He returned to New England, and was for about two years president of Harvard College. Other M.D.'s were John Glover, 1650, Harvard College, who got his degree from Aberdeen and returned; Isaac Chauncey, 1651, from Harvard College, who came back from Europe with his M.D.; John Rogers, M.D., president of Harvard College, 1682-1684; it is uncertain if he practised; Charles Chauncey, president of Harvard College, 1652,—medical education in England,—who had six sons, all educated at Harvard, who all studied medicine and became eminent in their profession; several removed to England and did not return. Matthew Fuller in 1640 practised in Plymouth, removed to Barnstable in 1652, and died in 1678. He was appointed surgeon-general of the Provincial forces raised in Plymouth County in 1673, and was captain in 1675. Thomas Oliver, an elder in the Boston church, is mentioned with high approbation in Winthrop's journal as an experienced and skilful surgeon about 1644.

In 1646 the virtuous people in Boston were much grieved by the discovery of a disease in Boston with which, till then, they were entirely unacquainted, and which the venerated Winthrop in his journal says, "raised a scandal upon the town and country, though without just cause." This proved to be lues venerea. It originated with the wife of a seafaring man, who after childbirth was affected with ulcerated breast. Many persons were employed to draw this woman's breast, by which means about 16 persons, men, women and children were affected with this new and odious disease. The nature of the complaint was at length ascertained; but no physician could be found in the country who was acquainted with the method of cure; but it fortunately happened that at that very season a young surgeon arrived from the West Indies

¹ Read before the Malden Society for Medical Improvement, December 18, 1900.

² Request to Harvard College of Dr. Ezekiel Hersey, 1770.

³ Harvard College was founded at Cambridge in 1633; William and Mary College of Virginia in 1691; Yale College in Connecticut in 1700; Princeton College in New Jersey in 1746; Philadelphia College in 1754; King's, now Columbia, in New York in 1754.

⁴ The first newspaper printed in America was the *Boston News-Letter*, April 24, 1704, by B. Green; the first in Pennsylvania, December 22, 1719; the first in New York, October 16, 1725; the first in Charleston, S. C., 1739; in Rhode Island, October, 1732; in Connecticut, 1733; in New Hampshire, 1736.

who had been experienced in the disease, and he soon performed a cure. In the summer of 1647 an epidemic spread through the country among English, French, Dutch and Indians. It resembled a cold, attended with slight fever (probably influenza). Winthrop says, "Those who were bled or used cooling things died, those who took comfortable things for the most part recovered in a few days. Not a single family, and but a few persons escaped an attack of this epidemic; about 40 or 50 died in Massachusetts, and about the same number in Connecticut."

Thomas Thatcher came over to New England in 1635, educated for the ministry, also received a medical education, and was regarded as an eminent divine and learned physician. He gained great eminence in both professions, and was also prominent in the learned languages. He published a work entitled "A Brief Guide in the Smallpox and Measles," in 1677, which is the first medical publication found on record in New England, if not in America. As an illustration of the state of medicine in France in 1686, nearly seventy years after the settlement of Massachusetts, Felix, a surgeon, and Fagon, a consulting physician, were rewarded with \$40,000 for a successful operation for fistula in ano on Louis XIV of France, in consequence of which a national thanksgiving was religiously observed.

At this time also the royal touch was considered as the only cure in scrofula. In May, 1682, notice was given in a London gazette that as the weather was growing warm, His Majesty would not touch any more for the king's evil till after Michaelmas; and in 1687 an indigent citizen of New Hampshire, having tried every other means without effect, petitioned the legislature for aid to transport him to England for that efficacious remedy.

In 1721 inoculation for smallpox was first regularly adopted in England by Mr. Maitland in April, on the young daughter of Lady Mary Wortley Montague, who had lived in Constantinople, and had become acquainted with the method of inoculation practised by some Turkish women, and satisfied of its safety and salutary effects, had it done on her young son in the East in 1717. The above was the first time it was done in England. Dr. Cotton Mather, the learned divine of Boston, about the same time, having read in the *Philosophical Transactions*, printed in London, an account of inoculation for smallpox by Timoni and Pylarini in Turkey, communicated the information to several physicians of Boston, who treated the subject with contempt. He then recommended to his friend, Dr. Zabdiel Boylston, to adopt the practice. Accordingly with the little information which he could obtain from that publication, and in the face of the most violent opposition, on the 27th day of June, 1721, Dr. Boylston inoculated first his only son, about thirteen years of age, and 2 negro servants, in which he was entirely successful. This confirmed in his own mind the safety of the proceeding, and in 1721 and the first part of 1722, Dr. Boylston inoculated 247 persons, and 39 were inoculated by others in Boston and vicinity; of this number only 6 died, and several of these were supposed to have taken the infection before inoculation. In the same time 5,799 took the disease in the natural way, of whom 841 died, and many who recovered were left with broken constitutions and disfigured countenances. The degree of odium and persecution which Dr. Boylston brought

upon himself by this very laudable innovation is almost incredible. His house was attacked and he himself assailed in the streets, loaded with all kinds of abuse and execrated as a murderer. A bill was brought before the legislature to prohibit the practice of inoculation under severe penalties, and it actually passed the House of Representatives; but some doubts existing in the council, its progress was arrested, and it never became a law. Dr. Boylston was repeatedly summoned before the selectmen of Boston and received their reprehension.

Not only did he suffer the greatest indignity from the populace but his professional brethren formed a powerful combination against him, though repeatedly invited to visit his patients and examine them to their satisfaction. The novelty of the subject and the strong prejudices existing caused much public agitation, and involved both clergymen and physicians in a spirited and intemperate controversy. The clergymen in general, however, acted an honorable part and many became zealous advocates of the new practice, while most of the medical fraternity were its active and violent opposers. The newspapers teemed with pieces on both sides of the controversy, and from the opponents of inoculation issued some of a virulent and scurrilous character. It is interesting to note that the *New England Courant*, printed by the Franklins (the young philosopher being one of the editors), was under the influence of the physicians, who abused the clergy for their interference in the controversy. He, however, persevered and finally enjoyed the results of his very useful labors. He finally was invited to London, and received all sorts of honors. While in London in 1726, on request of the Royal Society, he published an historical account of the smallpox inoculation as practised by him in Boston, dedicated to Princess Caroline. It was reprinted in Boston after his return, and a copy was deposited in the Harvard College Library by Ward Nicholas Boylston. The introduction of inoculation of smallpox may be regarded as an epoch in medicine, and to Dr. Zabdiel Boylston alone is due the credit of having firmly established it in this country.

In the year 1752 the country was again visited by an epidemic of smallpox, and by order of the magistrates an account was taken of all who were affected by the disease, either by the natural way or by inoculation in Boston, and rendered on oath. It appears that the number of inhabitants was 15,734. The whole number of smallpox patients the natural way was 5,544, of which 514 died. The number of inoculated was 2,113, of which 30 died. In 1764, according to Dr. Gale, 3,000 persons were inoculated and only 8 died, chiefly children under five years of age. Public hospitals for smallpox inoculation were opened in the vicinity of Boston in 1764, one at Point Shirley, by Dr. Wm. Barnet, and one at Castle William in Boston Harbor by Dr. Samuel Gelston, of Nantucket. In 1792 smallpox again visited Boston, and in three days the whole town was inoculated, so great was the fear of the disease. There were 9,152 inoculations, and 165 deaths occurred, chiefly in the families of the poor, many of whom were destitute of the comforts of life.

In 1755 and 1736 the disease called angina ulcusculosa (angina maligna) prevailed extensively throughout the country in its most malignant form, and in Massachusetts alone about 1,000 persons be-

came its victims. On this occasion calomel was for the first time administered as a remedy, and attended with the happiest results, arresting in a surprising way the fatal tendency of the disease. Dr. William Douglass published a valuable practical essay detailing the characteristics of the method of treatment of this alarming complaint.

Among the earliest publications on medical subjects in America was an essay on fevers published in Boston in 1732 by Dr. John Walton. Dr. John Cutler was long an eminent physician and surgeon in Boston. He was the preceptor of several of the early physicians; among them was Dr. Zabdiel Boylston. In 1781 old Continental paper money was used and physicians had great difficulty from the fluctuating value of it. The physicians of Boston instituted a club, the meetings of which were held in the Green Dragon Tavern. Physicians' fees were low, and when paid in depreciated paper money little or nothing could be realized from them. The fee for a visit was one shilling and sixpence, afterwards increased to two shillings. Midwifery and capital operations were at a guinea, with charges for after visits. The first fees established by the medical club were fifty cents for a visit; if in consultation, one dollar; rising and visit in the night, after 11 o'clock and before sunrise, double fee; obstetrical case, eight dollars; capital operation in surgery, five pounds; reducing a dislocation, or setting a fractured bone, one guinea; bleeding, opening an abscess, extracting a tooth, fifty cents, and the usual fee for visit was added. All accounts were to be calculated in hard money, and if paid in paper, according to such agreement as could be made with the parties. The profession was much benefited by these regulations.

The Massachusetts Medical Society was established in 1781, with power to elect officers, examine and license candidates for practice, hold real estate, and perpetuate its existence as a body corporate forever. This auspicious event was effected by an application to the legislature of thirty-one distinguished physicians from various parts of the State (their seal adopted in June, 1782, was a figure of Esculapius in his proper habit pointing to a wounded hart nipping the herb proper for his cure, motto, "*Natura duce*"), and is an interesting era in our history. The society was organized in June, 1782, and Edward A. Holyoke chosen president. The fellows were enjoined to communicate important cases, and the faculty at large invited to a familiar correspondence; circular letters were sent to similar societies in our own and in foreign countries, which were respectfully reciprocated. In 1785 corresponding and advising committees of the society were appointed for the different counties, in several of which associations were formed for meetings, reading dissertations, etc. In 1789 the society was authorized to point out and describe such a mode of medical instruction as might be deemed requisite for candidates, previous to examination. It was determined that every pupil should have a competent knowledge of Greek, Latin, the principles of geometry and experimental philosophy, and the period of instruction should be in no case less than three years, with attendance on the practice of a respectable physician. Publications were made triennially of authors to be studied, by which the most valuable modern productions were extensively circulated. The censors met for examination and licens-

ing candidates once in four months. The first licentiate was admitted in 1782.

In 1790 the first number of medical papers containing a selection of important communications was published, but for want of funds a second did not appear till 1806. A third was printed in 1808, completing the first volume of the Massachusetts Medical Society publications.

Dr. Ezekiel Hersey, of Hingham, who died in 1770, bequeathed £1,000, and his widow at her death a like sum, to be applied to the support of a professor of anatomy and surgery at the University at Cambridge. Dr. Abner Hersey, of Barnstable, who died in 1786, and Dr. John Cuming, of Concord, were also donors to the amount of £500 each for the same laudable purpose, and William Erving, Esq., of Boston, left £1,000 toward the support of an additional professor. In conformity with the views of the patrons and donors, professors of talents and character were in 1782 appointed, by whom lectures on the several branches were regularly delivered and students received the honors of the institution. In 1780 Dr. John Warren, while surgeon of a military hospital in Boston, commenced a course of anatomical lectures, and in the following year they were attended by the students of the university. Dr. Warren furnished a plan for a medical school, which was adopted by the corporation of Harvard College, and in 1783 he was appointed first professor of anatomy and surgery; Dr. Benj. Waterhouse, professor of the theory and practice of physic, and Dr. Aaron Dexter, professor of chemistry. This was the first essay made in New England for the establishment of an institution for medical education. George Holmes Hall and John Fleet were the first who were admitted in course to the degree of Doctor in Medicine at the university in the year 1788. In 1809 Drs. John Collins Warren and John Gorham were respectively inaugurated adjunct professors of anatomy and chemistry.

To go back a few years, the discovery of vaccination by Edward Jenner, a physician of Berkely, in Great Britain, was transmitted to this State in 1799. In July, 1800, Benj. Waterhouse, professor of the theory and practice of physic at the Medical School, procured vaccine matter from Bristol, England, and first vaccinated his son, the first person to be so treated in the United States.

One is at once impressed with two things in reading what precedes: (1) The prominent position which Massachusetts held in the advancement of medicine in the early days, and (2) the close relation between the physician and the clergyman, the two professions being often united in one individual, a most noted instance being Manassah Cutler, of Hamilton, Mass.

THE GREAT TOE (BABINSKI) PHENOMENON: A CONTRIBUTION TO THE STUDY OF THE NORMAL PLANTAR REFLEX BASED ON THE OBSERVATION OF ONE HUNDRED AND FIFTY-SIX HEALTHY INDIVIDUALS.

BY MORTON PRINCE, M.D., BOSTON.,
Physician for Nervous Diseases to the Boston City Hospital.

For the general reader who has not followed late neurological literature I will say that the Babinski phenomenon is a modification of the normal plantar

reflex. Stroking the sole of the foot normally causes a *flexion* movement, if any, of the toes, particularly of the four outer toes. Babinski pointed out that when the motor paths in the cord are diseased, as in hemiplegia and spastic paraplegia, stroking the sole, more particularly the outer surface, causes just the opposite movement, namely, "extension of the toes, particularly of the great toe."

This phenomenon promises to be of great value as a test of organic disease of the motor paths. Nevertheless there seems to be some difference in the understanding as to exactly what constitutes a Babinski phenomenon. This difference and various other factors which complicate the phenomenon are the probable cause of the different opinions held regarding the value of the test.

According to the definition of Babinski¹ extension of the outer toes may suffice for the phenomenon which is described as an "extension of the toes, particularly of the great toe." But he further states while flexion "predominates generally in the two or three outer toes, extension is *ordinarily*² more pronounced in the first or the first two toes." This language would imply that extension of the outer toes without that of the great toe, which may be sometimes observed, is of similar significance, or at any rate that sometimes extension is more pronounced in the outer toes. At least this interpretation is not uncommonly met with. Walton defines the phenomenon as an "extension of the great toe with or without extension and separation of the other toes." On the other hand, in the literature the phenomenon is almost always spoken of as the phenomenon of the *toes* (*phénomène des orteils*, *Zehen-Phänomen*), or extension of the toes, as if this movement of the smaller toes was of equal significance.

This difference is practically of importance, for according to Walton's definition, extension of the outer toes without including the great toe would not be a true "Babinski." While this may not be strictly true, I am satisfied that the phenomenon as defined by Walton is the form in which it is always, or almost always, of pathological significance and therefore of most clinical value, as will appear from the following observations.

From private conversation, I should also judge there was still considerable individual difference in the conception of the character of the extension movement constituting a Babinski phenomenon. Dr. Walton insists that the extension must be constant and deliberate, and marked; others consider any extension movement sufficient, even if not persistent (as with the knee jerk). Thus Babinski describes as a variation of the phenomenon one which consists of "sometimes flexion and sometimes extension, the first excitations causing flexion." Another variation is "extension from stroking the outer surface, flexion from the inner."

To acquaint myself more fully with the exact character of the normal plantar reflex, and more particularly to determine whether the Babinski phenomenon or any extension movement of the toes occurs in normal individuals, I have lately examined the reflex in 156 presumably healthy men between the ages of twenty-two and thirty-three years, all candidates for civil service examinations. For the purposes of the

investigation only the reflex movements of the toes and ankle were noted. Those of the leg were disregarded.

As a result of these observations I have been able to satisfy myself that one cause of the discrepancies in the reported observations of different observers is that there may be two distinct plantar reflexes, one of which is probably cerebral and one is spinal. Both may be absent. The normal spinal reflex movement of the toes in the adult is always, as shown by Babinski and others, flexion; the normal cerebral reflex is generally, if not always, extension of the toes, with the same movement of the foot. If precautions are not taken the cerebral reflex may mask the spinal reflex, and give erroneous results, that is, override the spinal flexion and produce an extension.

The cerebral reflex can generally, not always, be inhibited by an act of will, and thus leave the spinal free. When this was done in these observations an extension of the great toe was never observed.

The 156 subjects were studied in two different groups. The method employed on the first group varied somewhat from that employed in the other and gave correspondingly different results of some interest. The first group (examined in May last) comprised 64 men. In 3 of these an extension of some or all of the four outer toes occurred, while the big toe remained motionless or was flexed. In 1 there was extension, though slight, of the big toe in each foot. The knee jerk was noted as plus, but no ankle clonus. In 1 other there was an extensor response, but the notes fail to state whether of the big toe or of the others. A dorsal flexion of the ankle was noted as frequent. Reference will be made to this again. In the remaining 57 cases, the response, if any, was flexion.

Noting the significance of the fact that in 4 of the 5 subjects in whom extension occurred the movement was only of the outer toes, it seemed probable that this extensor reaction was far too frequent to be a true spinal reflex, and was due to some other physiological arrangement. The subjects were more or less nervous and excitable, and I was satisfied that I did not take sufficient precautions to see that the muscles were thoroughly relaxed, and the subjects in mental repose.

Accordingly, the observations were repeated on 92 subjects, similarly candidates for civil service examination, and presumably with healthy nervous systems.

Special care was taken to see that the subject relaxed his muscles and he was warned to guard against all involuntary movement and subjective response to tickling sensations; at the same time care was taken not to excite to an uncomfortable degree the skin.

In not one was an extension movement of the great toe observed. In only one was a *distinct and marked* extension of the four outer toes noted. The great toe in this case was either immobile or showed occasional slight flexion. The knee jerk was normal and there was no ankle clonus, but the subject was designated in the notes as nervous. In another case *slight* extension occurred at times in the outer toes of one foot. Both great toes showed no reflex movement whatever.

The result in general was that whatever plantar reflex was obtained was very largely limited to the toes, and general signs of ticklishness were not obtrusive. A pointed stick was used for stimulation.

At first before the subjects learned to relax their

¹ Followed by Collier, Langdon and others.

² Italics not in original.

muscles, etc., in some cases there were extensor movements of toes, including the great toe and foot, which masked the true spinal reflex. As soon as the subject exercised mental control these movements tended to cease, and that of the great toe always ceased. In the other toes extension was only observed in the 2 cases mentioned. In the first series of 64 cases dorsal flexion (extension) of the foot was common. In a series of 72 cases in which precautions to exclude the cerebral reflex were taken this tibialis anticus contraction was noted as present only 6 times, and in 4 of these the subjects are specially noted as "ticklish" or "nervous" or both.

It seemed very evident that the extension movements (toes and foot) noted were proportioned to the ticklishness or nervousness of the individuals. These movements have been described as semi-voluntary (Walton). This is an unfortunate term and means nothing.

They seem to me to be properly a cerebral reflex, and similar to dodging the head or closing the eye before an expected blow. Such movements are not voluntary or semi-voluntary, but automatic, for volition sometimes cannot prevent them. That these particular toe movements are cerebral is further suggested by the fact that they occur in proportion to the degree of "ticklishness." That they are not "voluntary" is shown by the fact that they require a strong effort of will to inhibit them, and sometimes cannot be inhibited at all. (I have noted that in subjects mentally dull from disease and unable to inhibit but still ticklish, these movements are marked.)

But whether cerebral or spinal the point should be emphasized that in not a single case was extension of the great toe noted when properly examined.

It may be said, then, that when proper precautions are taken to inhibit the cerebral reflex, extension of the great toe never occurs, or, more correctly, it was not observed once in 92 individuals, and only once in the first group of 64, when it was *slight*, and in all probability a cerebral reflex, as it was in this group that insufficient precautions were taken.

Extension of some of the other toes occurs occasionally in health (2 out of 92 subjects and 3 out of 64). But in some of these cases at least, if not in all, it is a cerebral reflex. Nevertheless, it is not always practical to make this distinction clinically.

The significance, then, of the Babinski phenomenon, consists in the extension of the great toe. To emphasize this the best term would be the *great toe phenomenon* (like knee jerk, ankle clonus, etc.). But from this it does not follow that extension of the other toes may not be of pathological moment, for though it may be physiological (cerebral?), it may be due to disease of the motor tract as with the great toe. In a case, for example, of meningeal hemorrhage from a pistol shot wound, a very extreme extension of all the toes, as intense and prolonged as I have ever seen, was later, after removal of the clot, followed by extension of only the outer toes, and then stroking caused at first extension succeeded by flexion; this was evidently the remains of the Babinski. The significance of extension of the outer toes alone must therefore be a matter of consideration in each case. Slight extension of the outer toes without that of the big toe I have observed in obscure cerebral disease without being able to determine the significance of the phenomenon.

The recognition of a cerebral as well as spinal plantar reflex seems to the writer of practical moment. The one may obscure the other.

Looking at the two reflexes from a biological point of view, the theory is plausible that the cerebral reflex is one of retreat from a hurtful stimulus, a reflex which has grown out of a conscious volitional impulse. The spinal reflex is probably that of assistance, such as automatic grasping the limb of a tree or other object.

Absence of any toe reflex. — The number of cases in which no toe reflex was observed is noteworthy. Of 72 consecutive cases no reflex at all of the big toe could be obtained in 52. Of 92 cases, no reflex of any toe occurred on either side in 18 cases, on one or both sides in 27 (30%).

This is slightly higher than Walton's figures. My belief is that the frequency of the plantar (spinal) reflex, so far as it concerns the toes, has been exaggerated owing to several sources of fallacy being overlooked, namely: (1) Mistaking the cerebral for the spinal reflex; (2) in stroking the sole it is not difficult by moderate pressure over the first phalanges to cause a purely mechanical flexion of the toe; (3) if the stroke is made from the toe towards the heel pulling on the skin, when inelastic, will do the same.

A CASE OF OBLITERATION OF THE RIGHT URETER BY A CALCIFIED FIBROID; REMOVAL OF FIBROID AND IMPLANTATION OF THE URETER INTO THE BLADDER; RECOVERY.

BY MAURICE H. RICHARDSON, M.D., BOSTON.

THE following case illustrates some of the dangers of leaving an old fibroid to itself. The patient, Mrs. E. M. W., age fifty-eight, had always been well up to ten years ago. She had had two children and no miscarriages. Menstruation had always been regular. The menopause was at the age of forty-five. Ten years ago she noticed in the right lower abdomen a tumor, which gradually increased in size. At intervals she suffered more or less pain from this tumor. Three years ago she began having frequent and painful micturition. During the past three years the pain in the lower abdomen has been much more frequent and more severe. At times she has been unable to hold her water. The urine has been increasing in cloudiness and the odor has become foul. There has been loss of weight and appetite. The bowels have been constipated.

On examination I found a large fluctuating tumor of the lower abdomen. The signs of fluid were so marked that I was of the opinion that the tumor was ovarian. The woman's general condition was fairly good. I advised operation, but felt somewhat doubtful as to the ease with which the tumor could be removed.

On exposure the tumor proved to be a fibroid of the uterus, upon which — or a part of which — was a large cyst. The tumor was either a fibrocyst of the uterus, or a uterine fibroid in close connection with a cyst of the broad ligament. The tumor was deeply and broadly attached, and separation seemed impossible. The deeper portions in the right side of the pelvis were evidently calcified, being of stony hard-

¹ Read before the Obstetrical Society of Boston, November 20, 1900.

ness. Ten years ago I should have abandoned the operation, and wisely so. Indeed, before this operation was completed, all concerned in it would have been glad if it had never been undertaken. Inexperience in such an operation would, I am sure, have made it a fatal one.

Separation of the tumor became more and more difficult as the calcified portions were reached. The areas of the tumor deep in the right broad ligament were closely attached to the right and anterior portions of the pelvis. Separation was made with the fingers carefully pressing between the capsule of the tumor and contiguous structures. When the solid and calcareous masses were reached, enucleation became still more difficult. It was at this point in the operation that clear fluid was noticed escaping rapidly and in large amounts from the depths of the dissection.

The orifice from which this fluid was flowing was easily recognized, and its edges grasped. Dissecting backward I found it to be the right ureter, which apparently ended at the separated calcified masses. Beyond this point, which was perhaps an inch or more from the bladder, no distal orifice of the ureter could be found, though most careful search was made for it. Above the orifice the ureter was dilated and tortuous, and the pelvis of the corresponding kidney much dilated. I supposed that the injury to the ureter was caused by a transverse tear, the ureter being presumably situated at an angle with the plane of the separated surfaces. It seemed, however, perfectly evident, finally, that the ureter ended at the plane of cleavage, and that separation at that plane tore across the obstructed end. However that may be, the problem was not unlike that of a divided ureter, except that end-to-end suture was impossible, for no distal end could be found, as I have said. It was fortunate perhaps that end-to-end union was impossible, for such an operation deep in the pelvis is not likely to succeed. The proximal end for one inch or more was freed from the resisting tissues in which it was imbedded until it could be brought easily to the collapsed bladder. A small opening was then made into the bladder, into which about half an inch of the lax ureter was thrust. The bladder about the ureter was then carefully and accurately sutured to the side of the ureter, the end of which was of course projecting about half an inch into the bladder. The sutures were of fine silk applied interruptedly. Separation of the tumor at the left soon demonstrated that it made a part of the sigmoid flexure. Removal, therefore, left a gap in that viscus, which was closed by a few silk sutures.

The whole operation was extremely difficult. Had not the ureter and the bowel been involved, enucleation of the tumor itself would have seemed sufficiently formidable. With the added complications, recovery seemed too much to expect. Fortunately, the most unpromising cases often do the best, and this was one of them, for convalescence proved—to use a much overworked word—uneventful.

The plan which I have always followed in pelvic surgery has made operations of ureteral repair extremely infrequent in my experience. This plan, which has everything to commend it, is to make the dissection of the deep pelvis—like that of the deep neck—in the full light of day, where every structure can be recognized as the dissection proceeds.

The cases in which this deliberate dissection cannot be made, or in which the structures are too changed for recognition, are extremely infrequent.

A CASE OF VESICAL IMPLANTATION OF THE URETER BY DUDLEY'S FORCEPS METHOD AFTER THE FAILURE OF SEVERAL PLASTICS.¹

BY EDWARD REYNOLDS, M.D., BOSTON.

MRS. L., forty-five years old, was sent to my office, August 21, 1900, by Dr. W. D. Madden with the following history. She had always been a well woman until the birth of her only child seven years ago. During the next year she suffered from some pain in one groin, which was diagnosed as due to ovaritis, for which she received somewhat prolonged local treatment without relief, and was finally advised to have an ovary removed by vaginal incision. She went accordingly to a hospital in this city, was etherized and operated upon, but some unforeseen difficulties turning up in the operation, a complete vaginal hysterectomy was done. The operation was followed by severe and increasing colicky pain in the left back, which terminated in the discharge of a large amount of urine on the removal of the vaginal stitches, since when there always has been a constant leaking of urine from the vagina. The following year the same surgeon operated either three or four times (the patient is not sure which), for the closure of a vesicovaginal fistula, but always with the result of having one small pinhole leakage persist in the middle of the union. A year ago she saw another surgeon, who told her that the fistula was uretero-vaginal, and that an operation was too dangerous to be thought of. During the past year she has suffered intermittently from eczema, extending from the vaginal vault down the inside of the thighs almost to the knees, and at the time she came to my office, the thighs were swollen, excoriated and bleeding.

Under the use of frequently changed vaginal tampons to absorb the urine and simple drying powders to the thigh, the eczema improved with extreme rapidity, and on August 25th she entered my wards at the Boston City Hospital, with the external skin in very fair condition, and the vagina, though still irritated and secreting a slightly purulent secretion, nevertheless much improved and fairly normal looking. The vagina was short and senile, with exceedingly thin vaginal walls and vault. The left side of the vault was a mass of tough cicatricial tissue from the repeated operations, in the centre of which could be seen an orifice, of a calibre of not more than 4 or 5 French, from which urine leaked intermittently as from a ureter, except when the patient bore down, when it appeared in quantity as though from the bladder. The vagina was dressed with oleate of zinc and iodoform gauze, and on the 27th I thought that it was in sufficiently normal condition to warrant an exploration of the fistula. The probe soon showed that in addition to a channel which passed upwards and backwards and was undoubtedly the ureter, there was another which turned forwards towards the bladder, though I could make nothing pass it. A catheter was inserted into the ureter for about one inch, and a

¹ Read before the Obstetrical Society of Boston, November 20, 1900.

specimen of urine collected, which proved to be of smoky color, containing numerous normal blood cells, probably due to trauma from the probe, a few abnormal blood cells and leucocytes, with about the amount of albumin which would be explained by the presence of the fresh blood. Nothing else abnormal was found.

On August 28th the patient was etherized, and after failing to pass a catheter into the bladder from the vagina, I exposed the bladder with a Kelly cystoscope, and easily passed a fine catheter from the ureteral orifice in the bladder back into the vagina. Another was passed into the ureter through the fistula, after a slight dilatation of the cicatricial opening in the vaginal vault, the two thus entering through the same opening. After an incision through the mucous membrane of the vagina completely surrounding these catheters, I was able to follow the ureter both ways under the guidance of the catheters. The distal end was traced into the bladder wall, after dissecting it for about one quarter inch. The proximal end was separated from the dense cicatricial tissue in which it lay, for about one-half inch with the greatest difficulty, and at continual risk of opening into the peritoneum (which on account of the probably infected character of the urine and vaginal secretion, I was of course very anxious to avoid), and having gained enough to be able to bring the ureter into contact with the bladder wall without tension, I thought it unwise to increase the risk by further dissection. The catheter was then withdrawn, the vesical end of the ureter was dilated by passing a No. 20 French bougie through it, the island of mucous membrane was cut off, thereby separating the two ends of the ureter, the vesical end of the ureter was dilated to No. 15 French by a bougie, a provisional suture was passed through the renal end, drawn into the bladder through the dilated ureteral orifice and out through the urethra. Tension on this easily drew the renal end of the ureter into the bladder, inverting the vesical end of the ureter, and thus resulting in the approximation of a considerable extent of raw surface. The ureter was now fastened to the bladder wall by two sutures of fine catgut and every effort was made to take off tension by firm and extensive coaptation of the surrounding tissues with many catgut sutures. No catheter was inserted, the patient being left to pass water voluntarily. A vaginal douche of weak corrosive solution was given daily; the patient was kept on salol and urotropin, with free use of cream of tartar water.

The patient had a slight run of pyrexia after the operation, varying from a little above 99° in the morning to nearly 101° at night. The urine became dark and cloudy, and on the 31st, four days after operation, it was distinctly smoky, and the sediment contained many leucocytes and abnormal blood cells, and hyaline and granular casts with fat and leucocytes adherent. The next day there was a considerable amount of pus and urates macroscopically and a small leak from the vagina.

On November 2d, the sixth day, the urine was slightly decomposed, containing amorphous urates, but the temperature was barely above normal. The vaginal wound had separated. Three weeks later the urine was still high colored, with a few red blood corpuscles and leucocytes, and a little calcic oxalate, but no casts. The vesical end of the ureter had become obliterated so that there was no regurgitation

from the bladder, but the renal end was still discharging as before into the vaginal vault.

On October 29th I again made an incision into the vaginal vault and readily freed the ureter to the point which I had reached before, but again feared to pursue it further into the cicatricial tissues amid which it lay. I then freed the bladder from the tissues behind it for some little distance above the vaginal cut, made a small incision through the vesical wall, passed a pair of ordinary though rather fine-pointed artery forceps through the urethra into the bladder, and then separating them slightly, passed one blade out through the cut in the posterior vesical wall. The free end of the ureter was then threaded upon the projecting blade of the forceps, the forceps closed and the handles tied. The closing of the forceps carried the ureter very high up upon the bladder wall, and left a very deep vaginal wound, which was sutured together with many layers of running buried sutures. The operation was followed by three days of pyrexia, similar to that which followed the first operation, at the end of which time the urine contained pus, triple phosphates and casts in abundance. It was passed voluntarily and easily from the start.

On November 11th, thirteen days after the operation, the urine contained a few casts, a little pus, and of course a trace of albumin, but was otherwise essentially normal. The wound was firmly healed. Light traction was made upon the clamp every day in the hope of bringing it away, but without success, until on November 18th, the twentieth day after the operation, it was opened and immediately came away without effort. On November 20th, two days after the removal of the clamp, I made a careful endoscopic examination of the bladder, which was kindly repeated for me by Dr. C. M. Green; to my astonishment we found the ureteral insertion represented by a minute orifice surrounded by a spot of reddened mucous membrane about the size of a split pea. The rest of the bladder was entirely normal, and except for the high situation it would have been difficult to distinguish the new ureteral orifice from a normal one. A few days later the patient was discharged well.

When, about a year ago, this operation was described to this society, by Dr. E. C. Dudley, of Chicago, I must own that it appeared to me a very effective, but perhaps crude procedure. The chief objection to it then seemed to me to be that the grasp of the forceps must necessarily cause sloughing, and thus leave at the point where the ureter entered the bladder a wide gaping slit instead of the normally small orifice. My cystoscopic examination of my own case has convinced me that although the blades of my forceps were apparently tightly closed, there must have been enough nutrition in the portion of the bladder wall between the jaws to enable it to live, thus avoiding a slough, and securing an absolutely firm union of the ureter with the bladder.

The chief risk of failure in ureterovesical implantation is always from the slipping away of the ureter, owing to the thinness of its walls and the consequent difficulty in its secure suture to the bladder. This danger is entirely obviated by the Dudley method of securing the ureter and bladder together by forceps. The presence of the forceps must at the same time direct the stream of urine into the bladder, and in this case, at least, its presence in the bladder caused

no discomfort. (This could, I think, hardly be the rule.) The high position given to the uterus and the tension upon it, due to the closing of the forceps, also produced a very deep and therefore extensive surface for union between the bladder and vaginal wall. In this case the ureter and kidney had evidently been infected during their long drainage into the vagina, and it is probable that the loss of union after the first operation was due to infection of the wound by the decomposed urine which succeeded each operation; under these circumstances the case was probably peculiarly well adapted to show the advantages of Dudley's forceps operation.

PREGNANCY FOLLOWING REMOVAL OF BOTH OVARIES AND TUBES.¹

BY M. A. MORRIS, M.D., BOSTON.

THE reader wishes to thank the society for the privilege which permits him to present to its members the story of a rather unusual case of pregnancy, following removal of both ovaries and tubes. The medical journals of the past twenty years or so have furnished reports of a small number of similar cases, some of which may be referred to, as they have taught the necessity and the advantage of conservatism in dealing with surgical diseases of the ovaries and tubes, and have stimulated closer observation and study of these organs.

Mrs. J. A. G., came under my care about May 1, 1898, on account of dysmenorrhea. One of her sisters had died of pulmonary tuberculosis, otherwise her family history was unimportant. She first menstruated at the age of fourteen years, and regularly thereafter, with slight pain, the flow continuing a week. She had been married five years, and had a healthy boy four years old. She had never been well since the birth of her child, had been attended in labor by an ignorant woman, and remained in bed only seven days after that event. During the next three weeks she was in bed most of the time on account of weakness, pains in both iliac and hypogastric regions, of a bearing down and dragging character, and an intermittent, bad-smelling, brown vaginal discharge. For two years previous to my visit she had dysmenorrhea, the pain being most severe in the region of the right ovary, beginning with, and lasting through, the menstrual period. During the previous seven months sexual intercourse had been productive of pain, as she said, "in the back passage"; the menstrual flow had been regular, profuse, painful, and continued seven days; she had lost flesh. At my visit her countenance was indicative of fairly good health, her pulse was 76 and temperature 99°, heart and lungs were negative. An examination of the urine, made later, was negative.

Vaginal examination revealed slight laceration of the cervix, and a small amount of discharge from its glands. The uterus was anteverted and fixed, so that it was immovable laterally, but movable, to a limited degree, anteroposteriorly. The body was moderately tender. On the right of the uterus was, apparently, a cystic ovary, and a thickened tender tube; on the left, there was a thickened tender tube, but the ovary was not felt. There were no bladder symptoms.

Hot vaginal douches were ordered, and three weeks later, under ether, the uterus was dilated and curetted, with the hope of improving her condition before opening the abdomen. The operation was followed by marked relief of her symptoms for about two months. On July 18th she entered the Carney Hospital for the abdominal operation.

The patient was etherized by Dr. E. E. Everett; Dr. R. H. Morris was present. With the assistance of the late Dr. David P. Ronayne the abdomen was opened, and numerous adhesions found between the ovaries, tubes, and surrounding parts. A very long appendix was adherent, by its tip, and released. The right ovary contained a cyst as large as a hen's egg, and the left ovary a hematoma nearly as large as the cyst. The ovaries and tubes were tied off with silk quite close to the uterus and removed; the abdominal wound was closed with silkworm gut; the patient made a rapid recovery.

She began to menstruate soon after the operation, and continued to do so regularly and painlessly for about four months. The dyspareunia disappeared and her sexual appetite became normal. In May, 1899, she consulted me on account of morning sickness, nausea, cardialgia, and also abdominal enlargement, and was anxious to know whether she had a tumor. An examination showed clearly that she was pregnant. On September 12, 1899, she was delivered, after a natural labor, of a healthy girl, by Dr. Richard H. Morris, of Everett, Mass. About two or three weeks after confinement her baby died, and soon after that she menstruated, and has continued to do so regularly and normally since.

Among the cases previously published is one by Dr. George J. Englemann, formerly of St. Louis, now of Boston.² In this case pregnancy followed a double ovariectomy in which the right tube was left intact. A microscopic examination made of the specimen later showed that some ovarian tissue had been left.

Englemann also refers to a case of Professor Schatz, of Rostock,³ who operated on February 20, 1880, and removed a large cystic tumor of the left ovary, including the outer third of the Fallopian tube, and all the ovarian tissue that could be found. The right ovary was diseased. "It was tied by means of three silk ligatures passed between it and the broad ligament, and was cut away in such a manner that a piece of ovarian tissue, at the most 2 millimetres broad, was left on the proximal side of the ligature; the right tube remained intact." This patient was delivered of a child May 12, 1885. The specimen had been preserved, and the cut surface of the right ovary "was found to contain ovarian tissue with Graafian follicles."

Dr. S. C. Gordon, Portland, Me., reports⁴ 2 cases of pregnancy following removal of both ovaries and tubes. His first case seems to be a doubtful one, as there is not positive evidence that the ovaries and tubes were removed. Dr. J. R. Chadwick, who operated, had mislaid his notes, and could not say whether both ovaries were removed or not. The patient and her husband understood that they were.

Dr. R. Stansbury Sutton, of Pittsburg, Pa., re-

¹ Reprint from the Transactions of the Southern Surgical and Gynecological Association, September, 1889.

² *Contrib. f. Gyn. u. Obstetric Gazette*.

³ From Transactions of the American Gynecological Society, vol. 1, p. 105, 1886.

⁴ Read before the Obstetrical Society of Boston, November 20, 1890.

ports a case of "double ovariectomy followed by pregnancy and delivery at term."⁵

Robertson⁶ mentioned a case where he removed both ovaries, which were diseased, and the woman afterwards conceived and bore a child.

C. F. Harding⁷ reports a pregnancy after ovariectomy.

Dr. A. Palmer Dudley⁸ refers to a case of hysterectomy done by a German surgeon, who, leaving the ovaries and tubes, brought the latter down into the vagina, and the patient recovered. She became impregnated in the tubes, and carried the ovum six weeks. She then consulted him and he curetted the ovum from the tube dependent from the vault of the vagina, and on microscopical examination recognized the chorionic membrane and a portion of the fetus.

Kossman⁹ reports a case of pregnancy and normal delivery, one and a half years ago, after removal of both ovaries. On November 12, 1895, he extirpated both ovaries in a woman who suffered from oöphoritis. The tubes were not removed. Vaginofixation completed the operation. About one and a half years later the husband reported his wife pregnant, which was verified at a subsequent examination. December 2d Kossman was summoned to the patient, but on arrival (two and a half hours after the beginning of labor) found her delivered of a living child. It must be surmised that particles of ovarian tissue were left behind which remained active. At the time of this report the patient is again pregnant.

In my own case it is to be regretted that the parts removed had not been subjected to a microscopic examination. It is remarkable that the woman, after the removal of both ovaries and both tubes and tying with silk, should become pregnant, and the only explanations that can be offered are those which have been used in other cases, which have appeared in literature. There may have been a third ovary, or a scrap of ovarian tissue must have been left behind.

Regarding supernumerary ovaries a few quotations will suffice. Garrigues,¹⁰ quoting Biegel, says, "Supernumerary ovaries have been found 23 times in 500 bodies. In a case reported by Winckel there were three ovaries and three ovarian ligaments."¹¹ Regarding the passage of the ovum into the uterus, a ligature may have dropped off, leaving the stump of the tube open, or there may have been another ostium between the ligature and the uterus. In a case of mine, operated on seven years ago, there was a Fallopian tube with two ostia, each surrounded by fimbriae. The condition escaped my notice at the time, and was afterwards pointed out to me by Dr. R. H. Fitz.

A STATE EPILEPTIC COLONY FOR ILLINOIS.—According to the *New York Medical Journal*, a colony for epileptics is to be opened, and Northcliff, near Elsau, Jersey County, has been conditionally accepted by the State Board of Charities as its future situation. Governor Tanner is reported to have stated on December 5th that there were more than 5,000 epileptics inmates of the various eleemosynary institutions of the State.

Medical Progress.

PROGRESS IN LARYNGOLOGY.

BY ALGERNON COOLIDGE, JR., M.D., BOSTON.

THE SPONTANEOUS ESCAPE OF CEREBROSPINAL FLUID FROM THE NOSE.

UNDER the heading of "nasal hydrorrhea," cases have from time to time been reported, varying so much in symptoms that a subdivision has been demanded. In some of these cases the watery flow is evidently a nasal secretion, in others examination has shown it to be of the same composition as cerebrospinal fluid, and an idiopathic escape of this fluid has been suspected.

St. Clair Thomson¹ has collected the published reports of 21 cases, of which 9 had undoubtedly an escape of cerebrospinal fluid, the others probably. To these he has added a case of his own, and taken the opportunity to go deeply into the subject. The escape of the fluid from the nose as a consequence of injury, although not frequently reported, has been established as a recognized possibility. Its spontaneous escape has not been commonly recognized. Our textbooks up to the present either do not mention it or group it indefinitely under the head of "nasal hydrorrhea." As a result of his study of these cases, Thomson concludes that the subarachnoid fluid can escape through the nose without trauma or new growth to explain how it effects an exit. The flow in most cases commences gradually, generally in middle life; it occurs in drops, and is continuous by day and night. It generally comes from one nostril only, but may come from both. It is clear and limpid, free from odor and only slightly salt. It may amount to about half a litre in twenty-four hours. The fluid is sterile, and answers all chemical tests of cerebrospinal fluid. There is in most cases a history of more or less headache, and occasionally other symptoms of disturbance of the nervous system. The common anatomical cause of this leakage has not yet been definitely determined. A simple solution of continuity in the base of the skull arising in some unknown manner may be the only explanation at present. Active treatment of these cases is more likely to do harm than good. It is, of course, very important that nothing should be done which might infect the nasal cavity, and any attempts to suddenly check the flow are to be avoided.

NASAL HYDRORRHEA.

Taking from this heading such cases as are due to an escape of cerebrospinal fluid, we have left such as exhibit a flow of watery fluid from the nose arising from the nasal mucous membrane. These cases of course run into others which are commonly classed as vasomotor rhinitis. Lermoyez² in an exhaustive paper reviewed by Waggett,³ argues that spasmodic hydrorrhea is merely an accident of neuro-arthritis. Local lesions in the nose are not constant in these cases, while they may be purely secondary phenomena. Hyperesthetic spots often result from constant irritation, in the same way that polypoid hypertrophies are secondary lesions, and disappear on the ces-

⁵ Transactions of the American Gynecological Society, vol. xxi, p. 103, 1896.

⁶ British Medical Journal, September 27, 1890, p. 772.

⁷ Lancet, 18-0, vol. i, p. 193.

⁸ Transactions of the American Gynecological Society, vol. xxi, p. 115, 1896.

⁹ American Journal of Obstetrics and Diseases of Women and Children, June, 1900.

¹⁰ Diseases of Women, 1900 edition.

¹¹ Path. der weiblichen Sexualorgane, S. 28, Table 24, Fig. 7.

¹ The Cerebro-Spinal Fluid, etc., by St. Clair Thomson, M.D., etc. London and New York: Cassell & Co., 1899.

² Ann. des mal. de l'or, July, 1899.

³ Journal of Laryngology, Rhinology and Otolaryngology, August, 1900.

sation of the hydropnea. The fluid is a true secretion and not a mere exsmosis, and is due to abnormal excitation of the secretory filaments of the superior maxillary nerve. The hyperemia and obstructive phenomena are the results of a true vasodilator activity. As a result of this explanation of its etiology it follows that he is opposed to local treatment. Although the galvanocautery and electrolysis will produce a temporary result by inhibiting secretion and vasodilatation, the literature of the subject shows that local treatment has produced few lasting cures, while cases are not infrequent in which over-zealous operating has done positive harm.

The arthritis itself cannot be cured; the author attacks the hypersecretion with atropine and the vasodilatation with strychnine. One dose of each is given daily for ten days at breakfast, two doses daily at meal times for the next ten days and occasionally three doses for a third ten days. Generally he gives a twenty-day course, and after a fortnight's rest repeats if necessary. He reports 15 cases treated by endonasal methods, with 2 cures, and 27 cases treated with atropine and strychnine, with a large proportion of cures.

THE INFLAMMATORY ORIGIN OF POLYPI.

In spite of many able monographs on the subject it must be acknowledged that the etiology of nasal polypi has not yet been definitely determined. All arguments on this subject begin by quoting the theory of Woakes, that these growths are always due to a necrosing ethmoiditis, and by showing that this theory is wrong. The tendency, however, has been more and more to consider polypi always secondary to some previous inflammatory disturbance in the region of the ethmoid.

In "some critical and desultory remarks," Wright⁴ argues that although bone disease or sinus disease is not infrequently the proximate cause of nasal polypi, yet neither of these conditions, nor both together, are sufficient to explain the proximate cause of every case of polypi. He is convinced that there is a class of cases, frequently associated with asthma and hay fever, in which a pure vasomotor neurosis is the important factor in the etiology. All these various factors may be at once present in varying degrees of importance. A vasomotor neurosis of the nasal blood vessels may exist without necessarily an accompanying asthma or hay fever, and thus become a factor in the etiology of nasal polypi.

THE NEGATIVE AIR DOTCHE FOR DIAGNOSIS OF DISEASE OF THE ACCESSORY SINUSES.

Seiffert⁵ and Réthi⁶ have each described a method to aid in the diagnosis of disease of the accessory sinuses of the nose, especially empyema. Briefly, this method consists in applying a collapsed Politzer air bag to the nostril so as to make a negative air pressure in the nasal cavity, thereby drawing out enough secretion from the affected sinus to make its presence visible on inspection. Polypi must first be removed and all secretion wiped out. The nozzle of the air bag is then applied to the suspected side, both nostrils closed, and while the patient swallows to draw up the soft palate, the bag is allowed to suddenly expand. This may be repeated a few times, or iodine of potash may be given internally to make the secretion more fluid and larger in amount. This is often sufficient to

prove the presence and locate the source of pus, taking the place of exploratory punctures or the removal of part of the middle turbinate, as is frequently done. This procedure may be useful, not only from a diagnostic, but also from a therapeutic standpoint if systematically used. Not only may headache and other discomforts of retention be relieved, but occasionally the secretion be permanently removed.

THE ADENOID FACE.

Since attention was first called to the importance of hypertrophy of the pharyngeal tonsil, and its removal became one of the most common of operations, both our textbooks and innumerable papers on the subject have didactically asserted that neglected adenoids or the consequent mouth breathing results in a faulty growth of the bones of the face. We have come to look upon the high arch, the crowded teeth, the narrow and high nasal cavities and the pinched or "rodent" facial expression, as *prima facie* evidence of past or present adenoid vegetations. During the past few years a few able papers have appeared, some of them founded on extensive clinical and anatomical investigation, which argue that we have been "putting the cart before the horse"; that narrow respiratory passages are no more likely to be filled with adenoids than the larger ones, but simply that when so filled the symptoms are more pronounced and the patient more likely to be brought for examination. We have already referred to Siebenmann's article.⁷ Previously E. Fraenkel,⁸ from careful measurements, and recently Grossheintz,⁹ from a study of skulls, came to the same conclusions.

Wright¹⁰ believes that while adenoids as the cause of narrow jaws has been a subject on which very erroneous views have been held, it is possible that the narrow jaw may have some etiological influence upon the occurrence of lymphoid hypertrophy in the pharyngeal vault.

OZENA.

This is a subject which has attracted an increasing amount of attention during recent years and still we are confronted with an increasing number of theories on its etiology and methods for its treatment. Grünwald's¹¹ conclusions point to a focal suppuration as the common or only cause. That the cause is to be sought in previous hypertrophy or purulent rhinitis or by the invasion of one or several forms of bacteria we have heard periodically for some years. The relation between ozena and the shape of the nasal cavities usually associated with it has received renewed attention by Meisser¹² and Gerber.¹³ In brief, their conclusions are that ozena is the result of a lack of proper development of the nasal fosse associated with retrograde metamorphosis of the mucous membrane.

Cozzolino,¹⁴ in a long article, finds that ozena develops only in cases with nutritive deficiency. The first pathological change takes place in the periosteum and medullary space of the bone. Later the erectile tissue atrophies and then the glands. The epithelium is the last structure to become atrophic, showing that the disease is not secondary to catarrhal processes.

¹ Boston Medical and Surgical Journal, February 2, 1899.

² Ungar, Diss., Basel, 1896.

³ Arch. f. Larynx, l'rd. viii, H. 3.

⁴ Laryngoscope, May, 1900.

⁵ Nasal Suppuration, Translation. Wm. Wood & Co., 1900.

⁶ Arch. f. Larynx, l'rd. viii, H. 3.

⁷ Ibid, l'rd. x, H. 1.

⁸ Ann. del mal de l'or, July, 1899.

⁹ Laryngoscope, July, 1900.

¹⁰ Phys. med. Gesell. zu Würzburg, April 29, 1899.

¹¹ Wien. klin. Wochenschr., October 22, 1899.

For the treatment of ozena the antitoxin injection of Belfanti and Della Vedova has not received wide endorsement. McBride¹⁵ strongly advocates cupric electrolysis. Cleansing with alkaline solutions is taken for granted in all methods of treatment. Oil, tampons and vibratory massage are in common use, but by no means universally recommended. Of the local medicaments Knight¹⁶ gives preference to menthol, formaldehyde, 1-5,000, ichthylol in a 2% to 5% solution, and gomenol, 2-5 parts in 1,000, all used in an atomizer.

BACTERIA IN THE HEALTHY NOSE.

Our knowledge of the bacteria of the healthy nose is summed up by Thomson.¹⁷

Considering the large quantity of dust and germ carrying air which passes into the nasal fossæ they are remarkably free from micro-organisms. Certain authors have always been able to find some organisms in the healthy nose, though always in small numbers; others have found none in the majority of cases. The difference is probably due to difference in technique. All have found that the vestibules swarm with organisms. Previous observers have demonstrated the action of the ciliated epithelium in sweeping out intruding matters, and the effect of the trickling of mucus in cleansing the mucous surfaces. Some claim decided bactericidal power for nasal mucus. The author, among others, has not been able to do more than prove that the mucus has an inhibitory effect on the development of micro-organisms, while some, again, simply believe that mucus is not a favorable medium for their development. The author reviews a recent monograph by Viollet,¹⁸ who claims to have discovered that freedom of the nose from bacteria is due to leucocytosis and phagocytosis. To prove this he found it necessary to introduce carmine or microbes into the living nose, as the nasal mucus once removed did not show this phagocytic action. By introducing these substances into the nose he observed their absorption by the leucocytes of the nasal mucus. Among other bacteria he mentions the pneumococcus, the pneumobacillus and the bacillus of diphtheria. Thomson believes that there can be little doubt that phagocytosis plays its part in the nose as in other parts of the body, and shares in the work of removal.

ANOSMIA.

Onodi contributes a paper on this subject to the Thirtieth International Medical Congress.¹⁹ Our knowledge of anosmia is extremely meagre, largely on account of the difficulty of combining anatomical and pathological study of cases. After a detailed description of the olfactory centres in the brain the author divides the clinical forms into essential or true anosmias, which may be either peripheral or central according to the part of the olfactory region affected, mechanical or respiratory anosmia and functional anosmia. Peripheral true anosmia may arise in connection with inflammation of the nasal mucous membrane as a result of influenza. This may be temporary or may result in atrophy of the nerve of smell. Syphilitic processes, chronic ethmoiditis, ozena or senile atrophy may produce the same results, though the latter is generally central in origin. Central true

anosmia may be caused by cerebral tumors and other diseases of different parts of the brain, trauma, intoxication with tobacco, cocaine, mercury and other poisons, also by overstimulation and exhaustion of the sense of smell, also by the toxic influences of influenza and septic poisoning, and congenital defects of the olfactory centre. Tobacco and cocaine have also a peripheral action. Mechanical anosmia is caused by anything that interferes with nasal respiration. Functional anosmia is commonly due to hysteria, but various reflexes may produce it, as after ovariectomy, during menstruation, and after cauterization of inferior turbinates.

SUPRARENAL EXTRACT.

For two years the aqueous extract of the suprarenal gland has been widely used as a local vasoconstrictor especially for operative work in the nose. Its local effects are thus summarized by Swain:²⁰ It is a powerful local vasoconstrictor and contractor of erectile tissue. It can be used in considerable amounts without either local or general dangerous effects. It can be used any number of times without evil effect or danger of forming a habit. Its use seems to heighten the effect of any other drug used locally, notably cocaine. It is especially useful in acute congestion, but is also very helpful in certain chronic conditions of the hay fever type. Newcomb²¹ describes its effects when injected into the veins of animals. There are produced extreme contraction of the arteries of peripheral origin, a remarkable and rapid rise in the blood pressure in spite of powerful cardiac inhibition, central vagus stimulation, and great acceleration and augmentation of contraction of the auricles and ventricles, especially the former, after section of the vagi. Respiration is only slightly affected, becoming more shallow. A more recent paper by Hopkins²² after the extract had been in common use for some months, brought out an interesting discussion. The writer and most of those who took part in the discussion had become convinced that the use of the extract at the time of operation was followed by a tendency to secondary hemorrhage. Some operators packed the nose after operating, diminishing the danger from bleeding. For tonsils and adenoids this secondary bleeding is more serious, as it is much more difficult to control. As a styptic in bleeding from other causes this extract was found of good service. Its use in acute coryza is uncertain. In some cases an intense, painful rhinitis has followed the use both of the dry extract and of the aqueous solution inhaled or sprayed into the nose.

THE FRENUM OF THE UPPER LIP.

B. Fraenkel²³ in the case of three children brought to him with the question of adenoid vegetations because they held their mouths habitually open found that this was caused by a short frenum of the upper lip. There was no other anatomical peculiarity about the mouth, nor obstruction to breathing. After section of this frenum there was no difficulty in keeping the mouth closed. This point might easily be overlooked. The section of the contracted frenum offers even less difficulty than cutting the frenum of the

¹⁵ Diseases of the Nose, Throat and Ears, 1900.

¹⁶ Laryngoscope, May, 1900.

¹⁷ Journal of Laryngology, August, 1900.

¹⁸ Paris: Librairie J. B. Baillière et Fils, 1900.

¹⁹ Journal of Laryngology, Rhinology and Otology, November, 1900.

²⁰ New York Medical Journal, December 24, 1893.

²¹ Laryngoscope, January, 1893.

²² New York Academy of Medicine, Section on Laryngology, February 28, 1900.

²³ Arch. f. Larynx., Bd. ix, H. 3.

tongue, as there are no blood vessels of any size in the neighborhood.

THE PREVENTION OF RECURRENCE OF PERITONSILLAR ABSCESS.

Botey²⁴ argues that peritonsillar abscess arises from sepsis spreading from a tonsillar crypt to the supratonsillar fossa and that to prevent recurrence the latter must be left freely and widely open. This can only be accomplished by complete removal of the upper half of the tonsil. The fossa, which is more than a centimetre in depth, often has its orifice closed by adhesions. The tonsil is frequently adherent to the pillars, the plica, the margo semilunaris and to the walls of the fossa. When not too adherent the tonsil may be cocaineized and the upper portion pulled forward and removed with a knife or snare sufficiently to free the fossa. When the adhesions are extensive and the tonsil small it is often difficult and tedious or impossible to do this. In such cases the author makes two incisions between the tonsil and the anterior and posterior pillars extending well up into the soft palate, and after drawing the tonsil out, another incision joining the two above the tonsil, which is then removed with scissors.

THE CADAVERIC POSITION OF THE VOCAL CORDS.

A certain position of the vocal cords, called the cadaveric position, has for long been commonly supposed to be the position in which the cords are found in the cadaver. Fein,²⁵ in a paper of forty pages, describes his exhaustive investigations on the position of the vocal cords in the cadaver. He finds that the vocal cords immediately after death are in the median line, or very near it. The result of rigor mortis is to draw the cords away from the middle line, so that the glottis broadens. The width of the glottis in the undisturbed body is different from what it is after the larynx has been taken out, and becomes so as soon as it is taken out. After removal of the larynx the cords are found in a position half way between extreme abduction and adduction. After rigor mortis has passed the cords remain between abduction and adduction, but tend to return towards the median line. There is no typical form of the cadaveric glottis; it is as variable as it is during life. After complete cessation of rigor mortis the thickness of the cords appears to increase. At the moment of death all forces in the body suddenly cease, and the arytenoids sink backwards, which tends to approximate the cords. At the onset of rigor mortis the abductor muscles stiffen first and the glottis begins to open.

THE MECHANISM OF COUGHING.

The question of the mechanism of the sudden opening of the glottis in connection with coughing has been studied by Valentin.²⁶ The larynx of a dog was examined through the mouth, and it was seen that in coughing the mechanism was similar to that in man. The glottis was closed and after the tension of the air in the lungs had been raised by compression of the thoracic walls, the cords were suddenly widely abducted. The trachea was then divided just below the larynx, in such a way that the glottis could be seen from below. Coughing was then induced by tickling different points both in the trachea and bronchi and in the larynx. In each case the cough began by an ex-

pulsion of air from the lower section. After this expulsion of air had begun, sometimes half a second or a second later, there was seen a sudden violent symmetrical abduction of the vocal cords, which lasted only a moment and was followed by a short adduction and the normal position of the cords. This proves that the abduction is caused not by any air pressure from below, but by a reflex contraction of the postici independent of the tension of the air and arising at an interval after the contraction of the chest wall. The whole act of coughing is aroused as a reflex by irritation of one of many parts of the respiratory tract. Repeated irritation of any one spot finally fails to produce this reflex.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of November 20, 1900, the president, DR. ALFRED WORCESTER, in the chair.

DR. M. A. MORRIS, by invitation, reported

PREGNANCY FOLLOWING THE REMOVAL OF BOTH OVARIES.¹

DR. F. H. DAVENPORT: While I have never had a case quite similar to the one Dr. Morris has reported, I would like to refer to one in which I removed by the abdomen the uterus and both ovaries and tubes, yet she menstruated for seven months.

DR. W. F. WHITNEY: There is only one really authenticated case in which an accessory ovary had a distinct ligament of its own. Probably all the others were cases in which parts of the ovary were cut off by adhesions or other causes. The fact that more or less ovarian tissue is often left behind in amputations of the ovary is emphasized by the many cases brought to me in which the ovary shows a cut surface. The striking fact in Dr. Morris's case is that she got pregnant after the tube was tied off. In a case like this it is more plausible to assume that the ligature slipped and that some fragments of ovary were left behind than to think that there was a complete third ovary and tube.

Dr. Whitney then showed a specimen of tube with accessory ostium.

DR. E. REYNOLDS: I do not think it necessary to assume that the ligature slipped. Tubes are very apt to grow patent, and this explains many cases of peritonitis recurring after operations for tubal disease. I now always excise the tube at the uterine cornu, and since doing this I am certain that I have seen less recurrent trouble.

DR. F. A. HIGGINS: I am reminded of a case in which I left both ovaries, but removed both tubes, tying off with catgut. She became pregnant after a time. I suppose when the catgut was absorbed the tube became patent again.

DR. EDWARD REYNOLDS reported a case of

YESICAL IMPLANTATION OF THE UTERE BY DUDLEY'S FORCEPS METHOD AFTER THE FAILURE OF SEVERAL PLASTICS.²

²⁴ Thirteenth International Medical Congress, 1900.

²⁵ Fraenkel's Archiv., Bd. xi, II, 1.

²⁶ Loc. cit., Bd. ix, II, 3.

¹ See page 86 of the Journal.

² See page 81 of the Journal.

Dr. M. H. RICHARDSON reported

A CASE OF OBLITERATION OF THE RIGHT URETER BY A CALCIFIED FIBROID; REMOVAL OF FIBROID AND IMPLANTATION OF THE URETER INTO THE BLADDER; RECOVERY.³

Dr. REYNOLDS: This case brings out the fact which I perhaps did not insist upon sufficiently in my paper, that the most favorable elements for success in the implantation of a ureter are that you can get plenty of end to the ureter and also that you can make the end of the ureter reach the bladder without too much tension. In such a case as Dr. Richardson's I probably would prefer the end-to-end anastomosis, but where the conditions I have referred to cannot be reached I would prefer the Dudley operation.

Dr. G. H. WASHBURN showed the specimen from a case of

EXTRA-UTERINE PREGNANCY.

The woman, age thirty-three, had always been regular till two months ago, when she went ten days over time. Since then she has had a somewhat irregular flow with two attacks of severe pain, but no faintness. When seen ten days ago there was a mass behind the uterus which Dr. Washburn diagnosed as an extra-uterine pregnancy of nine weeks' growth. Two days ago there was another attack of pain. Operation this morning showed a large tube in the cut-de-sac still unruptured and tied down by fresh adhesions. A report on this enlarged tube will be made at the next meeting.

REGISTRATION OF MIDWIVES.

Dr. J. G. BLAKE spoke of the deplorable amount of puerperal sepsis among the poorer Italians of this city, all of which could be traced to the midwives whom the Italians prefer to employ. Many of these women are ignorant and filthy to a degree, and the suggestion was made that steps be taken looking towards the registration and proper instruction of them.

On motion of Dr. REYNOLDS a committee of three was appointed to investigate the matter and report at a later date.

Dr. WORCESTER reported briefly a case of

RAPIDLY PROGRESSIVE CARDIAC DISEASE COMPLICATING PREGNANCY.

THE AMERICAN PHYSIOLOGICAL SOCIETY.

THIRTEENTH ANNUAL MEETING, HELD IN THE PHYSIOLOGICAL LABORATORY OF JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD., DECEMBER 27 and 28, 1900.

FIRST DAY.

AFTER the transaction of general business, papers were read, abstracts of which follow.

OBSERVATIONS ON THE BLOOD PRESSURE DURING THE PERIOD OF NORMAL SLEEP.

This paper was read by Dr. W. H. HOWELL, for Drs. BRUSH and FAYERWEATHER. Many difficulties have to be overcome in the arrangement of apparatus suitable for recording blood pressure during sleep, the

ordinary types of plethysmograph and sphygmograph being inadequate for this purpose. The apparatus used in these experiments was a combination of these two instruments which could be applied to the radial artery, and with which three very perfect records, covering the entire period of normal sleep, were obtained.

These records show that the time when blood pressure is lowest is coincident with the time when sleep is deepest, namely, about one and a half hours after going to sleep. From that time until the time of waking there is a gradual rise in blood pressure, indicating a gradual vasoconstriction. These results confirm the observations made by Professor Howell with the plethysmograph more than three years ago.

Among the minor points of the records is to be noted a marked difference in blood pressure corresponding to the sitting posture and that corresponding to the lying posture, this difference being shown when the subject lay down at night and when he arose in the morning. The explanation of this phenomenon rests, in great part at least, on hydrostatic grounds.

There is only a comparatively slight fall of pressure (4 millimetres of mercury) during the short space of time when sleep actually supervenes. This is explained by the fact that towards night there is a gradual loss of tone in the blood vessels, and that physiologically the subject is already partially asleep.

These observations are in harmony with the vasomotor theory of sleep, and indicate that the phenomena of sleep and waking are accompanied by gradual rather than sudden changes of vasomotor tone.

THE EFFECT OF CO₂ AND O₂ ON SMOOTH MUSCLE.

Dr. A. M. CLEGHORN read this paper by title.

Dr. S. J. MELTZER read a paper

ON THE MOVEMENTS OF THE ESOPHAGUS AND THE CARDIA AND ON SOME OF THE COMPLEXITIES OF THE CENTRE OF DEGLUTITION.

Dr. Meltzer has by a new series of experiments again proved the theory of Mosso, Kronecker and Meltzer, that the main act of deglutition is the result of a series of reflex acts, only one centripetal impulse being necessary to bring about all movements. In a second series, he shows that for the esophagus and cardia there are local reflexes, and that this section has its own afferent and efferent impulses. The general reflexes differ from the local in that anesthesia easily paralyzes the centres for the contraction of the esophagus, while contraction of the cardia is as resistant to paralysis as is the first act of deglutition.

The local reflexes, on the other hand, he proved to be more resistant to anesthesia and debilitating factors even in the first act of deglutition as well as later. They are also complicated by inhibiting impulses. The local reflexes can be brought out by injection of salt solution or even air in amounts of not less than 1 cubic centimetre. The downward direction of peristalsis remains the same even when the air or salt solution is introduced from the cardia upwards.

A STUDY OF THE SEASONAL VARIATIONS OF GROWTH IN WEIGHT OF CHILDREN.

This paper by Drs. G. W. FITZ and F. W. HUTCHINGS was read by title.

³ See page 83 of the Journal.

SOME NEW OBSERVATIONS ON BLOOD PLATES AND LEUCOCYTES.

DR. G. T. KEMP and Miss HENRIETTA CALHOUN presented this paper.

In the enumeration of blood plates some difficulty is encountered from the fact that when the ordinary diluting fluids, such as physiological salt solution or Hayem's fluid, are used, the plates come together, forming almost unrecognizable masses. This disadvantage may be overcome by the use of a fluid devised by these observers, consisting of a 2.5% solution of formaldehyde tinged with methyl green. With the aid of this fluid and as the result of a large number of observations, a fairly constant ratio has been found to exist between the blood plates and the red corpuscles, namely 1-5.8. This observation agrees with Hayem's theory that the blood plates are young red corpuscles. It is also found that the blood plates do not contain hemoglobin.

The influence of the leucocytes on blood coagulation was also studied. By preparing slides at freezing temperature and allowing them to warm gradually while under observation, it is found that during coagulation there is no progressive change or breaking down of the leucocytes. This is in direct opposition to the assertions of Lilienfeld that the leucocytes are broken down in coagulation to furnish the so-called thrombin, and that the nodes from which the fibrin filaments radiate are merely broken down leucocytes. On the contrary, Dr. Kemp finds that the fibrin threads radiate from masses of disintegrated blood plates, which, unless appropriately stained, appear so nearly like broken down leucocytes as to account for the error which he claims Lilienfeld to have made. In his opinion, therefore, the blood plates rather than the leucocytes are the responsible factors in blood coagulation.

ON THE RATE OF FATIGUE OF NERVE CENTRES.

DR. R. S. WOODWORTH (by invitation) read this paper.

The observation that many of the motor functions may be repeated consecutively for from 2,000 to 10,000 times without loss of accuracy has led Dr. Woodworth to a study of the rate of fatigue of nerve centres, with the idea that this rate is at present overestimated.

By measuring the voluntary contractions of the finger with Mosso's ergograph, he finds that when he allows a complete relaxation to take place after each contraction, the rate of fatigue is very much slower than has hitherto been observed; the relaxation apparently doing away with fatigue as efficiently as a long rest. He concludes that the comparatively rapid rate of fatigue, which up to this time has been considered to be the true one, is due to the fact that there was no complete relaxation, and consequently the factor of muscle fatigue has been introduced.

Exactly similar results have been obtained when the frog's gastrocnemius muscle is stimulated reflexly or by excitation of the proper portion of the spinal cord. Experiments on some of the simpler mental functions, such as the memorization of columns of figures, have led to the same conclusions.

These results possess the negative value of showing that the curves previously published can be applied

only to muscular fatigue, and that deductions therefrom with regard to the rate of fatigue of nerve centres are unreliable.

DR. E. T. REICHERT showed a

STUDENT'S LABORATORY TABLE.

After emphasizing the desirability of increased facilities for students' work in the physiological laboratory, Professor Reichert presented plans and photographs of a student's table which embodied the following improvements:

An upright glass case built into the table provides a place for all the apparatus needed by the student throughout the course. By this means the wear and tear incident to the carrying of delicate apparatus back and forth many times from the storage room is avoided. Two countershafts for the transmission of the power are provided for each table, one at each end, thus enabling two drums to be revolved at different rates of speed.

A RHEOCHORD.

DR. E. T. REICHERT showed this instrument, which is in reality a monochord, consisting essentially of a cylindrical rubber core, the surface of which is cut into a deep continuous spiral groove. The resistance wire is wound about the core in this groove. An endless screw underneath the core and geared to it by a series of cogs bears the brass contact point which plays in the groove against the wire. By simple rotation of the core on its axis, the distance from the end of the resistance wire to the contact point is diminished or increased. This modification thus provides a means of producing a gradual and uniform variation in the amount of resistance introduced into a circuit.

A RHEONOME.

This was also shown by DR. E. T. REICHERT, and presents this advantage: the metal bar which is ordinarily used to transmit the current, and along which the movable binding post slides, is here replaced by a hard-rubber trough filled with acidulated water. By this device the extent of possible variations in the strength of the electric current may be very greatly increased.

A RHEOCHORD.

DR. G. P. CLARK presented this instrument. It was designed by Professor Clark and consists of a metre stick joined to a circular wooden base. The resistance wire extends along the side of the metre stick and may be connected by appropriate plugs with any one or all of a number of resistance coils concealed in the base. The "slider" may be easily moved along the metre stick. This apparatus possesses the advantages of being easily and cheaply made, and of furnishing resistance which can be quickly varied and accurately measured.

A HAIR CAST OF A LIVING HUMAN STOMACH.

DR. G. P. CLARK read this paper for DR. NATHAN JACOBSON. This cast, exhibited by Professor Clark, was taken from the stomach of a girl ten or twelve years of age. The habit of chewing the ends of her braids gave rise to this deposit, which completely filled the stomach and which now shows its exact contour. The cardiac end is much softer than the py-

loric and shows evidence of the relative strength and activity of the muscles of those portions of the stomach walls.

(To be continued.)

Recent Literature.

The Thirty-Second Annual Report of the Secretary of State on the Registration of Births, Deaths, Marriages and Divorces in Michigan for the year 1898. Edited by CRESSY L. WILBUR, M.D., Chief of Division of Vital Statistics. Lansing, Mich. 1900.

This report for the year 1898 marks a new era in the history of registration in Michigan, and is virtually the first in a new series of more reliable vital statistics for that State, since it is the result of new legislation enacted in 1897, whereby the registration returns of the State have been very greatly improved, and are now much more complete than those of any previous year.

Under the new law a certificate of death is required, and must be presented to the local registrar in every case of death before burial is permitted. Under the old law, the statistics of deaths were collected once a year, at the time of taking the annual assessment, and it was estimated that only 60% of the deaths were thus obtained.

The birth registration appears to be still quite defective, the compiler stating that "probably not over two-thirds of the births that actually occur in the State each year finally get upon the records."

The Bertillon classification of the causes of death is fully presented in an appendix, and has also been adopted in a modified form as the basis of classification in the report. This system has received the sanction of the American Public Health Association, as well as of very many foreign sanitary authorities, and is now quite generally adopted by most of the States in which registration returns are collected.

In addition to the publication of the annual report the compiler has issued during the past two years a monthly bulletin of the vital statistics of Michigan, which has not only proved helpful to the registrars in that State, but has been a public educator upon the general subject of vital statistics.

Much credit is due to Dr. C. L. Wilbur, who may very properly be styled the registrar-general of Michigan, since his duties are quite similar to the English official bearing that title. Dr. Wilbur has accomplished very much toward bringing the State of Michigan into line, as one of the foremost registration States of the Union.

A Clinical Treatise on Fractures. By WILLIAM BARTON HOPKINS, M.D., Surgeon to the Pennsylvania Hospital and to the Orthopedic Hospital and Infirmary for Nervous Diseases. Philadelphia: J. B. Lippincott Co. 1900.

This octavo of 264 pages on a heavy calendered paper is "a report of the unpublished clinical lectures delivered by the author at the Pennsylvania Hospital." The author has purposely omitted many of the details of treatment which would ordinarily be given in clinical lectures and has omitted historical matter which, as he states, "is inseparable from a work of reference," but "is not essential in a treatise intended for practical

use." The author describes clearly, in each instance, a simple and effective method of treatment, which, in many instances, is not the commonly accepted method, yet it is a record of his clinical experience and as such is of value. The illustrations and skiagrams are excellent and the book is a safe guide to the treatment of fractures.

The chapter on compound fractures is judicious, and, we are glad to say, goes into the detail of the treatment in an admirable manner. The section on bone joining, in which the author selects the word joining "on account of its technical significance in the arts as applied to wood or metal," is of a good deal of interest. Various illustrations are used to show a scarf joint formed experimentally by the author.

There is not in the book the information given as to prognosis that would seem desirable and which would naturally be looked for in a clinical treatise on fractures. The prognosis of injuries of this description is not any too well known and in a future edition of this work we trust the author will give some attention to this important part of the consideration of fractures.

Atlas and Epitome of Diseases Caused by Accidents.

By DR. ED. GOLEBIEWSKI, of Berlin. Authorized Translation from the German, with Editorial Notes and Additions by PEARCE BAILEY, M.D., Consulting Neurologist to St. Luke's Hospital and the Orthopedic Hospital, New York, and to St. John's Hospital, Yonkers; Assistant in Neurology, Columbia University; Author of "Accidents and Injury; Their Relation to Diseases of the Nervous System." Forty colored plates, and 143 illustrations in black. Philadelphia: W. B. Saunders & Co. 1900.

This authorized translation from the German by Dr. Pearce Bailey of Dr. Golebiewski's work is of a good deal of interest. The German State Insurance Bureau has published a table of accidents for statistical purposes for the use of all the trades unions, and what is of especial interest is that the amount of indemnity is graded in accordance with the disability. In cases of total disability the full amount is paid; when the disability is partial, only a part of the amount. From this, suggestive and interesting statistics have been made up.

The book is divided into two parts, one treating of injuries in general, the other of injuries affecting special structures and regions of the body. It is profusely illustrated with colored plates, most of which are drawn from life. The text, the author states, is based on an experience with accident cases extending over thirteen years, embracing a total of 5,245 cases, many of which have remained under observation since the first few years following the passage of the Accident-Insurance Law.

It is a book that every one who has to do with the legal side of accident cases should possess.

Suggestions to Medical Writers. By GEORGE M. GOULD, A.M., M.D. Philadelphia: The Philadelphia Medical Publishing Co. 1900.

Dr. Gould has republished in book form the various bits of suggestion and advice to writers which have become familiar to readers of the *Philadelphia Medical Journal*. Much of the advice is good, some of it is unnecessary and some of it, we confess, seems to us bad. We have, for example, little sympathy with the

attempted reformed spelling, which Dr. Gould has striven to introduce. It appears to us, also, a labor lost to attempt to influence style by writing about it, nor can we reconcile in a chapter devoted to the improvement of style such phrases as the following: "Strabismic construction" and "sentences that suffer from spastic paraplegia." To those who have their own ideas of writing English, much of the advice is superfluous, and to those who have not we fear that a perusal of this book would simply make a bad matter worse. The erudition of the author is, however, abundantly manifested on almost every page, and as an epitome of useful information we can commend the book much more conscientiously than as a safe guide for the inexperienced medical writer. A valuable chapter on the History and Psychology of Words is appended.

The Pathology and Surgical Treatment of Tumors.

By N. SENN, M.D., Ph.D., LL.D., Professor of Surgery, Rush Medical College, in affiliation with the University of Chicago; Professor of Surgery, Chicago Polyclinic; Attending Surgeon to Presbyterian Hospital; Surgeon in Chief, St. Joseph's Hospital, Chicago. Second edition, revised. Illustrated by 478 engravings and 12 full-page plates in colors. Philadelphia: W. B. Saunders & Co. 1900.

"The text of the first edition of this book has been carefully revised and many additions have been made. A new section has been added on Sarcoma of the Decidua. Many of the old illustrations have been eliminated, and are replaced by others intended to explain more satisfactorily the subjects they represent. Most of the new illustrations are original."

The book is unquestionably the best work on tumors and is extremely useful to the surgeon as a book of reference. It is arranged systematically, the material is presented in an attractive way and it is filled with practical details. Operations are described in full detail and the status of a given subject is judiciously presented. The work is but another proof of Dr. Senn's extraordinary industry and is one of his best pieces of work.

A Manual of Surgical Treatment. By W. WATSON CHEYNE, M.B., F.R.C.S., F.R.S., Professor of Surgery in King's College Hospital and the Children's Hospital, Paddington Green, etc., and F. F. BURGHARD, M.D. and M.S. (Lond.), F.R.C.S., Teacher of Practical Surgery in King's College Hospital and the Children's Hospital, Paddington Green, etc. In seven volumes. Vol. IV, The Treatment of the Surgical Affections of the Joints (including Excisions) and the Spine. Philadelphia and New York: Lea Brothers & Co. 1901.

Volume IV of this work is in many respects more satisfactory than its predecessors. The authors disarm criticism when they say they "would desire once more to reiterate the fact that the object we originally set before ourselves was to describe as fully as possible only those methods of treatment which have proved most efficient in our hands. To this plan we have adhered; and therein also will be found our justification for the omission of certain newly introduced methods of treatment which may prove of great value, but which are as yet too recent to enable a definite verdict to be pronounced upon them."

The volume deals with the treatment of surgical

affections of the joints, including excisions and the spine. It certainly presents the detail of many of the generally accepted methods of treatment, but is still in many respects antiquated.

The chapters on the treatment of the nervous affections of the joints and on rheumatoid arthritis are admirable. The chapter on scoliosis is fairly good, but does not represent modern treatment. The appendix upon medical gymnastics is taken from Dr. Percy Lewis's book on "The Relief and Cure of Spinal Curvature."

The scope of this "Manual of Surgical Treatment" appeals to us so strongly that perhaps we expect more from it than we have any right to. Certainly the views of the authors are presented and the value of methods of treatment clearly set forth. This is what they undertook to do and they certainly are accomplishing their purpose.

Diseases of the Gall Bladder and Bile Ducts, Including Gall Stones. By A. W. MAYO ROBSON, F.R.C.S., Senior Surgeon to the General Infirmary at Leeds; Emeritus Professor of Surgery in the Yorkshire College of the Victoria University; Member of Council and Hunterian Professor of Surgery and Pathology at the Royal College of Surgeons of England. Assisted by FARQUHAR MACRAE, M.B., C.M. (Glas.). Second edition. New York: William Wood & Co. 1900.

This is the second edition of Dr. Robson's Hunterian Lectures. He has recast the whole book and has changed it from the lecture to the narrative form. He has added two new chapters on Membranous Cholecystitis and Gall Stones. An index and a table of contents with some new illustrations complete the work. The book now constitutes an excellent guide to gall bladder and bile duct surgery.

The book is divided into the following chapters: Anatomical Considerations, Inflammatory Affections, Intestinal Obstruction, Tumors of the Gall Bladder and Bile Ducts and Gall Stones, or Cholelithiasis. The nomenclature of affections of the gall bladder and bile ducts is in great confusion and there is need of a new classification of the subject. We trust that in a future edition of this most excellent work Dr. Robson will undertake this labor. The work bristles with practical points and if an intelligent classification of the affections of the gall bladder and bile ducts could be made, it would add greatly to the value of the book. There is an extensive list of case histories which are of value in illustrating various important points.

Appendicitis and its Surgical Treatment. With a Report of 185 Operated Cases. By HERMAN MYSTER, M.D. (Copenhagen), Professor of Clinical Surgery in University of Buffalo, Buffalo, N. Y. Third revised edition. Philadelphia and London: J. B. Lippincott Co. 1900.

This is an octavo volume of 220 pages, and is the third edition of this work. The author, desiring to obtain the degree of Doctor of Medicine from his Alma Mater, the University of Copenhagen, twenty-six years after graduation, submitted this monograph to the University, and it was accepted in July, 1897. All through the work one sees evidences of a "labor of love" and the thoroughness with which the author has gone into the subject is worthy of high commendation. While all would not agree with the writer in the de-

ductions which he draws from the facts that are at his disposal, yet one cannot but believe that the book is a most excellent contribution to our knowledge of this very important subject. It is a book that any one desiring a complete knowledge of the subject would turn to in research work on appendicitis.

Therapeutics: Its Principles and Practice. By HORATIO C. WOOD, M.D., LL.D. (Lafayette, Yale), Professor of Materia Medica and Therapeutics and Clinical Professor of Diseases of the Nervous System in the University of Pennsylvania; Member of the National Academy of Science. Eleventh edition, remodelled and in greater part rewritten. By HORATIO C. WOOD, M.D., and HORATIO C. WOOD, JR., M.D., Demonstrator of Pharmacodynamics in the University of Pennsylvania. Philadelphia and London: J. B. Lippincott Co. 1900.

The eleventh edition of this work marks the completion of a quarter of a century since it first made its appearance. This fact alone is a sufficient guarantee of its excellence. But what most attracts our notice is the energy displayed by the authors in the revision which the text has undergone. It truly has been "rewritten." The reader will here find described all the important newer remedies; at the same time he will be gratified that the book has not been increased in bulk, for unessentials have been omitted.

A Guide to the Instruments and Appliances Required in Various Operations. By A. W. MAYO ROSSON, F.R.C.S., Senior Surgeon to the Leeds General Infirmary; Hon. Consulting Surgeon to the Keighley and Batley Hospitals; Emeritus Professor of Surgery in the Yorkshire College of the Victoria University; Member of Council and Hunterian Professor R.C.S. of England. Second edition. London, Paris, New York and Melbourne: Cassell & Co., Ltd. 1900.

This is the second edition of this little handbook, which was designed by the author for his house surgeons and dressers at the hospital. It gives excellent lists of instruments to be laid out for a given operation, although some of the names of instruments are not familiar to an American. To a student it should be valuable in that it reviews for him the instruments that would be necessary to prepare for a given piece of operative work.

A Text-Book of Practical Therapeutics. With Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by DRs. EDWARD MARTIN, G. E. DE SCHWEINITZ and BARTON C. HIRST. New (eighth) edition. In one octavo volume of 796 pages, with 37 engravings and 3 colored plates. Philadelphia and New York: Lea Brothers and Co.

The first edition of this book was good, but the last edition is an improvement on all the others. It is chiefly notable because it has been brought so thoroughly up to date. The volume is not perfect; defects which should be remedied in another edition could still be pointed out, but it is so much better than many other works of a similar character that it deserves our commendation.

The Thompson Yates Laboratories Report. Edited by ROBERT BOYCE and C. S. SHERRINGTON, with illustrations and plates. Volume I, Reprints 1898-1899. Volume II, Reprints and Reports 1898-1899. Liverpool: University Press. 1900.

These two elaborate volumes, of 237 and 264 pages respectively, and with numerous beautifully executed plates, are the first instalments of the published work of the Thompson Yates Laboratories. The first volume contains an account of the opening of the laboratories in 1898 by Lord Lister, accompanied by Professor Virchow, and also an elaborate series of papers by Sherrington and others on various matters connected with the nervous system. The second volume gives in detail several researches of much practical interest and importance, among which may be mentioned an investigation on "oysters and disease" and another on malaria. The presswork and illustrations leave nothing to be desired; we shall await succeeding issues of the reports with interest and confidence that they will sustain the very high standard set by these first publications.

Uric Acid as a Factor in the Causation of Disease. A Contribution to the Pathology of High Blood Pressure, etc. By ALEXANDER HAIG, M.A., M.D. (Oxon.), F.R.C.P. Fifth edition, with 75 illustrations. Philadelphia: P. Blakiston's Son & Co. 1900.

Few medical books are more familiar than this. The theories and facts set forth have excited attention, leading to a fifth edition of the work, expanded to the length of 846 pages. The author is more confident than ever of the correctness of his theories, and adduces many new facts to bear them out. The general scope of the book remains unchanged.

Speech-Hesitation. By E. J. ELLERY THORPE. New York: Edgar S. Werner Publishing and Supply Co. 1900.

This small book of 75 pages is a practical record of the author's experience as a teacher in correcting certain defects of speech. It is written in a simple, straightforward way and ample use is made of actual cases for illustration. We are not prepared to say whether the method advised will do all that is claimed for it, but it is certainly worthy of careful trial. We recommend the book to those interested in voice training as an intelligent and valuable presentation of a highly complex subject.

The Surgical Treatment of Congenital and Pathological Disfigurements of the Face. Abstract of the Mütter Lectures of the College of Physicians of Philadelphia, for 1900. By JOHN B. ROBERTS, A.M., M.D., Professor of Surgery in the Philadelphia Polyclinic; Surgeon to the Methodist Hospital. Philadelphia: The Philadelphia Medical Publishing Co. 1900.

This is an abstract of the Mütter Lectures on this subject and is reprinted from the *Philadelphia Medical Journal*. The important subject of cosmetic surgery has not received the attention that it should. The writer gives a very interesting presentation of the subject, but the subject matter is worthy of better paper, printing and binding. Perhaps the author will expand these Mütter Lectures and will dignify the book by going more minutely into the detail of plastic work.

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THE THIRTY-FIRST ANNUAL REPORT OF THE
STATE BOARD OF HEALTH OF MASSACHU-
SETTS.

In its report for the year 1899 the State Board of Health records a diminishing death rate in recent years, which is especially gratifying in the group of destructive infectious diseases and marked enough in them to much more than counterbalance the increased fatality of those classified as local diseases (of the brain, heart, lungs, kidneys), although in 1899 the rates from diphtheria, scarlet fever, measles and pneumonia were higher than in 1898, and the unusually large number of 105 cases of smallpox were reported, with 14 deaths. The total death rates in 1897, 1898 and 1899 were respectively for the State 18.1, 17.5 and 17.1 per 1,000 living, as compared with an average of 19.5 for a long period of years.

No case of smallpox occurred in any town in which rags were used for the manufacture of paper. The usual investigations of the board showed that there had been such gross violations of the laws regarding vaccination and such carelessness as to revaccinations that the laws regarding smallpox are given in full.

The reduction in the typhoid fever rate per 10,000 living has been from 8.2 in the five years 1871-1875 to 2.6 at present, and chiefly through the introduction of pure water supplies, the most notable improvement having been in Lawrence, from 11.2 in 1886-1890 to 2.5 in 1896-1899. But it is still, in general, too large.

In diphtheria there has been a steady decline in the mortality since 1891 excepting a rise in 1899 over 1898.

In the town of Brookline and in 10 of the 33 cities in the State there were hospitals for the treatment of infectious diseases, and in 22 cities provision was made in some sort of separate structure for the reception of persons suffering with smallpox, whereas the statutes provide that there shall be accommodations in every city of the State for the treatment of infectious diseases, if the local board of health demands it. In

another respect also there is room for improvement in our public health service and we find that Governor Crane repeats the recommendation of the board in the following words:

"The smaller towns to the number of 150 or more are without organized health boards, and a decided advance might be made if measures could be taken for combining these towns into sanitary districts large enough to justify the employment of competent sanitary inspectors."

The high death rate reported from cancer, which has nearly trebled in about forty years, although in large part due to more accurate diagnosis and improved registration, has led the board to make a special investigation into the matter, to be reported later.

The advice given to cities and towns has grown to be of such magnitude and importance that its record occupies 120 pages of the report, all of which should be studied with care by every local board of health in the State which has to do with the problems of supplying pure water and providing decent drainage in their several localities, and the board's 11 pages of rules and regulations for preserving the purity of water supplies mark the great advances made in recent years, under the board's wise direction, in legislation and in sanitary control.

The systematic examination of water supplies of the State, begun in 1887, has been continued and reported upon from year to year. That and the examination of rivers: a summary of water supply statistics, including records of rainfall and flow of streams; experiments upon the purification of sewage and water at the Lawrence Experiment Station; the occurrence of iron in ground waters, and experiments upon methods of removal, and the purification of the sewage in the cities and towns in Massachusetts, altogether constitute a record of original work of 450 pages, which, with the board's previous reports upon these subjects, are of the first importance and authority.

Under the laws regarding food and drug inspection, there were examined during the year 6,186 samples of milk, with 1,680 found below standard; 3,069 samples of other kinds of food, with 454 below standard, and 547 of drugs, with 214 found adulterated. There were 47 complaints made by the board in the courts for violation of the statutes in these respects, with 45 convictions.

From the report upon the production, distribution and use of diphtheria antitoxin it appears that 31,997 bottles of antitoxin were distributed during the year to local boards of health, to contagious disease hospitals and to physicians. Examinations for diagnosis were made in 2,581 cases, of which 2,256 proved to be diphtheria. The board notes an increase in the dose of antitoxin used and remarks that expressions of doubt as to its efficacy are now rarely heard. An interesting table is given of cases of long persistence of diphtheria bacilli in the throats of patients convalescent from diphtheria.

There were 571 specimens examined for the bacilli of tuberculosis, and 76 suspected of containing malaria parasites.

Under the headings of statistical summaries, of disease and mortality, of health of towns and of inspection of summer resorts a mass of material of more than local interest is collected.

If our registration reports of births, marriages and deaths could be again placed under the competent direction of the board, where they belong, and if these reports could be raised from their present position to the high standard of our health reports, it would be well worth the united efforts of the medical profession and of statisticians to bring about that result.

THE REGISTRATION OF MIDWIVES.

IN a recent issue of this JOURNAL allusion was casually made to the enumeration of midwives in the German Empire. A more careful examination of the document referred to shows that the number of midwives in the German Empire in 1898 was 37,025, an increase of 2.7 per cent. over the number which was found in a previous decade, the population having increased meanwhile 14 per cent., so that the actual ratio to the entire population had diminished.

A better mode of comparison is the ratio to the number of child-bearing women, which had diminished from 1 midwife to every 298 women of this age (seventeen to fifty years) in 1887 to 1 in 322 in 1898.

The distribution of midwives in the German Empire differs essentially from that of physicians, since the latter are more numerous in the cities, when compared with the general population, while the midwives are more numerous in the country districts. In the great cities there are 45 midwives to every 10,000 inhabitants, but in the smaller districts there are 85 to every 10,000.

When compared with the births, living and still-born, it appears that there was a great difference in the various districts, from a maximum of 1 midwife to every 18 births in Waldeck in 1897 to a minimum of 1 to every 121 births in Hamburg, the average for the German Empire being 1 to every 54 births.

Information upon this subject relating to the United States is very meagre and unsatisfactory. The only general information is that of the United States census, in which, unfortunately, nurses and midwives are classified together. The whole number of the combined class found at the census of 1890 was 47,586, of which 3,745 were in Massachusetts.

The figures of the State census upon this point are also of little value. For example, at the State census of 1865, 1,119 nurses and 5 midwives were found and enumerated. In 1875 there were 2,267 nurses. In 1885 there were 3,266 nurses, and 29 midwives, and in 1895 there were 4,472 nurses and 41 midwives. To any general practitioner of several years' practice, either in city or in country these figures are simply

incredible, and undoubtedly show that a large number of midwives must have either escaped enumeration altogether, or must have been classified as nurses.

The mortality from puerperal fever and the incidents of childbirth have been materially diminished since the introduction of antiseptic methods in the lying-in chamber, but the deaths from these causes in Massachusetts alone still number several hundred in each year, and there is a growing belief in the profession to the effect that a considerable part of this mortality is due to the want of proper training among this class of attendants, and is therefore clearly preventable. There appears to be good and sufficient reason for requiring the application of at least a simple form of registration to those who pursue this important branch of medical practice, if not the addition of a reasonable degree of qualification for the performance of their duties. Laws requiring such registration are already in force in several States, and may also be reasonably enacted in Massachusetts.

The following extract shows to some extent the laxity of English law in regard to midwives:

Recently, at an inquest held by Mr. Braxton Hicks, it transpired that a midwife in Lambeth had certified that a child seven days old had died from inanition and convulsions. No medical man had been called to attend the child, which had been ill several days. The coroner, having ordered a post-mortem examination in this case, a fracture of the skull was discovered, which had caused death from pressure on the brain. The midwife in question stated that she had attended 7,000 cases, and had given death certificates whenever she thought it right. The registrar had always accepted them. They had been so far accepted, in fact, for twenty years.¹

Dr. Walford, who quotes the foregoing incident, also states that the registration of still births is not required in England, and that burials without registration are known to occur. The registrar general also cites a case of the opposite kind, where a certificate of death was accepted by a registrar, no death having taken place.

A NEW KIND OF DOCTOR.

THAT sheer persistence and sustained, if misguided, effort commend themselves to the average optician of today, let the following testify.

In the evolutionary process of the optician the assumption of the doctor's title, whether legally or not, represents to him the highest form of development. Prior to the formation of the Medical Board of Registration such doctors filled the land, and it was no unusual thing to hear a well-to-do person announce that Dr. Opticus treated his eyes, the trouble meanwhile being unrelieved.

With the advent of the Board of Registration, however, and its increasing activity, these mushroom medical men disappeared as quickly as they had grown. True, one or two hardier spirits still exposed signs

¹ From a paper by Dr. E. Walford, Medical Officer of Health of Cardiff: Public Health, London, January, 1901, page 265.

which apprised the passer-by that the "doctor" still treated eyes, but after it was apparent in several instances that the board would tolerate no misuse by the laity of the term doctor, and backed up its position in the matter by prosecution and fines, even these disappeared.

Then there was a distinct transition period and lo! the "eye specialist" had arrived. On signs in letters, in many instances, a foot long, one who ran might read that John Smith, "Eye Specialist," would examine and treat the eyes. But even this was considered too much by the finicky gentlemen of the board, and peremptory notices that all such advertisements must cease produced an immediate effect in all but one case. The individual was duly prosecuted, sentenced to an imprisonment of three months, and a fine of five hundred dollars, in the Municipal Court. This sentence was sustained in both the Superior and Supreme Courts, the last ruling that if the defendant held himself out as an eye specialist he held himself out as "one who devoted himself to a branch of the healing art which is the profession of the physician and surgeon," and that "if the defendant held himself out as an eye specialist he held himself out as a physician and surgeon within the meaning of the statute." Again there was rapid changing of signs.

But the title so dear to the heart of the optician must be obtained in some way, otherwise how is he to be addressed as doctor across the counter? So now we have the third phase, which at least has the saving merit of being original. The New England Optical Institute has started with a free clinic on one of the streets of Boston. Any one who applies for treatment receives a card which states that he is the patient of a physician, who has for assistants thirteen opticians with names duly printed on the card, and this institute, which offers a course of instruction, has petitioned the General Court for the authority to grant two degrees—Bachelor of Optics, and Doctor of Physiological Optics. They are to be doctors at last, if the bill as brought in becomes a law. Can it be that the day is coming when the ambitious maker of obstetric forceps, who has read up some of the physical laws underlying traction, will hold himself out as an obstetric specialist, and wish special legislation and a degree?

MEDICAL NOTES.

ENTERMINATION OF MOSQUITOES IN HAVANA.—

On the ground that recently made experiments prove beyond reasonable doubt that mosquitoes convey yellow fever, a systematic attempt is being made to exterminate the breeding places. Forty sanitary inspectors of the city have been ordered to make a thorough inspection of their districts and to report all stagnant water where mosquitoes might breed. Twice a month petroleum, which cannot be drained off, will be thrown upon the stagnant water, in order to kill the embryo mosquitoes. The department will also attempt to kill

all mosquitoes in houses where cases of yellow fever appear.

LEPROSY IN CRETE.—A medical inspection of the island of Crete reveals the fact, according to the *Journal of Tropical Medicine*, that there are 380 known lepers in the island, but the actual number is believed to be double that figure. A leper asylum is contemplated for their reception. It is interesting to note that although lepers have been allowed to roam about at their will, their numbers are stated to be rapidly decreasing.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, January 23, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 139, scarlatina 40, measles 63, typhoid fever 18.

AN APPROPRIATION FOR LABORATORY INVESTIGATION.—According to the December *Monthly Bulletin* of the Connecticut State Board of Health, "During the present session of the legislature the State Board will ask for a moderate appropriation to enable it to offer gratuitous examinations of morbid specimens from suspected cases of infectious diseases. In 1898 Vermont established a hygienic laboratory, appropriating \$7,500 a year for running expenses. After two years of experience with it, so highly was its work appreciated that the annual appropriation was increased to \$10,000. Several other States are enjoying similar advantages, and still others are asking for them."

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A meeting of the Society for Medical Improvement, held January 1st at the Boston Medical Library, was devoted to the history of the organization, which dates from 1828 and its incorporation from 1839. Dr. J. G. Mumford read a paper on "The Story of the Boston Society for Medical Improvement," which was followed by felicitous speeches from Drs. J. C. White, Morrill Wyman, C. J. Blake, R. H. Fitz and G. B. Shattuck, for the most part reminiscence.

LOW DIPHTHERIA DEATH RATE IN CAMBRIDGE, MASS.—The number of cases of diphtheria reported last year in Cambridge was among the highest in the history of the city, but the proportionate number of deaths was the lowest in many years. There were 925 cases. Seventy-two of the patients died, that is, 7.83% of the total number. The Board of Health attributes the comparatively low death rate to the use of antitoxin.

SMALLPOX IN VERMONT.—Two cases of smallpox have recently been discovered in Shaftsbury, Vt. The usual precautions have been taken to prevent the spread of the disease, which probably was introduced from New York.

WALTHAM BACTERIOLOGICAL LABORATORY.—In the near future the bacteriological laboratory in Waltham will be transferred from the Waltham Hospital

to the residence of Dr. Chadwick, physician of the Board of Health. The assigned reason for the transfer is that the hospital is situated too far from the centre of the city.

NEW YORK.

ELECTRIC ROAD HELD RESPONSIBLE.—In a decision recently handed down the New York Court of Appeals recognizes the responsibility of an electric railroad company for compensatory damages to a person injured by being thrown down by the jerk of a car in starting. A woman passenger on the Brooklyn Heights Railroad who had been injured in this manner secured \$4,000 damages in a suit against the company. On appeal this verdict was set aside, the court holding that there was contributory negligence on the part of the passenger; but the Court of Appeals has reaffirmed the original judgment given for the plaintiff by the trial court.

AN APPROPRIATION FOR IMPROVEMENT OF WATER SUPPLY.—At a meeting of the Board of Estimate and Apportionment held January 18th an appropriation of \$4,025,000 was made for immediate work in improving the water supply of the city. The plan of the city officials at present is to appropriate each year from \$5,000,000 to \$10,000,000 for making additions to the water system, so that in the future there need be no fear of a water famine during a severe drought. This action is regarded as putting an end to any effort to make a contract with the Ramapo Company for a water supply to the city.

PETITION TO SUSTAIN THE PATHOLOGICAL INSTITUTE OF THE NEW YORK STATE HOSPITALS.—At the last meeting of the Medical Association of the Greater City of New York a resolution was adopted petitioning the governor to sustain the Pathological Institute of the New York State Hospitals for the Insane, and protesting against the threatened subversion of the work of the institute which has been so highly commended by the scientific men of this and other countries. Similar petitions are being sent by other medical societies and privately by prominent physicians.

A VERDICT FOR GAS POISONING.—Mrs. Fredericka von Mechow has secured a verdict of \$9,000 in a suit for \$25,000 damages, in the Supreme Court, against the New Amsterdam Gas Company, for the loss of her husband. She asserted that the company, in changing the meter in the house where she lived, left the connecting pipes in such a condition that there was an escape of gas during the night which poisoned all the family and caused the death of Mr. von Mechow. The case is said to have no precedent.

REINSTATEMENT OF DR. MOORE AT BELLEVUE.—Dr. J. W. Moore, the interne at Bellevue Hospital who was in charge of the alcoholic and insane wards at the time of the death of Louis C. Illiard, and who was temporarily suspended from duty after that occurrence, has now been reinstated on the house

staff by the commissioner of public charities. The case of Dr. Moore was submitted to the Medical Board of the hospital, who exonerated him from all blame in the matter.

STATISTICS OF BIRTHS AND DEATHS.—The Health Department's reports show that during the year 1900 the number of deaths recorded in the Borough of Brooklyn was 23,475, against 22,572 births. Dr. Byrue, the head of the Bureau of Records in that borough, states, however, that in reality the births considerably outnumber the deaths, for while every death is necessarily reported, many physicians, as well as midwives, fail to report births.

PUBLIC HEALTH.—Dr. Nelson H. Henry, member of the legislature from New York, has been appointed chairman of the Assembly Committee on Public Health. At a meeting held January 10th the State Board of Health protested against Governor Odell's proposed plan for a single-headed commission, and expressed the opinion that such a change would not be in the interest of economy, as suggested in the governor's message.

OFFICERS OF THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.—At the annual meeting of the Medical Society of the County of Kings (Brooklyn), held January 16th, the following officers were elected: President, Dr. Wm. Browning; Vice President, Dr. Henry A. Fairbairn; Secretary, Dr. David Myerle; Treasurer, Dr. O. A. Gordon; Directing Librarian, Dr. J. M. Winfield; Trustee, Dr. George R. Fowler.

DEATH REVEALS HER SEX.—It was not until the time of her death that Murray H. Hall, who kept a well-known employment agency, and who had passed as a man for over thirty years, was found to be a woman. During this time she had been twice married to other women and had attained considerable notoriety as a Tammany Hall politician. The cause of death was cancer of the breast.

BEQUESTS TO HOSPITALS.—The will of James D. Sarven, who died last April, left his residuary estate to several charitable institutions. The settlement of the estate has just been completed, and it is announced that St. Luke's Hospital and the Presbyterian Hospital, of New York, will each receive \$59,140, and the Tarrytown Hospital, \$5,000.

PORTRAIT OF THE LATE DR. AUSTIN FLINT.—On January 17th a portrait of the late Dr. Austin Flint, by George R. Boynton, was presented to the New York Academy of Medicine. Dr. E. G. Janeway made the presentation speech in behalf of himself and fourteen other fellows of the academy, who were the donors of the portrait.

NECROLOGIST OF THE NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY.—At a meeting of the Board of Trustees of the New York Genealogical and Biographical Society held January 16th Dr. Ellsworth Eliot was elected necrologist.

DEATHS FROM INFLUENZA.—During the three weeks ending January 12th the number of deaths reported in the city from influenza was respectively 11, 36, and 75. In the corresponding weeks of last year the number was respectively 4, 8, and 9.

Miscellaneous.

IMMUNITY.

It is not unusual in the experience of bacteriologists at one time or another, when raising the virulence of a strain of bacteria by passing the virus through a series of rabbits, to find every now and then certain of them which are unaffected by the inoculation. This individual immunity is often noticeable in man, for in any serious outbreak of diphtheria, plague, smallpox, or typhoid fever, there will be found those who not only may be in attendance on infected cases, but may also be in far from good health themselves, and who yet do not contract the disease. The cut-and-dried explanation of the above generally given is that the reason they do not suffer from the epidemic is that they are naturally immune, leaving, however, the question of why it is so unanswered. It has been lately shown that the Arabs as a race are immune from enteric fever, and the theory has been advanced that the immunization is attained by reason of the fact that the Arab in childhood is habitually accustomed to drinking foul, unwholesome water. It has been further pointed out by those who support these views that army medical statistics show that diseases of the digestive canal are twice as frequent among European troops as among the native soldiers in Algeria and Tunis. In traumatic infections the serous membranes of the Arab are very resistant, and particularly the peritoneum and the pleura, which probably accounts for the very exceptionally favorable results in abdominal surgery among the Arabs.

In striking contrast, however, with the above, it is found that Arabs as a race are singularly subject to pulmonary affections, and exhibit a very marked susceptibility to pneumococcal infection. Exceptions in regard to infections are very interesting studies, but it would seem difficult to establish the fact that there is such a condition as absolute racial immunity. In the case of anthrax, though it is very fatal for ordinary sheep, Angora sheep are not affected by it, and in the same manner ordinary rats are susceptible to anthrax, whilst white rats are immune, but these statements do not apply if the animals are placed under abnormal conditions. — *Medical Press.*

Correspondence.

THE PHYSICIANS' HOME; EAST TENNESSEE MOUNTAINS DESIGNATED AS A LOCATION.

MINOR HILL, TENN., January 12, 1901.

MR. EDITOR: By the Physicians' Home we mean a home, or retreat, for the aged and prematurely debilitated physicians of the United States. There are those in our ranks whose infirmity forces them to rest about one-half of

their time. They go to one climate and another paying fancy prices for their changes. This home, or retreat, is for those—a place where they can go, breathe the pure air, fish in the streams, climb the mountains, look for minerals, raise fruits, vegetables, vineyards, orchards, poultry, etc. Such a home, with a well-organized board of directors, would be of incalculable benefit to the American medical fraternity. It would be an honor to our Commonwealth.

But one says, "How is such a home to be maintained?" In the study of this problem we have realized the fact that necessarily we would have to have the secretaries of all State and county medical societies collectors, so that when the annual expense account was due the members and all physicians in the county could hand it in to their secretaries. In this way it would be a very easy matter to correctly carry on the business.

Now as to the fund and how raised: There are 117,523 physicians in the United States. Say that one-half of these make a donation or subscribe a few dollars, this will amply erect the building and buy all the land necessary. Say the same number pay annually a few cents to the county collector, this will defray the expenses of the home. What we want is about 100 acres of farming land to be utilized in orchards, vineyards, gardens, poultry-yards, dairying, etc., and a commodious building. This will require an expenditure of about \$150,000. We desire to say to those who have not reflected over the matter, that this move has been going on about six months, during which time it has received many cheers; received the endorsement of some of the best medical men in our government; yet, however, we have not given it wide publicity solely because it takes, in such a large enterprise as this, much labor and co-operation to effect publicity. During the time I, having been advised to do so, appointed a Committee on Location consisting of Drs. E. F. Williams, De Pere, Wis.; J. M. Hole, Salem, O.; O. C. Anderson, Holston Bridge, Va.; Douglass Hayes, Tracy City, Tenn., and Chalmers A. Parker, Fort Worth, Tex. They, after careful search into the matter, taking into account the geographical division, climate, access, cost of living, etc., have given their opinions in favor of the mountains of East Tennessee, settling as the future spot upon which to erect this home at Bristol, Tenn.-Va., a twin city of about 12,000 inhabitants on the line of Tennessee and Virginia, midway between New York City and New Orleans. Of course this location is open for approval or disapproval. Any one interested in location of this medical home should investigate and give his opinion, then should Bristol not meet with approval a new committee should be appointed. As to the healthfulness of this region, Ex-Gov. Taylor, who was reared in the mountains of East Tennessee, can inform you.

The people of Bristol, Tenn.-Va., are exceedingly anxious to have the home materialize there and have offered a large bonus in the way of some property situated at Fairmount, on an elevation overlooking the mountains. This property is actually worth over \$100,000, but the offer for consideration before the American medical fraternity is \$35,000. A committee should be appointed when this fund is raised to examine this property. There should not be anything definitely done until the whole regular, ethical profession is consulted.

I visited Bristol, Tenn.-Va. (the main street is the State line), on December 21, 1900, meeting representatives of the Committee on Location and other physicians, at which time we effected a temporary organization, electing Dr. G. M. Peavler, Bristol, Tenn., president; Drs. C. A. Abernathy, Pulaski, Tenn.; Chalmers A. Parker, Fort Worth, Tex.; Francis M. Prince, Bessemer, Ala.; A. Garcelon, Lewiston, Me.; J. W. Smithwick, La Grange, N. C.; J. C. Anderson, Holston Bridge, Va., vice-presidents; Dr. N. H. Reeve, Bristol, Tenn., secretary; Dr. Jno. S. Harris, Minor Hill, Tenn., corresponding secretary; Dr. Jno. C. Anderson, president National Bank of Bristol, Bristol, Tenn., treasurer.

With a well organized board of directors, a board of council, we cannot see why this home cannot be a financial

success. It can be and should be the pride and glory of every American practitioner. It is the first attempt in the history of any nation.

True life draws nigher
Every year.
And the morning star climbs higher
Every year.
Life's hold on us grows slighter,
And the heavy burden lighter,
And the immortal dawn brighter,
Every year.

This home is to be consigned to the prosperity of this, the most glorious nation on earth. It is to be dedicated to the memory of our forefathers in medicine; to the regular ethical profession of medicine in the United States; to the American Medical Association; to the various State and county (State, State divisions and municipal) medical societies. Any practitioner of regular medicine can contribute to the fund and enjoy its benefits whether a graduate or not. If you are a member of a medical society give us your secretary, also other members. If not a member give us the names of the physicians in your town or county. Take an interest in this, the most important enterprise of the twentieth century. Let a fraternal brotherly love reign throughout America.

Very truly yours,
JNO. S. HARRIS, M.D.

RE "KIRKES' HANDBOOK OF PHYSIOLOGY" IN AMERICA.

LONDON, January 5, 1901.

MR. EDITOR: My attention has been drawn to the reviews of two books each bearing the title of "Kirk's Handbook of Physiology," which appeared in your issue of the 8th of November last and to the subsequent correspondence arising therefrom.

As my name is stated to appear in conjunction with that of my late colleague, Mr. Morratt Baker, upon the title page of one of these editions, perhaps you will be good enough to allow me to supplement, in one or two particulars, the history of this well-known textbook subjoined by your well-informed reviewer, and at the same time to make clear what has been my connection with it.

In the year 1848, Dr. Wm. Senhouse Kirk, assisted by Mr. (afterwards Sir James) Paget, who was at the time lecturer on general anatomy and physiology at St. Bartholomew's Hospital, brought out a "Handbook of Physiology," which was largely based upon Dr. Baly's translation of "Müller's Elements of Physiology," the first edition of which in English was published in 1837. Four editions altogether appeared of the handbook under the same auspices. The fifth edition, then called "Kirk's Handbook," was brought out in 1867 and was edited by Mr. Morratt Baker, who continued to be sole editor until 1880, when I assisted him in editing the tenth edition. The book, still called by the same title, continued under our joint editorship until 1892, when the thirteenth edition was published. In 1894 a revise of this edition was issued which was done, as far as I can recollect, by myself. After this we resigned the joint editorship and since then have had nothing whatever to do with the book.

The fourteenth edition was edited by Professor Halliburton and he, having a freer hand, considerably altered the book, enlarging its scope, rearranging the subjects, and judiciously pruning the parts which required that operation. The result of his work was to produce almost a new handbook of physiology, which might well have received his name instead of the old title. Naturally the majority of the illustrations, many of which had been produced at great expense, were retained, as was also, to a large extent, the histology. In the subsequent editions Professor Halliburton has continued his efforts to keep the work well in the van of physiological progress and I think

that in his hands the gloomy forebodings of your reviewer, "that in a few years this publication will be a thing of the past" will go unfulfilled.

Such being the case, how comes it that an edition of "Kirk's Handbook" is still published in America having upon its title page the names of editors who gave up all connection with the work in 1894? I am afraid the phenomenon can only be explained by the mysterious workings of the publisher's conscience in America! This, however, I do know, that the continued use of the names of Mr. Morratt Baker (whose lamented death took place in 1896) and myself upon the title page of any edition of "Kirk's Handbook" is entirely unauthorized and is, in my opinion, unjustifiable.

I remain, dear sir,
Yours very truly,

VINCENT DORMER HARRIS, M.D. (Lond), F.R.C.P.

ELECTRIC AUTOMOBILES A SOURCE OF ELECTRIC LIGHT.

JAMAICA PLAIN, January 17, 1901.

MR. EDITOR: It may be interesting to the medical profession to know of a new use to which the electric automobiles can be put, that will be valuable not only to physicians, but to their patients. For the past two months I have been using an electric automobile, to the exclusion of the horse. On the afternoon of January 10th, on visiting a patient, I found it would be necessary to operate upon her that evening. Realizing the seriousness of the case and the delicacy of the operation, for it would have to be a laparotomy, it troubled me a little to know how to provide sufficient light to enable us to explore the abdomen thoroughly and safely, as etherization by gas or lamp light is not without its dangers. About 5.30 p. m., while riding around in the automobile, the thought came to me suddenly that I might utilize the electricity in my carriage to provide light for the operation. I immediately arranged for a long insulated wire about 40 feet, to which was attached an incandescent light with a reflector, using a 52 volt 6-candle-power lamp, also a 100-volt 16-candle-power lamp. I also had several spare ones in case one of them should burn out during the operation.

The automobile was run up on the patient's lawn by the side of the house, under the window, and the wire attached to the battery. We then drew the other end into the second story window, and running a strong line across the room, suspended the lamp from it over the operating table. On turning on the power, we had a most brilliant light, and coming from a storage battery, it was steadier and more uniform than the ordinary incandescent light, lighting the whole room—a large one—and giving perfect light to the operator, so that the laparotomy was performed with ease and comfort. In fact, the light was as good as in any operating room in Boston, and proved very successful in every particular. We burned it for over two hours, and could have burned it all night if necessary. It was a very rainy night with snow on the ground, which had no effect on the light or battery.

It seems to me that the results of that evening will prove valuable to physicians, because now we may have perfect light in any house, whether in the country or in the city, with no trouble, and the most delicate operation may be performed as easily and safely in the night as it could be by daylight. An automobile may be taken anywhere for such purposes, and surely this makes the electric carriage of even more value to physicians. Other fields are thus opened up for their usefulness to us which I will not enlarge upon at this time, but will simply mention the possibilities of utilizing them for cauteries, giving electricity to patients, etc., by attaching the proper appliances to them, which can be done easily and readily.

Very truly yours,
JOSEPH C. STEDMAN, M.D.

METEOROLOGICAL RECORD

For the week ending January 12th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer.		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Wet'thr.		Rainfall in inches.
	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...6 30.24	28	37	28	67	79	68	S.W.	W.	12	8	C.	C.	
M...7 30.02	36	43	28	68	82	75	S.W.	W.	8	8	C.	C.	
T...8 30.07	31	35	27	72	75	73	S.W.	W.	7	10	C.	C.	
W...9 30.12	40	50	31	82	82	82	S.W.	N.W.	14	14	O.	O.	
Th...10 30.27	29	35	23	65	96	80	N.E.	N.E.	16	18	O.	R.	.32
F...11 30.42	26	33	20	41	95	68	N.	N.	9	10	N.	C.	.29
S...12 29.60	39	35	33	100	89	94	N.	N.	20	12	N.	C.	.83

* O, cloudy; C, clear; F, fair; G, fog; H, haze; S, smoke; R, rain; T, threatening; N, snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, JANUARY 12, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Percentage of deaths from					
			Deaths under five years.	Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York . . .	3,487,202	1606	393	19.56	23.92	.75	.81	4.30
Chicago . . .	1,688,575	—	—	—	—	—	—	—
Philadelphia . . .	1,293,697	—	—	—	—	—	—	—
St. Louis . . .	575,238	—	—	—	—	—	—	—
Baltimore . . .	590,892	215	62	22.32	16.27	—	2.82	3.72
Cleveland . . .	391,768	—	—	—	—	—	—	—
Buffalo . . .	352,847	—	—	—	—	—	—	—
Cincinnati . . .	325,902	—	—	—	—	—	—	—
Pittsburg . . .	321,616	146	54	33.56	26.71	2.06	8.22	2.05
Washington . . .	275,715	—	—	—	—	—	—	—
Milwaukee . . .	285,315	—	—	—	—	—	—	—
Providence . . .	175,597	64	14	17.16	14.84	—	—	4.68
Boston . . .	590,892	233	68	22.16	18.07	—	1.71	4.29
Worcester . . .	118,421	—	14	12.12	12.12	3.03	—	—
Fall River . . .	104,863	—	—	—	—	—	—	—
Lowell . . .	94,869	27	5	3.70	22.29	—	—	—
Cambridge . . .	91,846	24	10	29.83	16.68	—	—	—
Lynn . . .	68,513	—	—	—	—	—	—	—
Lawrence . . .	62,553	17	5	11.56	24.40	—	—	5.88
New Bedford . . .	62,412	20	10	10.00	10.00	—	—	—
Springfield . . .	62,059	13	1	23.07	23.07	—	7.69	—
Somerville . . .	61,643	16	8	31.25	18.75	—	6.25	12.50
Holyoke . . .	45,712	16	7	12.50	18.75	—	—	6.25
Brookton . . .	40,063	12	1	8.33	91.67	—	—	—
Haverhill . . .	37,175	17	—	42.84	—	—	—	—
Salem . . .	36,716	4	4	11.76	—	—	—	11.76
Chelsea . . .	34,072	9	4	11.11	—	—	—	11.11
Malden . . .	33,654	10	2	30.00	10.00	—	—	10.00
Newton . . .	33,387	7	—	28.56	42.84	—	14.29	12.50
Fitchburg . . .	31,511	8	2	25.00	12.50	—	—	—
Taunton . . .	31,036	10	1	20.00	10.00	—	—	—
Holchester . . .	26,121	4	—	54.15	18.18	—	—	36.36
Everett . . .	24,336	11	2	33.33	16.66	—	—	16.66
St. John Adams . . .	24,290	6	—	50.00	—	—	—	—
Quincy . . .	23,889	6	—	50.00	—	—	—	—
Waltham . . .	23,181	5	—	40.00	20.00	—	—	—
Pittsfield . . .	21,705	—	—	—	—	—	—	—
Brookline . . .	19,803	5	1	20.00	20.00	—	—	20.00
Chilmark . . .	19,167	2	1	66.67	33.33	—	—	33.33
Medford . . .	18,214	3	1	25.00	—	—	25.00	25.00
Newburyport . . .	17,178	4	1	25.00	—	—	—	—
Melrose . . .	12,962	4	1	25.00	50.00	—	—	—

Deaths reported 2,576; under five years of age 679; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 538, acute lung diseases 572, consumption 278, diphtheria and croup 108, diarrheal diseases 33, typhoid fever 29, scarlet fever 18, whooping cough 15, measles 5, cerebrospinal meningitis 2.

From whooping cough New York and Baltimore 4 each, Pittsburg 4, Boston, Cambridge, Somerville and Everett 1 each. From cerebrospinal meningitis New Adams and Clinton 1 each. From scarlet fever New York 12, Pittsburg 3, Boston 2, Worcester 1. From measles Boston 3, New York 2. From typhoid

fever New York 13, Pittsburg 12, Baltimore 5, Boston 4, Cambridge, Springfield, Somerville, Newton and Newburyport 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,610,290, for the week ending December 29th, the death rate was 16.9. Deaths reported 3,773; acute diseases of the respiratory organs (London) 325, whooping cough 88, diphtheria 78, measles 59, fever 46, diarrheal 34, scarlet fever 29.

The death rates ranged from 9.5 in Huddersfield to 23.2 in Hull; Birmingham 18.2, Bolton 14.0, Bradford 15.2, Bristol 16.3, Cardiff 19.2, Derby 16.9, Gateshead 19.5, Halifax 10.9, Leeds 18.3, Liverpool 22.4, London 16.7, Manchester 19.4, Newcastle-on-Tyne 20.9, Nottingham 17.2, Plymouth 15.8, Portsmouth 13.6, Salford 20.1, Sheffield 19.2, Sunderland 15.2, Swansea 16.3, West Ham 13.9, Wolverhampton 12.2.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 19, 1901.

J. B. DENNIS, assistant surgeon, to delay reporting for duty at Naval Academy until January 21st.

J. C. FRYER, assistant surgeon, ordered to duty at Naval Hospital, New York.

R. B. WILLIAMS, assistant surgeon, detached from the Navy Yard, New York, and ordered to the Pensacola Navy Yard.

T. M. LIPPITT, assistant surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered to the Naval Hospital, Mare Island, via "Solace."

B. L. WRIGHT, assistant surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered to Naval Hospital, Mare Island, per "Solace."

RESIGNATION.

FREDERICK S. WARD, M.D., who has for the past two years had charge of the pathological work of the Taunton, Mass., State Hospital has resigned.

BOOKS AND PAMPHLETS RECEIVED.

The Anthropometric Manual of Amherst College. 1900.

Aseptic Minor Gynecology with Demonstrations. By Augustin H. Goelet, M.D. Reprint. 1900.

Transactions of the American Gynecological Society for the Year 1900. Vol. XXV. Philadelphia. 1900.

Twenty-second Annual Report of the State Board of Charity of Massachusetts, January, 1901. Boston. 1901.

The Failure of the Consensus Judgment with Reference to Tuberculosis. By Charles Denison, A.M., M.D., Denver, Col. Reprint. 1900.

Revised Interpretation of the Central Fissures of the Educated Suicide's Brain Exhibited to the Association in 1891. By Burt G. Wilder, M.D. Reprint. 1900.

Medico-Surgical Aspects of the Spanish-American War. By Lieut.-Col. Dr. Nicholas Senn, Chief Surgeon, U. S. Volunteers, etc. Chicago: American Medical Association Press. 1900.

Medical and Surgical Reports of the Boston City Hospital. Eleventh Series. Edited by Herbert L. Burrell, M.D., W. T. Connelman, M.D., and Charles F. Withington, M.D. 1900.

If an "Isthmus Rhombencephali"? Why Not an "Isthmus Prosencephali"? A New Head-Rest for the Removal of the Human Brain. By Dr. B. B. Stroud, Cornell University. Reprints. 1899, 1900.

Nephrorrhaphy. Address in Obstetrics. Proctorrhaphy: The Suspension of the Rectum for the Cure of Intractable Prolapse and Inversion of that Organ. By Charles P. Noble, M.D., Philadelphia, Pa. Reprints. 1900.

A Clinical Study of the Lymphatic Glands in One Hundred Cases of Scarlet Fever. A Clinical and Pathological Study of the Rash of Scarlet Fever. By Jay F. Schamberg, A.B., M.D., Philadelphia. Reprints. 1899-1900.

A Guide to the Instruments and Appliances Required in Various Operations. By A. W. Mayo Robson, F.R.C.S., Senior Surgeon to the Leeds General Infirmary, etc. Second edition. London, Paris, New York, etc.: Cassell & Co. 1900.

A Textbook of Pharmacology and Therapeutics on the Action of Drugs in Health and Disease. By Arthur R. Cusby, M.A., M.B. (Aberd.). Second edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Physical Diagnosis in Obstetrics: A Guide in Ante-partum and Post-partum Examinations for the Use of Physicians and Undergraduates. By Edward A. Ayers, M.D., Professor of Obstetrics in New York Polytechnic, etc. Illustrated. New York: E. B. Treat & Co. 1901.

Original Articles.

THE TREATMENT OF THE LATER PHASES OF HEART DISEASES.¹

BY JOHN L. HEFFRON, M.D., SYRACUSE, N. Y.

My subject is as old as the art of medicine. The treatment of the later phases of chronic heart diseases has engaged the serious attention of medical men of all ages and of all nationalities. There is no expectation on your part that any new method of treatment is to be proposed in the course of this paper, or that any claim to fresh discoveries that can actually cure conditions long recognized as incurable will be attempted. Indeed, the subject may be considered by many as worse than "threshing of old straw," and many may feel that in the management of such conditions as must in the end inevitably lead to death, there is no inspiration, and that time spent in the discussion of the amelioration of distressing symptoms resulting from an incurable malady might better be given to more important matters. But is this true? How much of the life of every physician is of necessity given to those whom he knows he cannot cure? If we exclude the diseases which are self limited and lead naturally to recovery, and in the management of which the wise physician accurately observes the evolution of symptoms, and resolutely refuses to complicate the situation by active interference when such interference is not positively indicated, and those cases in which the imagination of the patient conceals diseased conditions out of the results of imperfect modes of life (and this is the large field in which the charlatan reaps his enormous harvest), and then excludes those conditions which the surgeon's skill alone can cure, we shall discover that at least one-fourth of our time is consumed in the treatment of chronic ailments ultimately and of a necessity fatal. Is, then, such a proportion of our time and energy wasted? Put yourself in the place of your patient.

If one could have his ability to work even partially restored, or in such an autumn as this, if one could but sit at a window with body at ease and watch the wonderful close of a summer's glory, or if, with greater vigor, one could go forth and enjoy the procession of the seasons and exult in nature's various moods, or, if even helpless, he could lie comparatively free from pain, and for a brief period longer look into the eyes of affection, would it not be well worth all the effort and all the sacrifice of time and energy on the part of the attending physician whose skill made the prolongation of such enjoyments possible? As long as human nature remains unchanged, so long will the desire for life, even under adverse conditions, be dominant.

To limit the discussion within reasonable bounds we will consider only cases of chronic endocarditis, and, to define what is intended by "the later phases of chronic heart disease" will indicate that it is meant to cover that period of time, short or long, after compensation has once failed.

Let us briefly review the conditions which may supervene upon failing compensation. So long as the circulation is maintained at its normal standard, the subjects of chronic heart disease are able to go

about their ordinary avocations with usual ease and comfort, however much fuss the heart may make in accomplishing its task, and they are made aware of circulatory defect only upon some severer exercise than is their wont, or by some atrocious errors in diet. It is the commonest experience for a physician to detect a heart lesion in the course of a physical examination of a person in whom the heart is not under suspicion. Indeed many subjects of longstanding chronic endocarditis never come under professional observation until beginning failure of compensation forces upon their attention symptoms the nature of which they do not suspect. What then is the pathologic groundwork of our therapeutic problem? Chronic endocarditis results in the disabling of one or more valves of the heart in every instance. In many cases there is also the implication of other intracardiac structures, as an atheromatous deposit in the lining of the ventricles, changes in the papillary muscles, and alterations in the tendinous guying the valves. There is always change in the musculature of the heart. Hypertrophy of the muscle upon which extra work is put is nature's law. When this hypertrophy is unequal to the demand upon it, a hollow muscular organ undergoes dilatation, and this process is frequently accompanied by a degeneration of the muscular substance, the most frequent type of which is the fatty infiltration. When the heart becomes unequal to its task a circulatory crisis occurs marked by venous engorgement of all tissues and organs. This is manifested by impaired digestion, imperfect elimination of waste products, loss of strength, restlessness, disturbed sleep, and rapidly rising dropsical effusions into the cellular tissues and later into the serous cavities. Sclerotic changes in arterial walls ultimately result and not infrequently interstitial nephritis supervenes. If this hasty sketch is in accordance with the facts, it follows that the treatment will be guided by (1) the condition of the heart; (2) the abnormal conditions resulting from a disturbed circulation, and (3) the general condition of the patient. These conditions are so mutually dependent one upon the other that it will be difficult to discuss each categorically. We are thus forced to proceed as we do with the patient before us, from general considerations to particular indications.

When compensation has failed, the first indication is to relieve the heart of all extra work. Rest in the recumbent position accomplishes this most perfectly as far as the postural treatment is concerned. It relieves the heart physiologically of from ten to twenty contractions per minute as compared with the usual conditions which prevail when one is simply "confined to his room" in the usual acceptance of that term. When dyspnea is marked this position is difficult of attainment at first, but can soon be accomplished under favorable conditions. The rest should be complete, and should include forbidding to sit up even during feeding and the necessary care of the excretions. Of nearly as great importance is the exclusion of visitors whose presence excites emotion of any kind.

Secondly, the volume of blood to be propelled by the heart should be diminished as much as possible. To accomplish this the direct diminution of the volume of the blood by blood letting is seldom indicated, though in extreme cyanosis not the expression of simple venous congestion most brilliant results have been

¹ Read before the Syracuse Academy of Medicine, December 18, 1900.

reported from blood letting and even paracentesis cordis. The use of such hydragogue cathartics as least disturb the general condition and most aid in the elimination of waste matters with the watery evacuations is imperative. For this purpose there are many candidates for favor, but my experience leads me to place the reliable remedies capable of accomplishing this purpose in the following order: elaterrum, calomel, salines. At the same time the diminution of ingested fluids must be insisted upon. It is desirable for the nurse to keep a record of the relation of ingested fluids and excreta with as much accuracy as conditions permit. With the aid of such a record one can easily avoid errors on either side.

Thirdly, the distressing nervousness of the patient, which increases the irritability of a heart already overburdened, must be controlled. For this purpose ice bags over the heart give a certain amount of relief, but it is almost always necessary to employ remedies directly acting upon nerve centres. It is here that the alkaloids of opium can be administered without hesitation. Codeine should first be tried in doses of one-half grain hypodermically. It will usually suffice, and when it can be used it relieves the patient of the narcotic effects of morphine. It does not, however, differ from morphine in its effects upon the secretions and will as surely produce constipation as will morphine. If it fail to induce the desirable quieting effect and compel sleep morphine must be used. Both alkaloids stimulate rather than depress the myocardium if used in therapeutic doses. Heroin is a modern fraud. It is not a new alkaloid of opium, but a salt of morphine, and is in no way superior to the more familiar salts and lacks none of their evil effects. Already several cases of chronic morphine poisoning have come under my observation from the use of heroin and one of them was in a physician. If the nervousness is not so extreme though positive, I have obtained most gratifying results from the use of the abstract of cannabis Indica made by the late and ever lamented Dr. William Maunius Smith. The effect of this drug is frequently most happy, and it is free from the objectionable action on the various secretory organs. This preparation is so uniform and so efficacious that as a rule I use it at first, and if it fail add to it a small quantity of codeine or of morphine.

Closely related to this relief of all unnecessary work of the heart is the management of the diet. It is well known that a full meal causes increased action of the heart, first physiologically, then mechanically by the irritation of a distended stomach crowding against a crippled heart. If digestion is feeble and fermentation of food in the stomach take place, the crowding against the heart of a stomach distended with gas and imperfectly digested food may so disturb the heart's innervation as to produce even fatal results. The invariable rule must therefore be for such a patient to take small amounts of easily digested food, at such intervals as allow of the perfect elaboration of the ingesta. In the diet of these patients there are certain necessary exclusions. Substances which are bulky and of small nutritive value, and which are usually of slow digestion, as are most of the vegetables, foods highly seasoned with condiments which naturally stimulate the heart, preparations which represent chiefly the waste matter of other animals, like beef tea and all soups which chemically have an analysis closely resembling that of urine, all alcoholic beverages,

and all acid fruits and vegetables, because so many chronic heart cases have a rheumatic background which demands alkalies, must be rigidly excluded. All these, without exception, impose an extra burden upon an already overburdened organ, and are non-essentials to nutrition, however grateful they may be to an overcultivated palate. The selection of the ideal dietary in each individual case must be the resultant of an intimate acquaintance with the patient's digestive ability and tastes, and a thorough knowledge of the nutritive value of food stuffs. In the diet of these patients during the past six months I have been greatly helped by a pure albuminous food representing the casein of milk, originally manufactured in Germany as a competitor of meat from an economic standpoint, known as Plasmon. It has little flavor or odor, and can be combined with many foods, but when Professor Virchow tells you he has in his own case obtained excellent nutritional results by using Plasmon for dinner to fortify a purée of potatoes and apples, you know his nationality at once, and will not be tempted to force that particular dish upon any but a German palate. Fresh eggs, raw or slightly cooked, custards, junket, scraped or chopped lean beef, mutton or chicken, the expressed juice of broiled beef or mutton, stale bread toasted, possibly a baked potato, with light milk puddings, make up a suitable dietary for average cases, while in those whose digestive ability is greatly impaired the various predigested foods, including peptonized milk gruels, the peptonoids, Just's food, etc., will serve to bridge over the interval during which the general condition is undergoing improvement, and the heart is recuperating its energies. The method of administering predigested foods is of considerable importance. Rather than give a comparatively large quantity at stated intervals it is productive of far better results to give small portions at very frequent intervals, letting the patient sip it by mouthfuls every fifteen minutes. Attention to so slight a detail as this will frequently give you control of a stomach rebellious from venous engorgement, and result in more perfect nourishment of your patient than is possible from any other means I have ever employed.

With these simple means, rest, diet and free catharsis, it is surprising how many cases are relieved from threatening symptoms, and are prepared for a more vigorous treatment which shall restore lost compensation.

Not infrequently, however, our services are first required in cases where failure of compensation has resulted in dropsy. Cardiac dropsy is first manifested by effusion into the cellular tissues farthest from the heart. Beginning in the ankles it gradually ascends to the trunk, then is added ascites, and later hydrothorax. Latest appears edema of the upper extremities, though in some cases this is observed previous to the appearance of hydrothorax. Though dropsy is but a symptom pathologically, it is a therapeutic entity. The indications for treatment are clear. The effused fluid must be reabsorbed from the tissues or cavities and be removed from the body. If this can be accomplished physiologically the effect is much more permanent than when the fluid is simply removed mechanically. Often, however, when all the cellular tissues and serous cavities are distended with serum, it is difficult if not impossible to get a physiological action of drugs until a certain amount of re-

lief is attained by mechanical means. It has been frequently observed that digitalis and all diuretics will fail to act until the dropsy has been somewhat relieved by other means and that after such relief the usual physiological action of a drug, say digitalis, will be manifested and complete the elimination. All three of the emunctories should be acted upon, the skin, the bowels and the kidneys, and usually means can be adopted whereby all three can be simultaneously influenced. If a patient is sufficiently strong the hot-air cabinet bath can be used daily, while on the same day the purgative effect of elaterium is obtained and the kidneys are stimulated to free action by the use of digitalis, squill or the acetate of potassium. The effect of the cabinet bath in my practice has never resulted in anything but good. Elaterium has almost never produced any unpleasant effects, and some diuretic has usually been possible of administration without disturbing digestion. If digitalis disagrees in the ordinary form of the tincture or the infusion, digitalin from a reliable maker can always be used and depended on for effect. If the nature of the heart lesion be such that digitalis is contraindicated, efficient doses of pure caffeine, which is much better than diuretin, will produce good results, or the acetate or bitartrate of potassium in an infusion of juniper berries can be given. In Trousseau's "Clinical Medicine" you will find a prescription for a diuretic wine which is today used in the Hôtel Dieu in Paris, and which presents in a form not unpalatable the combined virtues of squill, juniper, digitalis and the acetate of potassium. It can be made by any pharmacist and has often given me most gratifying results. If combined diuresis, diaphoresis and catharsis fail to give results in a few days, it is advisable to resort to mechanical aid in relieving the distended tissues. Before a resort to tapping is made it is my practice to puncture the skin of the dorsum of the foot and of the leg in many places. This must be done with all the aseptic precautions used in surgery. A sterile skin is rapidly punctured in many places by a sterile needle, and wrapped at once in sterile gauze by a nurse with sterile hands. Under such conditions I have never seen inflammatory reaction, and very recently I have seen a general anasarca so greatly relieved by such practice that Trousseau's diuretic wine with elaterium have completed the elimination of all the effusion in all tissues and cavities so that the woman has gone down town on the street cars and completed her Christmas purchases without distress or great fatigue, though I am free to confess it was without my sanction or knowledge. If these means fail and the peritoneal cavity and the pleural sacs in addition to the cellular tissues are not relieved, it is imperative to resort to paracentesis. In my own practice, almost without exception, paracentesis for cardiac effusion has given only temporary relief. In other words, when the heart lesion is so great, or the muscular power of the heart so little, that with the means discussed no remedial effect is produced, the cavities emptied of fluid by paracentesis will refill more or less rapidly and require repeated operations for temporary relief until the patient's strength is exhausted and death supervenes.

The general condition of the patient under the treatment thus far indicated will almost uniformly improve. The stomach will ordinarily resume its functions, sleep will be possible and an increase of

strength will develop *pari passu*. There is no reason, however, why the subjects of chronic heart disease should be deprived of the advantage of special treatment in case of impaired digestion or of insomnia or of any other intercurrent malady. To aid the complete retrograde metamorphosis of waste matter I have found the systematic administration of oxygen of very great value. If oxygen be deeply inhaled and retained as long as possible before expiration it enters the blood more freely and aids in the oxidation process much more than if simply administered with the inspired air in a haphazard way. Such a use of oxygen for fifteen consecutive inspirations is much more efficient than its repeated administration as ordinarily used. The stimulation of the liver by calomel with soda administered twice a week is of very great value in many cases and particularly in patients who have a tendency to the accumulation in the blood of imperfectly elaborated waste matter or who are the subjects of catarrhal processes in gastric or intestinal mucous membranes.

It remains now to review briefly the means at our disposal other than those already considered for improving the condition of the heart. It goes without saying that a valve once deformed cannot be restored to its normal state. There is a considerable list of cardiac stimulants all of which are of more or less value. It has always seemed to me that a knowledge of how to use effectively the best remedy is of greater value than a wide acquaintance with a long list of remedies of more or less doubtful value. So while I do not minimize the value of sparteine, cactus, convallaria, strophanthus and adonis vernalis, I do find that a careful observation of my results gives me ever increasing confidence in the intelligent use of that prince of all cardiac stimulants, digitalis.

Digitalis strengthens the systole and prolongs the diastole of the heart and increases arterial tension by its action on the vasoconstrictors. It is only this effect on arterioles that is sometimes not desired in chronic heart disease, and this chiefly when athromatous changes have taken place, or wherever chronic interstitial nephritis has developed. A very common pathological sequence is rheumatism, endocarditis and interstitial nephritis. In such cases and in the aged if the temporary stimulation of the heart is imperative, the effect of digitalis on the arterioles can be overcome by the use of nitroglycerin without interfering with the action on the heart. Digitalis is best administered in the form of the fresh tincture, or of the powdered leaves. According to the Pharmacopœia of 1890 eight minims of the tincture is equivalent to one grain of the leaves. The dose must be such an amount as is necessary to produce the desired effect. Seldom will it be necessary to exceed ten grains of the leaves in twenty-four hours, but there are cases in which success can only be obtained by the administration of a few very large doses of this drug. There are cases of cardiac embarrassment which are not due to ineffectual contractions of this hollow viscus, but to excessive action of an hypertrophied organ. Of course in such cases digitalis could but add to the embarrassment, while aconite properly given will quickly equalize the circulation. It might be said right here that the routine administration of digitalis or of any other cardiac stimulant so soon as a cardiac murmur is diagnosed is most pernicious practice. Such drugs are only indicated

in failure of circulatory power, and the amount of fuss made by a heart in accomplishing its task is not the factor which indicates the necessity of any cardiac stimulant. In cases of sudden failure of cardiac power a quicker acting drug than digitalis is needed. Here nitroglycerin, alcohol, ammonia and strychnine are available and will support the heart until the tardier effects of digitalis can be obtained. Strychnine in large doses hypodermatically until improvement is manifest has often saved a life in imminent danger. The dose of digitalis is to be lessened as the heart increases in tone under the influence of rest and increased nutrition until it can finally be omitted; for, like all drugs, a tolerance is finally established and the desired effects in emergencies become impossible in those who have contradicted the digitalis habit. Digitalis is not a drug to be administered continuously and habitually, though its use may be necessary for a considerable length of time.

There are many other methods by which the musculature of the heart can be permanently strengthened. The heart is a muscle. It obeys the laws of muscles. If little is required of it, it works quietly and easily, if more, it increases in bulk and power. The re-establishment of lost compensative power must be the ultimate object of all therapeutics. Exercise increases the tone of muscles. So judicious and graduated exercises will increase cardiac tone. After the critical moments of a failure of compensation are passed successfully by the use of such methods as have been described, the training of the heart must begin. At first gentle massage, then passive exercises, later resistance exercises, and last voluntary exercises, such as driving, then walking, and even bicycling on level streets when patients are already masters of the mysteries of the wheel. The hill climbing recommended by Oertel is of greatest value in training feeble hearts if carefully carried out. Up the hilly streets of our city heart patients of mine and doubtless of other members of this academy daily walk. They mark their daily progress by the houses. They never overstrain the heart by going too far, for they are taught that excess is failure, and that beginning embarrassment of respiration is a sign that return is imperative, and they are indoctrinated with the knowledge that when they go forth they must of necessity return, and return unexhausted, if therapeutic effect of their exercise is expected.

The treatment of the brothers Schott at Bad Nauheim was based upon scientific data. The effect of carbonated baths is stimulating to the nerve centres of the skin and to the general circulation. Combined with the use of graduated exercises, careful diet, and hygienic living it has accomplished much in the cases of those who have been able to carry out this "cure." It can be easily and successfully practised at home, and the baths natural to Nauheim imitated by art in any home possessed of bathing facilities.

The subject of chronic endocarditis must be taken into the entire confidence of his physician. He himself and not some member of his family must be told of his actual condition, for he can do for himself, if he can be brought to an intelligent conception of his condition, what no attendant can do for him. In matters of rest and diet and treatment, if he be resolute in his desires and intentions to recover, he can compel fate itself. If he, on the other hand, through ignorance or self will, cries out against this restriction

or that necessity, he will quickly pay the penalty for transgression, and often by sacrificing life itself.

If, fortunately, a failing compensation be restored, as it can be in very many cases, the patient must be kept under frequent observation, and, though he may attend to his ordinary business, he must understand that excessive demands upon his powers, both physical and mental, are interdicted, and that the very condition of the prolongation of his life is moderation. Life under such limitations is often sweet and desirable.

PERITONSILLAR ABSCESS.¹

BY F. C. COBB, M.D., BOSTON.

PERITONSILLAR abscess is a subject with which we are all more or less familiar. It is a disease usually limited to about a week's duration, very painful to the patient and more or less trying to the physician who punctures it, often with the result of only increasing the sufferings of his patient.

The object of this paper is to urge the use of a little more care and study in the relief of this disease.

The cause of peritonsillar abscess has been much discussed, some authorities asserting that it is due to suppuration in the loose connective tissue around the tonsil which starts *de novo* as does any boil elsewhere. Others believe that it is a symptom of the rheumatic diathesis, while still others think, as does the author, that it results from infection by the germs of acute tonsillitis. Whichever of these views be correct, the observation that it almost always is met with in conjunction with some tonsillar obstruction to the supratonsillar fossa will, I am sure, be granted by most specialists. The anatomy of the parts with reference to the pathology of peritonsillar abscess, has not been very carefully studied, but the consensus of opinion appears to be that it arises in the cellular tissue above, behind or in front of the tonsil. Chiari, however, believes that the abscess is formed in the pharyngomaxillary space, which is bounded by the tonsil, the internal pterygoid muscle, and the palatine arches (McBride). Injection of this space on the cadaver, as was done two years ago by the writer, certainly gives one the appearance of the ordinary peritonsillar abscess. This space also contains the great vessels, but is separated into two portions, an anterior and a posterior, by the stylopharyngeus muscle and its fascia. In the former Chiari believes that the pus forms, and being unable to force its way backward on account of the resistance offered by the stylopharyngeus, pushes forward and inward until it makes its exit through the pillars usually in front of or behind the tonsil.

This theory certainly seems to have some points in its favor, among which may be cited the difficulty or impossibility of obtaining pus without a very deep puncture in many cases, and the curious fact that peritonsillar abscess even when opened successfully through the anterior pillar will very often close, to open elsewhere later. If we assume the pharyngomaxillary space to be the seat of abscess, we have the constrictor of the pharynx with almost horizontal fibres and the anterior pillar, or palatoglossus, with nearly vertical fibres crossing it and forming a barrier through which pus must pass in order to make its exit through the

¹ Read before the Clinical Section of the Suffolk District Medical Society, December 19, 1900.

anterior pillar. If we puncture through these two muscles, whose fibres cross one another, as we should do in lancing a peritonsillar through the anterior pillar, our wound, in order to remain patent, must have its openings in the same relation to one another as they were at the time of making the incision. With a patient gagging and straining this relation is apt to be lost and the incision no longer remains open. That many punctures made through the anterior pillar do close, the period of relief being postponed some hours or days, I believe all would agree, although some cases have been seen to discharge continuously through the opening thus made. It has seemed to me that where pus had forced its way nearly to the surface of the anterior pillar so as to have agglutinated the various layers, we may expect success from puncture in this locality. Whether suppuration occurs in the pharyngomaxillary fossa or in the tissue around the tonsil is still an open question. Examination of pus from peritonsillar abscess yields the bacteria common to pus in other localities, namely, various forms of streptococci and sometimes a few pneumococci.

Diagnosis.—The diagnosis of peritonsillar abscess is usually easy after the first forty-eight hours, the familiar swelling of the soft palate and its one-sided appearance making a picture which it is not easy to mistake. The pain, short duration and violent inflammatory appearances are very characteristic. The cases which most require care in diagnosis are those in which the swelling has lasted some weeks and which are neither very much inflamed nor very painful. The diagnosis between sarcoma of the peritonsillar tissue, syphilis and subacute peritonsillar abscess is sometimes difficult, and a careful history is here of great value, especially as to length of time, previous attacks, pain or signs of lesions or metastases elsewhere. Peritonsillar inflammation is not accompanied by ulceration in any portion of the mouth or tonsil, while gummata or sarcoma are apt to be so associated. Usually in chronic peritonsillar swelling some discharge of pus may be found on careful examination, while puncture, if other means fail, will give us a clue to the diagnosis.

Symptoms.—The first symptom is usually a severe chill, followed by fever and headache and by pain referred to one side of the throat only. The pain is of a dull, throbbing character at first, but as the swelling increases it becomes sharper and more excruciating. Pain in the ear is a prominent feature, due probably to traction or pressure on the Eustachian orifice by the swollen tissues. Interference with respiration in adults is not usually so marked as in children, but deglutition is so painful that the patient often cannot even swallow his saliva, but allows it to run from his mouth rather than make the effort. In bilateral peritonsillar abscess the ordinary appearance is of course changed, as well as the symptoms of pain and throbbing on one side. The palate being evenly swollen presents no contrast; the uvula hangs in the middle line instead of being pushed away from the affected side. But the tonsils when carefully examined show no enlargement beyond the pillars, which ought to throw them into apposition with each other, and the pillars themselves are nearer the median line of the pharynx than usual. In my experience the bilateral condition is a rare one, and even where both sides are affected, one side tends to follow the other rather than to become inflamed at the same time.

Prognosis.—Cases of untreated peritonsillar abscess usually subside through rupture, which commonly occurs between the pillars of the fauces. Their duration is about seven days, although I have records of cases where four days was the average length of time and others where two weeks was the usual one. It may be remarked here that the history of the duration of previous attacks is important in ascertaining the effect of treatment, for if we cannot succeed in aborting an attack in less time than nature usually does it, we gain nothing by operation. Usually the disease is self limited, but several cases are on record where the pus made its way into the posterior portion of the pharyngomaxillary fossa, and so into the mediastinum with a fatal result. Thrombosis of the large veins and pyemia have also resulted.

Treatment.—To abort an attack after peritonsillar swelling has appeared is, in my experience, impossible. When the patient feels an attack coming on, resort may be had to quinine, opium and diaphoresis on the same principle as we adopt to check a cold. Bosworth believes in the salicylates and other antirheumatic remedies, and gives large doses of 13 to 15 grains an hour of the salicylate of soda with a drop of Fleming's tincture of aconite until the physiological effects of numbness and tingling of the finger tips caused by the latter drug begin to appear, when its use is permanently discontinued. Of course drugs like aconite and the salicylates must be administered with great care and under very watchful supervision. Knox, cited by the same author, found this procedure efficacious in 40 out of 50 cases. I have tried the salicylates with much less good fortune, and believe that where swelling of the peritonsillar tissue exists only the knife can give any relief, while the salicylates on account of their depressing influence contribute to the exhaustion which follows this very debilitating disease. When we find the swelling increasing our efforts should be directed to bringing the abscess to a head as speedily as possible. For this purpose hot-water gargles repeated every half hour are as satisfactory as anything which we have used. But it is after the swelling is well under way, or three or four days following the onset of the disease, that we may do our best work in checking the abscess. At this point the general surgeon often lances the anterior pillar without obtaining pus, and even when he is fortunate enough to find it, the wound closes at once and the symptoms within a few hours recur with the same severity as before. In general, one may say that a deep puncture through the anterior pillar seldom remains open, while a shallow one not infrequently does so.

While the swelling is moderate the physician should study the condition of the anterior and posterior pillars of the tonsil with great care. The posterior pillar being behind, the inflamed mass of tonsil and anterior pillar often escapes observation. If swelling of the posterior pillar behind the crypts of the tonsil is present, we should examine it with a probe to assure ourselves whether it fluctuates or is simply swollen and edematous. If fluctuation can be obtained, a puncture, which with the application of cocaine is practically painless, should be made, and a cure results with very little discomfort to the patient. If the posterior pillar be normal in appearance, a slight examination of the anterior will often show a slight bulging at its junction with the tonsils and a very little dissec-

tion under cocaine in order to separate tonsil and pillar will give pus, which with a good-sized opening will discharge continuously. Should there be no signs of pus in either pillar the supratonsillar fossa must be sought as the most probable seat of the suppuration.

Here care must be used in the use of the knife, since the great vessels lie in the pharyngomaxillary space, and instances of death resulting from injuring them in this way are on record. The great vessels lie, however, in a plane posterior to one drawn through the posterior pillars, so that if we avoid penetrating the posterior pillar in the interior of the abscess we are safe from this danger. The arterial supply of the tonsil is derived from the *dorsalis linguae*, the ascending palatine, the tonsillar, the ascending pharyngeal and the descending palatine arteries. Of these the only one of importance is the tonsillar, which is a branch of the facial. All these arteries enter the tonsil from its base, and we may avoid them by passing between the tonsil and pillar. If, therefore, we fail to find pus in either anterior or posterior pillar, we should enter the supratonsillar fossa, taking care not to penetrate further backwards than the posterior pillar. Should pus be obtained a wider opening through the tonsil may be secured. Cocaine should be used, either submucosally or by application to the mucous membrane, in order to make the procedure as painless as possible.

RETROPHARYNGEAL ABSCESS IN THE ADULT.

BY J. L. GOODALE, M.D., BOSTON.

THE case of retropharyngeal abscess which I have to report is of especial interest for two reasons, (1) because of the age of the patient, and (2) because of the demonstration of tubercle bacilli in the pus.

I shall not go into a general account of retropharyngeal abscess, but will simply enumerate certain salient points, before describing my own case: (1) It is quite an exceptional disease after the age of four. In regard to classification, Bokay distinguishes (1) idiopathic abscesses; (2) secondary abscesses from disease of the cervical vertebrae or from the irrigation of pus from a superficial cervical adenitis; (3) septic abscesses; (4) abscesses from trauma. Bokay suggests giving up the old term "idiopathic" and calling the abscesses coming under this head "retropharyngeal abscesses" from retropharyngeal lymphadenitis; thus separating them from the secondary abscesses, metastatic and traumatic, and permitting at the same time definite etiological knowledge. Bacterial invasion of the lymph glands behind the posterior pharyngeal wall will produce pathological changes in these structures similar to those occurring in other lymphoid tissues, giving rise, however, in view of their localization, to characteristic clinical symptoms.

Bacteriological examinations of the pus were made in a large number of cases of acute abscesses by Koplik, of New York, who found in every case streptococci. So far as my search in the literature goes, no case has been reported of tubercular retropharyngeal lymphadenitis in the absence of caries of the spine. Shurley, in his recent book, says that the

statement of some observers that acute retropharyngeal abscess in some cases is tuberculous is unsupported by investigations.

The following case came under my observation June 14, 1900, in the throat clinic at the Massachusetts General Hospital in the service of Dr. Clark. The patient was a waiter, eighteen years old. He gave the history of the development four weeks ago, while in his usual good health, of swelling in the back of his throat, which had slowly increased in size up to the present time, unaccompanied by fever or other disturbances than those due to difficulty in swallowing. The patient was fairly well nourished, moderately pale, but not cachectic. Examination of the throat showed a bulging forward of the whole posterior pharyngeal wall, due to the fluctuant swelling extending downward from the level of the soft palate. The lower limit was not visible and no attempt was made to determine it by palpation. The mucous membrane covering the swelling was essentially normal in appearance. There was no evidence of disease of the cervical vertebrae. A free incision was made with a bistoury into the swelling and about four ounces of pus evacuated. The knife immediately after withdrawal from the abscess was carried to Dr. Wright in the pathological laboratory. Two syringefuls of a bouillon suspension of the pus were injected into a guinea pig. On August 4th, then seven weeks after the inoculation, the guinea pig was killed and showed all the characteristic lesions of tuberculosis. With regard to the subsequent condition of the patient, immediate relief followed the evacuation of the abscess. I have recently written, requesting him to come for examination. Although he has not reported in person, he wrote me November 14th that his throat had been in good condition since the operation and he was otherwise in good general health.

This seems unquestionably a case of tubercular retropharyngeal lymphadenitis, ending in suppuration. No point of entrance for the infection was found.

Medical Progress.

PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND F. J. COTTON, M.D., BOSTON.

CONGENITAL DISLOCATION OF THE HIP.

LORENZ, in a valuable book published in 1900, in the treatment of congenital hip dislocation, considers it as proved that the chief obstacle to reduction lies in the soft parts. The obstruction offered by the shortened muscles, fasciae and tendons can be overcome by mechanical means, but the obstacle offered by the capsule itself is the chief one to be considered in the reposition, and the most important of all the obstacles is a narrow capsular isthmus. The ligamentum teres offers but little obstruction. He considers that the rudimentary acetabulum is not large enough to retain the head of the femur and for this reason the limb must be held for some time in an abducted position after correction, in order that the acetabulum may be moulded into the proper shape. It is necessary that the limb, after correction, should be held in what he calls the primary position, in order to keep the head next to the acetabulum.

¹ Read before the Clinical Section of the Suffolk District Medical Society, December 10, 1900.

But besides this, and more important, is what he calls the secondary position, which involves the throwing the weight of the body upon the head of the femur, by allowing the patient to walk in a required position which brings a strain upon the head of the femur and the rudimentary acetabulum. He considers that the bloodless operation is best performed between the ages of ten and three in single dislocation. The cure cannot be said to be established except after a thorough after treatment. In cases which are too old for reduction the writer recommends a combination of the bloody and unbloody method; that is, the reposition of the head by means of operation without deepening of the acetabulum, and the after treatment according to the principles of the bloodless method. He thinks that preparatory extension is unnecessary in young children; in older children this can be supplemented by subcutaneous tenotomy of the long muscles. In young children the reduction of the dislocation can take place by means of the hand without the help of apparatus, through extension and abduction of the flexed and inward twisted femur. In the more severe cases it is necessary to stretch the limb by using a wedge-shaped padded formed cushion under the trochanter as a fulcrum. The thigh is abducted to 90° gradually by lever movement and the head brought into place. Great care must be used in the employment of this manœuvre. After reduction the limb is best kept in a slightly abducted position, with the limb turned outward. The latter position is desirable in order, by pressure, to increase the strength of the anterior fibrous walls of the capsule, and to present a flat position forward. This apparatus should be worn for four or five months. The possibility of a relaxation backwards may be considered as avoided. When a middle position with flexion and abduction of the secondary position is reached the limb is placed in this position and the apparatus worn for five or six months, the apparatus consisting of a plaster bandage. In the first stage hyperextension is desirable. Active gymnastics are necessary in addition to the correction. In double dislocation the reduction of both hips should be done at the same time in young children.

Lorenz is of the opinion that, for a cure, treatment by means of fixation apparatus is necessary for two years after the reposition.

Kirmisson¹ reviews the subject as a whole. Lorenz earlier claimed his method (the bloodless reduction) as a radical one, but in 1898 recognized that in many cases as shown by the x-ray, his results, though good, were not a true reduction, but a transposition of the femoral head forward.

The list of complications (of all bloodless methods) is large. It includes many fractures of the femoral neck, epiphyseal separations, one fracture of the pubes, a gangrene of the thigh due to obliteration of the femoral vessels by the forward displaced head, and several paralyses of various sciatic branches, fortunately temporary.

As to results of the bloodless method, Lorenz has failed 15 times in 360 cases, and of 135 cases the radiographs of only 79 show anatomically satisfactory results. Hoffa has employed Lorenz's method in 64 cases (22 of these double). In all these the reduction has been successful, but of the 42 unilateral cases only 4 showed permanent reduction. In many others there was sim-

ply a transposition forward. In the bilateral cases the results even less good; never a permanent reduction of both hips; in 4 cases the reduction permanent on one side, transposition on the other; 3 times complete relapse of both; 15 times transposition on both sides with good results. Nineteen times Hoffa has tried Schede's methods. Of 13 unilateral cases he had 1 relaxation; 12 transpositions up and forward. In 6 bilaterals, 1 deluxation and 5 transpositions. Mikulicz's methods Hoffa tried 7 times, 4 cures, 3 improved. Hoffa treated with his own method 17 unilateral, with 9 cures and 8 transpositions; 3 double, 1 cure; 2 transpositions.

Petersen reports 161 cases from Schede's clinic (70 of them bilateral); real permanent reduction in 8 unilateral, in 2 double. Schede and Petersen have come back to Paci's point of view and hope usually only for amelioration—for transposition. Mikulicz, Heusner, Lange and Kummel have become skeptical of results. As things stand, the bloodless method is advisable hardly after ten years; after this, open operation (which has been too much given up). For much later cases subtrochanteric osteotomy often advisable and serviceable.

Kirmisson finishes by reviewing the benefits of fixation following traction, followed for several years and keeping the head forward near the normal position. The displacement is a gradual one favored by motion at the hip and greatly retarded by fixation. Kirmisson is inclined rather to regard forcible reduction as a last resort than as desirable.

Hoffa's² technique includes extension of leg, counter extension from the perineum; incision in front and above trochanter down and back, about 6 centimetres long; the gluteus maximus is drawn upward; the capsule incised with the limbs abducted; the anterior face of the capsule split to the pelvic insertion; dislocate the head; gouge out the new acetabulum; reduce; the wound is not sutured. Hoffa did the open operation 248 times; 10 deaths, none in the last 132. Concludes, always first try the bloodless reduction, if this fails then open operation; most favorable age is three to eight years. After treatment of massage and gymnastics is very important.

Broca and Monchet³ have treated 38 cases of unilateral and 24 bilateral hip luxations at ages from twenty months to fourteen years. All cases treated exactly according to Lorenz's present methods. All cases above ten were failures. Of the 62 cases only 2 proved by the radiograph to be actual reductions. Almost always a transposition of the head forward toward the anterior spine. As to results 15 are called excellent, 25 satisfactory.

Doyen⁴ thinks radical cure only by the open operation. Has devised a special borer to form the acetabulum—this he thinks the most important part of the operation. The actual reduction may need his special retraction hook to replace the head. After operation he abducts and rotates inward. May be necessary to correct rotation later by *supracondylar* osteotomy of the femur.

POTT'S DISEASE.

Bradford⁵ read a report on the subject defining somewhat closely the class of cases where any forcible

¹ Thirteenth International Congress, 1900.

² Loc. cit.

³ Loc. cit.

⁴ Loc. cit.

⁵ Rev. d'orth., 1900, p. 289.

reduction is allowable and defining the aims of retentive and corrective treatment.

Rédard and Besançon have used forcible correction in selected cases with good results and apparent osseous repair in some, about one-quarter in half of the cases a fairly satisfactory result; in the remaining quarter the results were rather poor.

Broca and Monclat have forcibly reduced 40 cases. They do not believe in operating on cervical cases or cases with abscess or with lung complications. In 12 of the 40 correction not actually effected. Are ready to prescribe the operation in all but early cases. Many cases relapsed.

Dueroque⁶ states that in correction of older deformities it is useless to attempt even if correction is possible. In 20 cases operated on two to four years ago the deformity has entirely relapsed. The *rédressement* has hardly any indications save in paraplegia.

Phocas has given up forcible correction for simple extension under chloroform. In 13 cases so treated 6 could not be reduced, 2 relapsed very early, 2 died, 6 had abscesses, only 1 remained definitely corrected. As a result is ready to give up *rédressement* in all its forms for immobilization.

Calot⁷ has nothing to say for forcible reduction today, but much of dorsal decubitus in plaster apparatus and of correction by suspension, especially for paraplegic cases.

Chipault advocates suspension by the feet and application of plasters. Further correction than this he would confine to paraplegic cases.

Piéchaud definitely condemns forcible correction. He has tried it and disbelieves in it and has come back to the use of the dorsal decubitus.

Menard and Guibal⁸ have experimented on spines to produce experimental kyphosis in imitation of that of Pott's disease. Their results are best studied from the figures with which the article is richly supplied, but in general the experiments showed that, (1) in the cervical region destruction of the vertebral bodies is not accompanied by a *proportionate* kyphosis; this is owing to the support of the laminae and transverse processes which come in contact—there is, however, a *total* shortening of the spine at this point, estimated at about one-half, a shortening without much definite kyphosis; (2) in the dorsal region there is no definite hindrance to inflexion except that of the ribs. In fine, the degree of kyphosis here is *proportionate* to the destruction of the vertebral bodies; (3) in the lumbar region the results are intermediate; there is some shortening (one-quarter the height). Up to a certain point the inflexion corresponds to the destruction, but less accurately than in the dorsal region.

Bonquet⁹ reports a case of Pott's disease with abscess in the dorsal decubitus was impossible from pain. The child was put on the belly, with traction from the legs and from a short corset. This kept up for four months and the abscesses healed. On getting up the child, which had previously had a marked kyphosis and a lateral deviation, was practically perfectly straight, and remained so for four months (apparently without apparatus—none is mentioned). Author thinks the child's effort to raise the head (it was a child of eleven years), had much to do with the correction.

ALTERATION OF THE INTERNAL ORGANS IN SCOLIOSIS AND KYPHOSIS.

Bachmann¹⁰ has thoroughly investigated this subject. He has collected a scattered literature of the case. Out of 276 cases there was a total of 666 lesions of the organs of the circulation, with 164 diseases of the heart muscle and valvular lesion. A transverse position of the heart and an unusual position of the thoracic and abdominal organs, with the separation of the esophagus from the aorta, was noted in a number of cases. The causes of death in kyphoscoliosis is chiefly heart failure, and congestive bronchitis with hypostatic pneumonia and hypertrophy of the heart is common. Tuberculosis of the lung is not common in the severer grades of kyphoscoliosis.

Satterthwaite¹¹ has studied the displacements of the heart in scoliosis. He is not disposed to exaggerate the importance of these, but has found displacements present, and moreover has seen prompt amelioration of cardiovascular symptoms as a result of amelioration of the deformity without other treatment.

Counsel's treatment by exercises was modelled on Roth's system.

ORTHOPEDIC CORSETS IN SCOLIOSIS.

Hussey¹² in an interesting and thorough article on the disadvantages of the use of the corset in lateral curvature, claims that any corset is a disadvantage and increases the tendency to rotation and side deviation. This view is opposed by Vulpius, and by Schanz.¹³

Schanz¹⁴ claims that the unsatisfactory nature of the treatment of lateral curvature lies in the lack of thoroughness in the method of treatment, and advises the forcible correction in severe cases, this correction treatment being carried out for four weeks. After this gymnastics and massage should be carefully carried out.

ACUTE OSTEOMYELITIS IN THE REGION OF THE HIP.

Bruns and Honsell¹⁵ say this affection is not common, and the writers have collected 106 cases in the last forty years of the clinic in contrast with 500 cases which have been collected of osteomyelitis of the lower end of the femur. Of these, 12 patients were between one and five, 25 between five and ten, 43 between ten and fifteen, 23 between fifteen and twenty, 2 between twenty and twenty-five, and 1 twenty-six years of age. Males are more frequently affected than females. The affection may begin, and usually does, in the upper portion of the diaphysis. In some cases it is in the upper epiphysis and occasionally may be in the acetabulum. There is a tendency for the cartilage to protect invasion of the joint, but when the upper epiphysis is affected in the severer cases the cartilage may be perforated. This is frequently the case where the acetabulum is affected. More common is the affection of the upper end of the diaphysis, with a separation of the epiphysis of the head of the femur. The affection may, and usually does, cause suppuration and ankylosis. In the severer cases it causes subluxation; in many cases, however, this is not the case. There is less likeli-

⁶ Thirteenth International Congress, 1900.

⁷ Loc. cit.

⁸ Rev. d'orth., January, 1900, pp. 35, 125.

⁹ Loc. cit., 1900, p. 217.

¹⁰ Bibliotheca medica, Abtheilung D. I, II, 4.

¹¹ New York Medical Journal, September 30, 1899.

¹² Zeitschr. f. orth. Chir., 1900, p. 292.

¹³ Arch. f. klin. Chir., Bd. lxi, II, 1.

¹⁴ Loc. cit., II, 4.

¹⁵ Beitr. zur klin. Chir., 1899, p. 41.

hood of shortening after this affection than after the tubercular affection, except in cases of spontaneous luxation. The onset is sudden and the patient is in a dangerous condition at first. After the onset the patient usually comes into a better condition, and improvement follows. The diagnosis between the osteomyelitic affection and the tubercular affection is usually easy, as the invasion of the former is usually acute. In the subacute forms, however, the diagnosis is not easy and must rest largely upon the bacteriological investigation.

Owen¹⁶ gives a special article on osteomyelitis of the femoral neck. It is most common before twenty years. The symptoms are those of osteomyelitis in general, with addition of flexion and adduction of the hip. The prognosis depends on early operation; may be rapidly fatal. Four cases reported. One fatal, died of sepsis after operation. One recovered after long treatment. Two were resected with good functional result.

TUBERCULAR OSTEOMYELITIS OF THE SHAFT OF THE LONG BONE.

Kuttner¹⁷ found only 6 cases of this affection among over 2,000. They are of two classes, the primary affections and the secondary, that is to say, those which extend from an inflamed joint. The primary are extremely rare; the anatomical appearance is varied, and consists either of circumscribed focus or a diffused process extending into the whole of the medullary cavity of the shaft. Either a tubercular bone abscess is formed or very rarely a condition like the spina ventosa of the short bones. The affection may extend to the epiphysis and joints. It usually attacks young children between the ages of two and six years who as a rule are affected by multiple tuberculosis. A diagnosis is difficult on account of the resemblance to the process following acute osteomyelitis.

The secondary osteomyelitis is almost exclusively confined to the shoulder. In Brun's clinic the cases were chiefly in adults, but the affection can also occur in children. Unlike ordinary osteomyelitis, the cartilage is not a complete protection from the invasion of the inflammatory process. The affection is a destructive one.

Ollier¹⁸ adds one to his series of late autopsies, showing end results after subperiosteal elbow resection. This case is of especial interest in that it was performed on an adult for extensive, destructive tubercular disease and that during the eighteen years that had elapsed between operation and autopsy the patient had done hard and exhausting work as a vine-dresser. The range of movement increased with increasing strength till fourteen years later flexion and extension were practically normal, supination two-thirds normal, pronation normal, the strength of the arm in extension over three-fourths that of the sound side. Seventeen years after the operation he had lost a few degrees of extension, but the joint was still firm and strong. The patient died eighteen years after the operation of a generalized sarcoma in the prevertebral region, primary in the clavicle or ribs apparently.

The autopsy showed extremely good reproduction

of the olecranon, and of the V-shaped humeral end into which the forearm fitted. There was no joint cavity, but lacunae in the uniting fibrous tissue and some formation of filocartilaginous plates, especially in the sigmoid cavity.

The case is interesting from its permanence so far as disease was concerned, from the remarkable return of motion with, nevertheless, a firm joint and a notable return of muscular function, even in the triceps.

Most interesting of all perhaps is the light it throws on the conditions necessary for a permanently mobile joint in this form of resection. For seventeen years the patient had subjected his arm to severe, often to excessive, use and the joint had remained supple; six months or less before death he had been unable to work, and in this time the range of extension had decreased from 70° to 25°. So here, as with resections of the older types, there is no joint formed, but a fibrous mass tending always to recontract unless forcibly prevented by use. The case cited shows how perfect may be the result so long, and only so long, as use is constant.

Hibbs¹⁹ has studied the atrophic bone shortening in cases of hip-joint disease, and especially the tibial shortening. Fifty cases were measured. The shortening in both femur and tibia, about the same usually, may be over 3 centimetres each. Exists in 60% of the cases.

RESECTIONS IN SUPPURATIVE COXITIS.

Nelaton²⁰ reports in detail 2 cases of resection in a boy of fifteen and a woman of twenty-six years. The first, after two years of treatment with poor result, was subjected to resection. Persistent fistula; ankylosis not yet complete. Walks, but with a limp. The second case treated a year and a half with fair result—wound closed after five months. Shortening 3 centimetres. No ankylosis. The cases do not present a sufficiently long interval after operation to warrant so favorable a set of conclusions as the author draws.

The chief interest of the article is that the author definitely concludes that the best result to be hoped for in operation of cases even comparatively early is ankylosis in good position. Late excision gives results preferable to conservative treatment, but less good than the desired ankylosis.

TUBERCULAR OSTITIS OF PATELLA.

Gross²¹ reports 4 cases. Age as often above as below twenty years. Symptoms are spontaneous pains day or night, pain on pressure, unevenness of surface of bone, movements little interfered with unless joint is invaded. The pathognomonic symptom is a prepatellar abscess of slow formation, much less mobile than the bursa. Puncture will settle all doubts. The treatment is removal of the disease, with or without resection of the patella, or opening the joint as occasion demands.

He considers 30 cases of primary tuberculosis of patella gathered from the literature.

(To be continued.)

ARRESTED FOR EXPECTORATION IN STREET CAR.—A man has been arrested and held in New York City for spitting in a street car.

¹⁶ Transactions of the Medico-Chirurgical Society of London, 1899, vol. lxxxi, p. 66.

¹⁷ Beitr. zur klin. Chir., 1899, Bd. xxiv, S. 443.

¹⁸ Rev. d'orth., January, 1900.

¹⁹ New York Medical Journal, December 16, 1899, p. 876.

²⁰ Rev. d'orth., January, 1900, p. 27.

²¹ Rev. méd. de la Suisse Rom., March 20, 1900, p. 103.

New Instrument.

A SMALLER SEEHEAR.

BY WILLIAM ROLLINS, BOSTON.

IN A larger form this instrument was described in the *Electrical Review* for February 8, 1899, and in other journals. The instrument contained two principles new in stethoscopes, one a sound chamber, the other a fluorescent screen in connection with such a sound chamber. The former has since been adopted in one of the stethoscopes in common use. The latter awaits recognition. There is an advantage in using both eyes and ears in studying the interior of



the chest, therefore I illustrate here a simple form of the instrument. As I have designed x-light apparatus capable of yielding a powerful x-light under control in quality and intensity, the use of the instrument is not difficult. It is only necessary to use a tube of low resistance, varying the amount of x-light by regulating the current in the primary and the position of the secondary in the space of ether strain, to make the heart or lungs clearly visible to an untrained eye.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOL- OGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting, Wednesday, December 19, 1900,
Dr. V. Y. BOWDITCH in the chair.

Dr. J. L. GOODALE read a paper entitled

RETROPHARYNGEAL ABSCESS IN THE ADULT.¹

Dr. F. C. COBB read a paper entitled

PERITONSILLAR ABSCESS.²

DR. FARLOW: I have seen several cases of retropharyngeal abscess in the adult, but never of tubercular origin unless there was tuberculosis of the spine. Several years ago I was called to see a lady of about fifty, who complained of some soreness of the throat and difficulty in swallowing for a few days. I was much surprised to find a marked bulging of the posterior pharyngeal wall, with elastic, fluctuating feeling to the finger. There was no evidence of tubercular or specific disease and the cause of the trouble was not clear. There was no pulsation, no neoplasm, and it seemed to be a very unusual case of non-tubercular retropharyngeal abscess in the adult. I proposed to make an incision, but was not allowed to do so, and the case passed into other hands. I do not know the outcome.

There is a condition not very infrequently met with which, at first glance, might lead one to think of retropharyngeal abscess, and that is an asymmetrical position of the pharynx. If the pharynx is not directly in front of the vertebral column, the projecting vertebrae may give the impression of an inflammatory bulging, until the examining finger shows that the projecting side of the pharynx is hard and bony.

As regards peritonsillar abscess, I quite agree with Dr. Cobb in not considering a rheumatic origin well substantiated. I am always in the habit of looking about the tonsil and exploring the crypts, and especially the supratonsillar fossa, for some possible seat of infection. I have seen 2 cases recently in which the inflammation was behind the posterior pillar, a most unpleasant region in which to make the incision, especially when one bears in mind the possibility of meeting one of the large, abnormal ascending pharyngeal arteries, which are occasionally found in this situation. According to Dr. Moritz Schmidt, the abscess points in the anterior pillar in 98% of the cases, and in the posterior pillar in 2%. In order to prevent an early closure of the opening and to ensure a better evacuation of the pus, I pass a probe in various directions so as to open up the various pockets of pus, break the trabeculae, etc., and then dilate the opening with a pair of strong forceps. This leaves a gaping wound which is much more likely to stay open than where only an incision is made. This is scarcely applicable, however, when the incision is in the posterior pillar.

A great difficulty in the treatment of many of these cases is the inability of the patient to open his mouth. I have seen 2 cases so severe that chloroform was given to get the mouth open, not only to make the diagnosis, but also to carry out the treatment. Some of the distress is caused by secretion behind the posterior pillar which is tenacious and hard for the patient to expectorate. A warm, alkaline solution sprayed gently through the nose helps the patient to rid himself of this mucus. A hot poultice to the neck is very soothing when pus is forming.

DR. KNIGHT: In regard to the first paper — "Retropharyngeal Abscess in the Adult" — I must say I have never seen what has been considered an idiopathic case. All the cases I have seen have been those in connection with disease of the vertebrae. The general practitioner is liable to mistake not only a congenital deformity of the vertebrae for an abscess, but also what may be the natural prominence. I have had a good many cases brought to me by practi-

¹ See page 108 of the Journal.

² See page 106 of the Journal.

tioners, thinking that they had something abnormal, possibly an abscess, which was nothing but the ordinary prominence of the vertebrae in the centre of the pharynx just behind the uvula.

In regard to the peritonsillar cases it seems to me very unfortunate that even in many modern textbooks on disease of the throat, even by specialists, they are still grouped as cases of tonsillitis, and the two topics more or less treated together. I think it is possible that infection, as Dr. Farlow states, may sometimes come from the tonsil, but peritonsillar abscess is not usually associated with acute tonsillitis, which has a clinical history of its own. Certainly in many cases the tonsils appear healthy.³ Whether it is connected with any diathesis or not, rheumatic or other, is of course still a question. A very large number of observations made at different periods by all kinds of medical men seem rather to confirm this idea, and it is one's experience as he looks back that he sometimes finds an association between this condition and rheumatic conditions. I cannot think it is any evidence against its rheumatic nature that when suppuration has occurred and we have a peritonsillar abscess, antirheumatic treatment, so called, does not affect it. You would hardly expect it to, but whether in those patients who are subject to peritonsillar abscess we do not sometimes abort the thing is a question. Certainly where a patient has an attack of this kind once or twice in the year, and by the use of salicylates or bicarbonate of soda in huge doses, the attack seems to be avoided a good many times, one cannot help feeling that possibly diathesis has something to do with the condition, but the question of abortion of this, as of other diseases, of aborting pneumonia and aborting pleurisy, is always very doubtful, because you do not know what you might have had without treatment. If the condition is sure, if you are sure of an abscess, of course nothing is going to abort it.

In regard to the treatment of these cases, I think on the whole, perhaps a patient is made more comfortable if he has the old antiphlogistic treatment in the beginning. Of course, nowadays, it is not customary to vomit and purge, etc., but purging and aconite, as suggested, do seem to me to make the patient more comfortable. Locally the use of hot water—particularly hot alkaline water—gives the greatest comfort in the removal of mucus from the patient's throat.

In regard to operation, another point comes up. Of course, I suppose everybody has incised a good many times without getting any pus. The question is whether that relieves the patient. It seems in the beginning to relieve. The bleeding seems to give some comfort, and it has been customary with some men to make a good many punctures for the sake of the relief. I think on the whole the patient is more uncomfortable in the end, with three or four punctures and the cicatrices, than if let alone, that is, if no pus is reached.

The question of prevention of recurrent attacks is a very important one. Of course all the ordinary hygienic means are to be established, but locally many physicians have claimed that excision of the tonsil lessens the chance of recurrence. I cannot help thinking that this idea originates largely in the confusion which I have spoken of between tonsillitis and peritonsillar abscess. Of course if the tonsils are very

large they naturally should be excised, but if not large, whether excising the tonsil would make any difference in the origin of the peritonsillar abscess is, I think, doubtful as regards most cases. There is no question but that when a patient is subject to tonsillitis with swelling of the gland, even when the tonsil is small, an excision practised on the tonsil will prevent future attacks, but I doubt whether it would have anything to do with the peritonsillar cases except such as might be infected from the tonsil, as Dr. Farlow suggests.

The proclivity to the disease seems to me to lie in the peritonsillar connective tissue, and that while infection is not necessary from the tonsil or through it, it is more likely to come through than directly from it.⁴

DR. LANGMAD: It is rather singular that it remains for Dr. Goodale to give the first instance of retropharyngeal abscess without curies of the spine in which tubercle bacilli were found, but it seems to me that they might have been found in many other cases had one been as careful as Dr. Goodale was to examine the pus which came from the abscess. That formerly was almost never done and I imagine is rarely done now. With your permission, Mr. Chairman, I will read some notes of a case that comes under one of the headings that Dr. Goodale spoke of, namely, septic retropharyngeal abscess in an adult. It is so rare, at least in my experience, that I was very much interested in the case, and I thought it had some bearing upon the classification which Dr. Goodale read.

On July 10, 1900, Mrs. R., a young married woman, was seen in consultation. She had a history of previous attacks of tonsillar abscess. Had been ill with amygdalitis for one week. Both tonsils have been punctured, but no discharge of pus followed. The wounds on both tonsils are covered with a grayish-white membrane. A small patch of similar membrane is seen on the tip of the uvula. A culture taken during the first days of illness did not reveal the presence of diphtheritic bacilli. There is an external swelling on the right side of the neck. Temperature 103², pulse 100. A poultice to the swelling of the neck and a gargle of permanganate of potash were advised. A culture from the membrane showed staphylococcus, but no Klebs-Löffler bacilli.

On July 11th, temperature 100³; wounds much cleaner, but external swelling greater.

On July 16th I was again asked to see the patient. The external swelling had increased. The right tonsil was pushed forward. The wounds of previous incision had healed and there was no membrane. There was an extensive fluctuating swelling on the posterior wall of the pharynx, confined to the right side. Free incision into the swelling gave exit to a large amount of pus, which continued to flow for forty-eight hours. Complete recovery followed. This post-pharyngeal abscess was caused, I have no doubt, by infection from the puncture of the tonsil.

It seemed to me when I heard Dr. Goodale's classification that that came very well under the heading of a septic retropharyngeal abscess.

⁴ The day after this occasion a lady of twenty-four years came into my office, who had formerly been very subject to peritonsillar abscess. Her tonsils had been very large and they were thoroughly excised last winter in another city (the remaining tonsillar tissue was not dug out), and the following spring she had the first peritonsillar abscess in six years. This experience recalls Swain's suggestion that the function of the faucial tonsil may be to destroy pathogenic germs entering the mouth with the ingesta.

³ Of course, as Dr. Goodale suggests, infection may take place through a healthy tonsil.

Everything has been said, so far as I know, with regard to the causation of retropharyngeal abscess, but it is possible, it seems to me, that a lesson may be learned from this case with regard to early puncture of the tonsil. For some years I have refused to puncture the tonsil in the first days of amygdalitis. The patient demands it, and the tendency is to put a knife in somewhere and draw a little blood. Temporarily the swelling is decreased and the patient feels better for a time, but it is possible that wounds so made may become infected. That it is rare we know, but it is possible. It seems to me, so far as my own experience goes, it is not very common that one needs to explore very much to get pus. When it is time, ordinarily, some fluctuating point is found and the abscess can be evacuated, but I can imagine cases in which it would be allowable to go upon dangerous ground to relieve the very great swelling, dyspnea or apnea which might ensue.

Dr. Knight has spoken about the recurrence of tonsillitis. It has always been to me a very singular thing how regularly some people have an inflammation of the tonsil, even more than that, a peritonsillar abscess, and is it not for that reason perhaps that a dyscrasia is suspected? For a good many years, in those who had recurring attacks at about the same season of the year, I have tried to do what I could in the way of advice that the patient might avoid the attack by means of treatment of some condition which he recognized as preceding or accompanying these attacks. Whether they have or not it is impossible to say, my experience is so small.

Dr. Coolidge: Retropharyngeal abscess in the adult is certainly a comparatively rare condition. I do not think I have seen a case for four or five years in a large out-patient clinic. I think that what Dr. Knight said about the lack of good description of peritonsillar abscess in our textbooks is very noticeable. There should be, but there is not in these books a detailed description of the anatomy of the tonsillar region. The anatomy is quite complicated and almost nothing is said about it. Several years ago His described the supratonsillar fossa and also the other structures in connection with it, especially the plica tonsillaris, a fold of membrane which can be demonstrated in almost every throat in which the tonsils are enlarged. This plica varies very much indeed in different throats. Sometimes it is very large and includes a large part of the tonsil as if in a sling, so that, although the tonsils are large, the crypts are seen only over a small area. In other cases it is small. Three or four years ago Paterson and I, think, Killian called attention to this supratonsillar fossa as a possible source of a good many morbid conditions of the tonsils.

We have all noticed the differences in the appearance of large tonsils. Sometimes we see a pair of tonsils which project into the throat, free from adhesions, with the openings of the crypts visible over almost the whole surface of the tonsil, in which the guillotine or wire snare will embrace and enucleate the whole organ. In another case the tonsils may be quite as large, but so bound down and adherent to the anterior pillar in front and the posterior pillar behind that it is utterly impossible to get a guillotine around them on account of these adhesions. To remove them they must be dissected out or attacked with the tonsillar punch or galvanocautery. This

same difference we find in smaller tonsils, that is, the difference in adhesions to the surrounding structures. In case of peritonsillar abscess we almost always find a tonsil pretty firmly adherent to these different structures in the neighborhood.

As to the etiology of peritonsillar abscess, it seems to me that we have seldom any evidence of rheumatic or other general constitutional condition as a cause. As far as I have been able to learn from patients, we find no more history of rheumatism in cases of peritonsillar abscess than in anybody else, neither do many cases markedly rheumatic have attacks of peritonsillar abscess. But this we notice: One patient will have recurring peritonsillar abscess on the right side, perhaps twice a year or at irregular intervals, and the left side never be affected. It is impossible to believe that one side has any different diathesis from the other. It seems to me that this history, which is extremely common, points to some anatomical defect or local condition as the cause of the recurring abscess rather than any general conditions. The local cause it is impossible in most cases to make out. Sometimes the tonsil is large, sometimes small, adherent and hard, sometimes not. Generally the tonsil is pretty well bound down to neighboring structures.

As to the question of abortion of peritonsillar abscess, a certain number of cases—I am inclined to think they are larger in proportion to the total than we perhaps think, because they do not all apply to us for treatment—will undoubtedly spring a leak, as it were, after the suppurative process has been going on for a few days. A case will start in with pain on one side of the throat. The patient knows what it is, for he has laid up for days with peritonsillar abscesses in the past. It gets worse for a few days and then begins to get better. Every now and then on inspection we find a drop of pus oozing out somewhere, which in the course of another day or two would entirely empty the abscess.

The study of the anatomy of this part is extremely important, and the knowledge of the probable position of pus will help us to get at it. I feel that we do not yet know enough about the probable seat of pus to attack the right place as often as we ought to. These cases are hard to examine. The patient perhaps cannot open his mouth, everything done is painful, and it is not possible to study the part carefully. I have noticed that after an abscess has been opened through the anterior pillar and pus evacuated, a probe with a sharp curve passed in the direction of the supratonsillar fossa can often without much force be pushed through into the supratonsillar fossa. The discomfort to the patient is often less than the original puncture in the pillar. Abscesses rarely open spontaneously through the anterior pillar, almost always the pus comes out somewhere around the tonsil.

As to the prevention of peritonsillar abscess, I believe that almost all cases are due solely to some anatomical fault in the tonsil or neighborhood of the tonsil, some spot perhaps becomes infected and the natural outlet closed so that the septic process works back. Prevention seems to me to consist in getting rid if possible of that anatomical fault. The first thing surely is to get rid of the tonsil, and although I have not been able to follow many cases to ultimate conclusions I feel if we can clear out the whole tonsillar region of all glandular masses that we have done the

best for preventing the return of peritonitis. We may not at first in dissecting come across the place where infection enters.

DR. J. PAYSON CLARK: I was very much interested in this case of retropharyngeal abscess, which we had at the Massachusetts Hospital throat clinic last June. One or two points about it, as I remember the case, I think Dr. Goodale did not perhaps sufficiently emphasize. The case presented many of the characteristics of a cold abscess. There was no pain or other evidence of a local inflammatory process, but the abscess had the appearance of a hemispherical tumor, rising abruptly from the surrounding pharyngeal wall and differing in that way from the ordinary retropharyngeal abscess we see in children, which usually appears as a pushing forward of half or all the posterior wall. It stood out as a distinct localized tumor, and I should have said to one side of the pharynx rather than involving the whole posterior pharynx. Dr. Goodale took charge of the examination of the pus and I am glad that he has reported the case.

As to the rarity of these cases, I took the trouble to look over the books of the throat department, or rather our reports for the past twelve years since January, 1889, and I find there have been during that time 18 cases diagnosed as retropharyngeal abscess. Of these 6 were in adults, 5 men and 1 woman. In one of these adult cases the inflammation was spoken of as phlegmonous and in another it was thought to be a broken down gumma.

I have very little to add to the discussion of Dr. Cobb's paper. As regards treatment, I have opened the peritonsillar abscess in all the ways spoken of, by going between the anterior pillar and tonsil, going through the tonsil itself, and going through the anterior pillar; also in those cases, which I think are quite rare, where the abscess is in the posterior pillar, opening that. The first two methods are in every way the most satisfactory if the abscess cavity can be reached by them. I should like to emphasize what Dr. Farlow said about going into the abscess cavity with a probe and breaking up any little trabeculae that may be there or opening up any separated pockets, and also the use of the forceps to dilate the opening. In this connection I wish to say that I think the thorough evacuation of the abscess cavity at the time the opening is made is very important. If one gets rid of all the pus one can, I think there is much less likelihood of a refilling of the abscess cavity, which does sometimes occur in spite of all that one can do.

DR. CHEEVER: I have not seen any retropharyngeal abscesses except in connection with caries of the spine. I have seen but few, and they have all ways been cold abscesses. I think relief is given by opening, though I doubt if they close very soon, as almost any cold abscess connected with caries of bone results in a long-continued sinus. Psoras and lumbar abscesses are intolerably long; they sometimes close by gradual inspissation of the pus and shrinking up after a while, sometimes they do not. The retropharyngeal abscesses I have seen have been painless, and interfered mechanically with swallowing.

With regard to the abscess about the tonsil, the most interesting question to me is, what can be done, if anything can be done, to prevent recurrence. There are

certain persons who have them over and over again. I have had as a patient a good many years a young man who rarely escapes a winter. Sometimes he goes two years, but generally has one every year when the seasons are breaking up towards spring. The last time he had follicular tonsillitis combined with the abscess, which I think is rare. The tonsillitis did not get better, the patches became large; I became alarmed about him; took a culture from the throat, and told him I might have to remove him from his hotel. The culture was negative, and the next day the whole region had swollen up and an abscess rapidly developed; and then the peculiar grayish look about the tonsils and palate, as well as the follicular points, gradually went away after evacuating the abscess. All my professional life I have had the care of a strong Irishman and have seen him frequently. During many years he had peritonsillar abscesses. I have opened a great many. He had no other sickness; never has been sick. I did not succeed in preventing them at all, but he came one day and said he had found a way of stopping them, and certainly it did seem to have a good deal of effect; not by any constitutional treatment, but local treatment externally by rapid blistering on the outside of the neck whenever he felt any symptom arise. This was followed by relief and no abscess. Of course it is always open to the doubt whether the abscess was about to form, but he was quite confident that he averted them. At any rate he went several years without any under this treatment. This treatment was harsh. He was in the habit of tying the throat up with kerosene oil, and the blistering was rapid and intense. As he grew older he ceased to have the attacks. He is now a man of perhaps sixty years old, and has not had any since he was forty-five or fifty. I am inclined to think the progress of age gradually does away with the tendency to inflammations of the cellular tissue. I have always felt great anxiety about these peritonsillar abscesses with regard to the nutrition of the patients, and with regard to affording them some comfort. They cannot swallow and cannot sleep. I have usually been afraid to give opium, and I have not had very great luck with cocaine; although sometimes if you paint the throat with a solution of cocaine, it seems as if they could drink a glass of milk afterwards with comparative ease.

In old times this affection was called quinsy, and you find in the old books as far back as the time of Cullen, and others, accounts of double quinsy followed by death. I do not remember to have heard of a death in this neighborhood, but there are very well authenticated cases in the old books where a double abscess has been followed by death, probably due to suffocation, and before the days of tracheotomy. As Dr. Knight says, I think these abscesses are benefited by saline cathartics. I have often been tempted to put leeches on the outside of the throat. I have seen other inflammations of the throat, threatening edema of the glottis, aborted by copious leeching.

DR. FARLOW: With reference to the lessening tendency to peritonsillar inflammation as patients get older, it is to be borne in mind that after the age of thirty-five or forty the tonsils naturally atrophy and become more fibrous, so that there is less likelihood of the crypts containing cheesy masses and germs which may act to start up a peritonsillar inflammation.

With reference to excision of the tonsil to prevent a recurrence of the inflammation, a mere removal of a portion of the tonsil, even down to the anterior pillar, may be of no great value. The diseased tonsillar tissue, the deep-seated crypts, should be thoroughly removed. This may be no easy matter and is not so well done with a guillotine as with a punch or some similar instrument, which can dig out the tonsil behind and between the pillars.

I have had much better success in preventing recurrence in this way than by the use of antirheumatic or other internal treatment.

DR. E. A. CODMAN: I have brought two x-rays which may perhaps interest the gentlemen in regard to the diagnosis of retropharyngeal abscess. One shows the side of the normal neck with the cervical vertebrae and outline of the pharyngeal wall; the other shows a case of cervical caries with the outline of the pharyngeal wall displaced by a retropharyngeal abscess or mass of inflammatory tissue.

DR. KNIGHT: I should like to ask if Dr. Coolidge would give us to understand that he has had a good many cases of recurrent form of peritonsillar abscess occurring in young subjects in whom you would have every reason to expect the continued recurrence, but in whom the attacks had entirely ceased after the removal of the tonsillar tissue?

DR. COOLIDGE: These cases are very hard to follow. They generally do not come back unless there is something the matter with them. I know of a few cases who have been free from it for some time after the digging out of the tonsil who before that had more or less frequent recurrences.

DR. KNIGHT: I would like to ask Dr. Coolidge if he feels that all cases originate from the tonsil?

DR. COOLIDGE: Not necessarily from the tonsil itself, but from the immediate neighborhood, some septic process between the pillars.

DR. H. F. R. WATTS: I have not heard it mentioned this evening whether or not it is common for abscess of the neck to occur in connection with peritonsillar abscess. I want to speak of a case I saw some months ago. A man who was not in the habit of having peritonsillar abscess came with a beginning one. There was not a fluctuating tumor, but there was the characteristic pain and edema of the pillars. I incised directly through the tonsillar substance. The tonsillar substance was fibrous and brawny. At a depth of about one-half inch I reached pus. It discharged a few days and he was better. He ceased to come back for about a week, then came and said it had stopped discharging in the throat a day or two after I last saw him, and he then began to have a swelling in the neck. He had a large abscess, directly subcutaneous, over the sternomastoid and extending around to the median line and pretty nearly to the sternoclavicular notch. This was opened and a large quantity of exceedingly foul pus discharged. The whole thing kept him laid up about a month.

DR. GOODALE: I wish to say a word or two in regard to the etiology of these two forms of abscess. About three years ago I did some work on the power of the tonsil to absorb foreign substances in a state of minute subdivision when brought in contact with the walls of the crypts, and I found they went in very readily. I was urged by some pathologists to repeat the experiments, using harmless bacteria, but I thought that such an investigation would probably be misin-

terpreted by the laity and did not do it. I have just seen in the *Italian Archives of Laryngology* for May, 1900, that this has been done in Italy. The bacillus prodigiosus was brought in contact with the walls of the crypts of the tonsils, and made its way in very readily, not only into the interfollicular spaces, but into the interior of the follicles. On dogs the experiment was tried with virulent streptococci which penetrated even farther, that is, got into the extratonsillar lymph spaces immediately external to the capsule of the tonsil. It seems to me that these results may possibly answer Dr. Knight's objection to the idea of a tonsillar origin of peritonsillar abscess. I understood him to say that very often the abscess occurred without previous tonsillar inflammation. As has been shown here, virulent streptococci can make their way through the tonsil, apparently without giving rise to inflammation into the extratonsillar tissues, in which situation they may produce the abscess under discussion. A similar penetration of the lymphoid tissues of the fauces or pharynx by tubercle bacilli would explain the development of a tubercular retropharyngeal lymphadenitis in the absence of spinal caries.

DR. COBB: One object in reading this paper was in order to show that the puncture in the point of election through the anterior pillar has not in my experience been found very satisfactory. I am convinced that if the pus happens to be near the surface of the anterior pillar the point of election is the most satisfactory place, but if the pus is at all deep it seems to me it is not.

With regard to prevention I have said very little, but it has seemed to me in the few cases we have had a chance to watch at the hospital, in which the tonsil was as thoroughly removed as possible by punches, etc., used between the pillars as far as we could get, that the result rather moderated the number of abscesses, but did not stop them entirely.

Dr. Coolidge spoke of adhesions between the tonsil and the pillars being almost always present in these cases. It seems to me that that is quite true, and yet it is only this morning that we had a case of recurrent peritonsillar abscess not in an acute stage which had very large tonsils, and I think Dr. Coolidge will recollect we took them out with a snare, and the surface was absolutely smooth and glistening and without any adhesions. Removal of the tonsil by the usual method is not preventive of abscesses, but enucleation offers the best chance for success.

THE AMERICAN PHYSIOLOGICAL SOCIETY.

THIRTEENTH ANNUAL MEETING, HELD IN THE PHYSIOLOGICAL LABORATORY OF JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD., DECEMBER 27 AND 28, 1900.

(Continued from No. 4, p. 93.)

SECOND DAY.

FURTHER OBSERVATIONS ON EPINEPHRIN.

This paper by DR. J. J. ABEL was read by DR. R. HUNT.

A recent paper by Moore and Purington criticises the conclusions drawn by Professor Abel from his experiments on epinephrin, on the ground that the purified epinephrin compounds prepared by Abel from the

suprarenals do not show physiological activity proportionate to that exhibited by crude extracts of the glands. In this report it is shown that these preparations of epinephrin have a much greater effect on blood pressure than do the so-called "crude extracts" used by Moore.

The extracts used by Moore, however, were not crude, since the coagulable proteins and substances precipitable by lead acetate had been removed. Furthermore the injection of 5.7 millionths of a gramme per kilogramme of dog's body weight is found to give a rise in blood pressure equivalent to that obtained by Moore after injection of 24-108 millionths of a gramme of "crude extract." The minimal amount of "crude extract" necessary to produce a rise in blood pressure is, according to Moore, 1.2 millionths of a gramme, while the same effect may be accomplished by .45 millionths of a gramme of the pure epinephrin.

The fall of pressure which Moore observed when extremely dilute extracts were used is probably due to impurity. Attention is also called to the fact that if the rate of injection be too rapid, a rise of pressure may result from the injection alone.

It is also found that epinephrin solutions on standing become inactive, as the result probably of rearrangement of the molecular constitution.

FURTHER INVESTIGATIONS ON THE BLOOD-PRESSURE-LOWERING BODIES IN THE SUPRARENALS.

This paper was read by DR. R. HUNT. The earlier investigations by Dr. Hunt have shown that along with the blood-pressure-raising substance in the suprarenals, there exists a substance which lowers blood pressure and which may be separated from the former by treatment with benzoyl chloride. Last year he suggested that this substance might be choline. It is now shown that, while choline is contained in these preparations, another body is present which, unlike choline, forms a compound with mercuric chloride insoluble in cold water. It also differs from choline in giving a fall of blood pressure when injected into an animal already treated with atropine. The substance yields choline on decomposition. It may therefore consist of a glycerophosphate of choline arising from the breaking down of lecithins or jecorin. That it can be neither of these substances is shown by its insolubility in alcohol and ether. A substance which possesses the same properties is found to exist in brain extracts containing large quantities of the decomposition products of lecithin and jecorin. The toxicity of this substance is much greater than that of choline.

An indication of its possible pathological significance lies in the suggestion that it may be the precursor of the choline which is to be found in the cerebrospinal fluid in cases of general paralysis.

PHYSIOLOGICAL STUDIES ON THE BLOOD TANK FROM ANIMALS DEPRIVED OF THE ADRENALS.

DR. I. LEVIN read this paper by title.

DRS. L. B. MENDEL and E. C. SCHNEIDER presented a paper entitled

FURTHER EXPERIMENTS ON THE EXCRETION OF KYNURENIC ACID.

Jaffe's observation, that the excretion of kynurenic acid is diminished by feeding intestinal antiseptics, has led him to the belief that this substance, which is nor-

mally present in dog's urine, owes its origin to the formation of quinoline in the intestine as the result of putrefactive processes. The feeding of iodoform, however, does not have this effect. The probability is therefore suggested that kynurenic acid arises from the profound cleavage of proteid either as the result of digestive decomposition or of starvation.

In a number of experiments on fasting dogs, kynurenic acid was invariably found in the urine. Baumann's experiment, showing that after prolonged starvation, accompanied by the administration of calomel, kynurenic acid is still eliminated, was successfully repeated. This treatment, however, causes complete disappearance of all traces of intestinal putrefaction — that is, combined sulphuric acid — in the urine.

In phosphorus poisoning it is found that the increase in the amount of kynurenic acid excreted runs parallel with the increased katabolism of proteid. Observations on its elimination after removal of the spleen show that that organ plays no part in its formation.

Experiments were also made which show that the decrease in excretion of kynurenic acid which follows feeding of thymus glands is not due to the antiseptic action of nucleic acid, as Jaffe supposed, but to the fact that the decomposition of the proteid of the thymus does not yield kynurenic acid, that they behave in this respect like gelatine, chondrin and elastin.

DOES MUSCLE CONTAIN MUCIN?

This report was read by DRS. G. A. FRIED and W. J. GIES. It is designed to show something of the nature of the substance separated from muscle connective tissue by Schepilewsky and called by him mucin, but which has recently been found by Goodman to consist neither of mucin nor nucleoproteid, but of a substance comparable to von Hellingren's "stroma substance."

Experiments show that extraction of muscle connective tissue with lime water or baryta water separates a substance which is precipitated on neutralization or faint acidification, but which, unlike mucin, is soluble in a weak excess of acid. Further extraction with 5% solutions of NaOH or KOH of the residue left after such treatment yields a substance which is also precipitated by neutralization but which dissolves in a slight excess of acid. Analysis of these products shows that they correspond closely to the substances separated by Schepilewsky and by Goodman, and probably consist of alkali albuminate formed by the action of the extractive fluids.

The results also show that the presence of mucin in muscle cannot be determined by such methods as have thus far been employed.

DRS. A. N. RICHARDS and W. J. GIES contributed a paper entitled

METHODS OF PREPARING ELASTIN, WITH SOME FACTS REGARDING LIGAMENT MUCIN.

The presence of a mucin-like substance in ligament was reported by these observers a year ago. Closer study of this body proves that it is identical with mucin in all its properties. The average of analyses of five preparations shows that it contains 13.4% of nitrogen, and 1.6% of sulphur, of which 1.06% exists in ethereal combination.

The question was also asked as to whether the approved method for the preparation of elastin from

ligament is adequate for the removal of mucin and coagulable proteids. Three preparations of elastin were made, in which the finely divided ligament was subjected to thorough preliminary extractions with lime water and distilled water for the removal of these substances. In four other preparations this treatment was omitted. To determine the presence of mucin and coagulable proteids the final products were analyzed for sulphur. The preparations from which these substances had not been removed contained .2% of sulphur, a portion of which is easily split off as K_2S by boiling with KOH; while the sulphur in the elastin which had not been subjected to the preliminary extractions amounted to .15%, all of which is firmly combined. These figures include the sulphur of the ash, which amounted in all preparations to .11%.

Data were also given regarding the distribution of nitrogen in the decomposition products of elastin. Decompositions according to Schultze's method were made on three samples of elastin with closely agreeing results. The average of these results shows that 2% of the total nitrogen is split off in the form of ammonia, 2.8% as organic bases, namely, arginin, lysin and histidin, and 95.4% as amido acids. These figures support the assertion of Kossel and Kutscher in opposition to Bergh and Hedin, that arginin and lysin may be obtained on decomposition of elastin.

ON THE OCCURRENCE OF LIPASE IN THE BODY, AND ITS REVERSIBLE ACTION.

DR. A. S. LOEVENHART read this paper by invitation. To determine the presence of lipase the hydrolysis of ethyl butyrate into ethyl alcohol and butyric acid is employed. On examination of the various tissues of the body, lipase was found to be present in many, the relative amounts being represented by the following table:

Pancreas	1
Liver	2.93
Intestinal mucosa . . . . .	.75
Kidney . . . . .	.50
Submaxillary glands . . . . .	.38

The suggestion is offered that the utilization of the body fat during inanition is brought about through the action of this enzyme, the fat being hydrolyzed by lipase and so transferred to the blood and lymph.

The fact that maltose has been shown to possess a reversible action, being capable of transforming glucose into maltose, as well as maltose into glucose, has led the author to the study of the effect of lipase on solutions containing mixtures of ethyl alcohol and butyric acid. It is found to have a decided action on these substances, transforming them into the neutral ethyl butyrate. The extent of its action in this respect is dependent on the relative amounts of these three substances in solution; its activity ceases when equilibrium is reached.

The application of these observations to the other enzymes may lead to most important results regarding their action. It is possible that the glycolytic function of the tissues is due simply to a reversal of the process of glycogenesis.

DRS. WALTER JONES and JOHN AYER presented a paper

ON THE OXIDATION OF NATIVE PIGMENTS.

The black pigment from the horse's tail was dissolved in very dilute caustic soda and a 2% solution

of potassium permanganate added in successive portions until a further addition would presumably have imparted a permanent pink tinge to the solution. The solution was then acidified strongly with HCl and treated with barium chloride. After filtering off the precipitate formed, the amber-colored filtrate was nearly neutralized with caustic soda, the resulting bulky precipitate being allowed to stand some days in contact with the liquid. Part of this precipitate is light and flocculent, while another part is heavy and crystalline, so that an easy separation of the two substances was possible.

The flocculent portion was shown to consist of a series of barium salts of varying color and solubility in dilute HCl, while the granular portion was found by analysis and chemical reactions to be a mixture of oxalic and malonic acids. These substances obtained in relatively large quantity undoubtedly represent largely the molecule of the original pigment.

The work indicates that the benzene nucleus plays a much less important part in the pigment molecule than was formerly supposed, and that the essential part of this molecule is probably an unsaturated fatty acid derivative.

DR. L. B. MENDEL gave some

OBSERVATIONS ON THE PRODUCTS OF PAPAIN AND BROMELIN PROTEOLYSIS.

The exact nature of the products formed by the action of enzymes of vegetable origin have not received sufficient study to enable us to tell whether one or several types exist. For this reason the author has investigated papain, the proteolytic enzyme of the *Carica papaya*, which has usually been regarded to be closely related in its action to trypsin.

It is found that papain preparations show proteolytic activity in both alkaline and slightly acid media. The primary products of proteolysis, carefully studied in the case of casein, correspond quite closely with those obtained by F. Alexander from peptic digestion. Leucin, tyrosin and tryptophan were not detected in any digestion where the influence of bacteria or bacterial enzymes was excluded.

These observations indicate that papain differs from known proteolytic enzymes of animal origin, and also from vegetable enzymes like bromelin, which readily forms leucin, tyrosin and tryptophan even in acid media.

ANALYSIS OF SOME NUCLEIC ACIDS.

DR. P. A. LEVENE read this paper. The older methods for the separation of nucleic acids from tissues are very varied and each is applicable to only one tissue. Accurate comparison of the different nucleic acids is therefore impossible. The method devised by the author and published by him last year is applicable to many tissues and so affords a basis of comparison.

Paramucleic acid from the egg yolk (vitellinic acid) made by this method agrees very closely with that from codfish eggs (ichthulinic acid), as the following figures show:

Vitellulinic acid	C 32.31, H 5.58, N 13.13, P 0.38
Ichthulinic acid	C 32.56, H 6.00, N 14.00, P 10.34

Nucleic acid, prepared from the pancreas by this method, was also analyzed. The figures obtained differ from those obtained by Bang on his so-called guanilic acid from this gland, but agree very closely

with Schiemedeberg's analysis of nucleic acid from salmon sperm, and Osborne's figures on the nucleic acid from the wheat embryo.

This nucleic acid from the pancreas conforms to all the ordinary solubilities of nucleic acid and on its decomposition yields guanine and adenine. Bang's guanilic acid, on the contrary, possessed peculiar solubilities and only guanine was found after decomposition.

These facts give positive value to Dr. Levene's work, since they show that a body belonging to the ordinary type of nucleic acids may be separated from the pancreas, and give further proof that no form of nucleic acid is to be distinguished by yielding only one of the nuclein bases on decomposition.

Analysis of the nucleic acid from the bacillus tuberculosis showed that it contained 29% of phosphorus, the largest amount yet obtained in any nucleic acid.

The interesting observation was also made that large amounts of glycogen are to be found in the bacillus tuberculosis as well as in the pancreas.

A FURTHER STUDY OF THE GLYCOPROTEID IN BONE.

DRS. P. B. HAWK and W. J. GIES read this paper. This constituent of bone discovered by Dr. Gies, and designated by him as osseomucoid, has been subjected to a closer study with the following results. Analysis of many preparations show slightly varying results. The analysis of their purest preparation, however, gives the following composition:

C 46.41, H 6.76, N 12.08, S 2.04, O 32.71, S as ethereal sulphate 1.08.

The composition of Mörner's chondromucoid from cartilage is as follows:

C 47.30, H 6.42, N 12.58, S 2.42, O 31.28, S as ethereal sulphate 1.72.

Comparison of these figures shows that osseomucoid contains more hydrogen and oxygen than chondromucoid, and correspondingly less of the other elements; a relation which may have much morphological as well as physiological significance.

DRS. J. E. KIRKWOOD and W. J. GIES read a paper on

CHANGES IN THE COMPOSITION OF THE COCOANUT DURING GERMINATION.

In studying the germination of the coconut, the fresh nuts were kept at a tropical temperature on moist earth for one year. At the end of this time a stout plumule had appeared, about two feet in height, and a number of roots had pushed through the softened outer husk and had taken hold in the soil. The milk cavity of the ovule was completely filled with the fully developed cotyledon, which had absorbed a large portion of the endosperm. The nuts were in this condition when used for analysis.

Considerable quantities of a diastatic ferment and traces of a proteolytic ferment were found in the cotyledon. No cellulose-dissolving or fat-splitting enzymes have yet been detected.

Interesting data were presented, representing a large number of analyses, to show the relative distribution of water, solids, inorganic matter, and nitrogen in the roots, stem, leaves, cotyledon and endosperm of the germinated as compared with the ungerminated nut.

A NOTE ON THE USE OF A SATURATED SOLUTION OF MAGNESIUM SULPHATE FOR PREVENTING THE COAGULATION OF BLOOD IN BLOOD-PRESSURE EXPERIMENTS.

THE PHYSIOLOGICAL ACTION OF THREE POISONOUS MUSHROOMS, AMANITA MUSCARIA, A. BULBOSA OR VERNIA, AND A. PHALLOIDES.

DR. W. S. CARTER read the above papers by title.

At a business meeting held at the close of the session on Thursday morning, the following were elected to membership: Prof. F. G. Novy, University of Michigan; Dr. I. Levin, New York City; Dr. A. N. Richards, Columbia University; Prof. G. H. Parker, Harvard University; Dr. Yandell Henderson, Yale University; Dr. Horst Oertel, New York University and Bellevue Hospital Medical College; Dr. S. I. Franz, Harvard University; Dr. Holmes C. Jackson, Yale University; Dr. R. S. Woodworth, New York Hospital and Bellevue Hospital Medical College; Prof. C. W. Greene, University of Missouri; Dr. P. M. Dawson, Johns Hopkins University; Prof. C. A. Herter, New York University and Bellevue Hospital Medical College; Dr. A. J. Wakeman, New York City; Dr. J. T. Halsey, McGill University; Dr. W. H. Parker, Harvard University; Dr. W. B. Cannon, Harvard University.

Recent Literature.

The Present Position of the Treatment of Simple Fracture of the Limbs. By WILLIAM H. BENNETT, F.R.C.S., Senior Surgeon to St. George's Hospital, etc. London, New York and Bombay: Longmans, Green & Co. 1900.

This brochure of 41 pages is a reprint,¹ after revision, of an address delivered by its author in opening a discussion at the meeting of the British Medical Association of August, 1900. It is the result of an analysis of data furnished by three hundred selected surgeons of London, Ireland, Scotland and the Provinces. The subject of early movement in the treatment of fractures; the operative treatment of simple fractures of long bones, the patella, and olecranon; the disability resulting from fractures, and the ambulatory treatment of fractures are in turn discussed. Finally the writer's conclusions are concisely stated.

In an appendix is presented a summary of the data from which Mr. Bennett has written his monograph. The surgeons from whom they were obtained are all members of the senior staffs of hospitals, having not less than one hundred beds, or practitioners doing extensive work among coal miners or sailors. The data have been tabulated in various ways. The monograph is well written. It is an interesting discussion of an important subject. It is valuable on account of its statistical information culled from such a wide field, and the manner in which it has been considered and tabulated. It represents the results of thorough, careful, painstaking investigation (except perhaps as regards ambulatory treatment). It is a contribution of merit and one deserving of study.

¹ British Medical Journal, October 7, 1900.

On the Use of Massage and Early Passive Movements in Recent Fractures and other Common Surgical Injuries, and the Treatment of Internal Derangements of the Knee Joint. By WILLIAM H. BENNETT, F.R.C.S., Senior Surgeon to St. George's Hospital, etc. Pp. 97, with 12 illustrations. London, New York and Bombay: Longmans, Green & Co., 1900.

This little book comprises three clinical lectures delivered by the author at St. George's Hospital, London, and afterwards published in the *Lancet*. The publication of the work in its present form has been postponed till now in order that more extended clinical observations might be made by the writer, especially with regard to the "internal derangements of the knee." His idea is that early massage and passive movement properly applied in selected cases is a valuable method of treatment and will often relieve muscular spasm and pain, and prevent complication resulting in nerve irritation and impaired motion. He makes a forcible plea for its use.

His argument is logical and his illustrations interesting and striking. His work shows extended clinical experience, also close study of detail and careful observation. His method is perhaps most startling as applied to the treatment of fractures of the olecranon and patella. His statements and results present ideas and suggestions so radically different from those commonly adopted that the reader's attention is aroused. As he turns the pages facts and ideas therein presented cause him to consider seriously the present routine treatment of fractures.

The chapter on the internal derangements of the knee is written after the clinical observation and study of 250 successive cases. It is the most interesting and valuable contribution to this subject since Allingham published his excellent monograph.¹

The book and the principles it contains deserve careful study, for if experience demonstrates the correctness of its author's statements he will have contributed much to the successful treatment of the lesions he describes.

Musser's Diagnosis. A Practical Treatise on Medical Diagnosis. For the Use of Students and Practitioners. By JOHN H. MUSSER, M.D., Professor of Clinical Medicine, University of Pennsylvania. New (fourth) edition, thoroughly revised. In one octavo volume of 1,104 pages, with 250 engravings and 19 full-page colored plates. Philadelphia and New York: Lea Brothers & Co., 1900.

The previous, the third, edition of "Musser's Medical Diagnosis," issued only a year ago, has been exhausted and is followed by a fourth edition. It is only five years since the appearance of the first edition. This is a very positive evidence of the popularity of the work, a popularity which a critical acquaintance with its pages shows to be well deserved and creditable to the appreciation of those who use it.

The publication of frequent new editions at short intervals puts an author in a position to bring and to keep his book quite up to date, an important matter in these days of frequent changes, of new discoveries, of varying laboratory processes; and of this opportunity Dr. Musser has carefully and conscientiously availed himself.

¹ The Treatment of Internal Derangements of the Knee Joint by Operation. By Herbert Wm Allingham, F.R.C.S. London: J. W. A. Churchill, 1899.

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283 WASHINGTON STREET, BOSTON, MASS.

REPORT OF THE MEDICAL DEPARTMENT IN THE PHILIPPINES.

We have before us a copy of the report of the chief surgeon of the Division of the Philippines, Dr. Charles R. Greenleaf, covering the first seven months of 1900. This report is included in General MacArthur's annual report on his military department for the year 1900 and is a document of unusual interest, both from the actual facts contained regarding medical conditions in the army of occupation, and also as indicating the deficiency of the present system and the needs of the future. The military situation has changed during the period covered by the report more than at any period of equal length since the beginning of the American occupation, due to the garrisoning of various posts at widely separated points throughout the islands. During seven months the number of these posts had increased from 123 to 375, leading to extraordinary demands upon the medical force, which has, in fact, been wholly insufficient.

The general health of the army has shown a gratifying improvement. The ratio of non-effectives to the whole strength until January, 1900, ranged from 9% to about 13%. The average for the succeeding seven months was 8.81%, although the period covered included those months which are most productive of sickness. Intestinal diseases, including typhoid fever, caused 35.2% of the total disabilities; malarial fever 23.2%; wounds and venereal disease furnished about an equal number, with a ratio of approximately 9% to 10% of the total. It is furthermore estimated that about 15% of the non-effective force suffers from disease which might be prevented were sanitation more perfected than is at present possible. It must also be borne in mind, the report insists, that sickness in the tropics is of much more serious moment than in temperate regions, because of the effect of the climate in retarding recuperation. The result of illness is therefore cumulative, each new attack of disease, perhaps not dangerous in itself, adding to the total, until permanent disability ensues. Malaria offers the best out-

look for recovery of the common diseases, but reinfection is common, and the general health is not infrequently permanently undermined. Tuberculosis, dysentery, typhoid and rheumatism are all serious in their final results. Venereal disease has been kept well within control, and adds but a small proportion to the total sick. Smallpox, through extensive vaccination, has also not proved a serious menace to life, although the disease has appeared in various localities.

Although disabling sickness has, on the whole, decreased somewhat, the number of deaths in the army has steadily increased. Dr. Greenleaf thinks that "by careful sanitary inspection, the sick list may be decreased by cutting down the number of preventable diseases, and this is hoped for and expected, but the non-preventable diseases will constantly become more severe in type and more intractable, owing to the increasing debility incident upon long continued tropical service." There has been an average death rate of 4.7 daily, with the ratio of deaths due to disease as compared with those due to wounds about 3 to 1. The mortality rate is about 26.7 per 1,000 a year, or 2.22 per 1,000 a month. Next to gunshot wounds dysentery has been the most fatal disease, much more so than typhoid fever. The prevention of the latter disease has been most creditable to the medical service, for the difficulties to be overcome in sanitation have been numerous and discouraging. Although the disease has a perfectly definite foothold in the islands there has been no extended epidemic among the troops. This admirable result has been brought about by strict care in isolation, disinfection, segregation of suspects, and vigilance in watching the non-infected portion of the command involved.

The all-important matter of sanitation is discussed at considerable length and contains many excellent suggestions, which it is to be hoped may be carried into effect. It is urged that a corps of duly authorized inspectors be organized. Heretofore it has been necessary to utilize such officers as have been available, who have naturally been somewhat inexperienced in the line of work they have been called upon to perform. The results have been good, but are not as gratifying as might be desired. The cessation of active campaigning, with its accompanying dangers, has been attended with certain distinct disadvantages. The monotony of garrison life, with the constant apprehension occasioned by the possibility of night attacks, has had a demoralizing effect upon the troops. More important has been the failure of officers and men to appreciate the sanitary difference between a stationary and a moving command. In the latter case the disposal of waste becomes a matter of paramount importance, a fact which even duly qualified medical men are slow in appreciating until they have had actual experience. Recognizing this, every effort has been made by the Medical Department to systematize sanitary inspection and to correct errors where found. The really serious difficulty in the way of carrying out this plan has been the wholly inadequate number of avail-

able medical officers. It is estimated that about 120 stations were (July 1st) unsupplied with medical men, a state of affairs clearly detrimental to the proper execution of sanitary laws.

As stated above, the extensive vaccination of natives has led to a most satisfactory result as regards smallpox. The disease has also been very slightly prevalent among the troops, constituting only .089% of the total mortality. Leprosy is a disease against which active measures are demanded. There is a large number of lepers scattered through the archipelago, probably about 30,000; for these an isolation island is needed, similar to the now famous Molokai of the Hawaiian Islands, if the progress of the disease is to be checked. Our impression is that since the printing of this report, definite action in this matter has been taken.

Considering the short time during which organization has been possible the hospital system appears to be in a fairly satisfactory condition. A well equipped pathological laboratory for the benefit of the hospitals in Manila, under the charge of R. P. Strong, Assistant Surgeon, U.S.A., is likely to prove of great value, and is doing much toward establishing all medical work on a higher plane of efficiency. Although no dogmatic statements are made Dr. Greenleaf seems to be of the opinion that soldiers invalidated home are not likely to be again serviceable in the Philippines, owing to the strong tendency to relapse. Evidently more experience is needed, however, before any definite rule may be laid down.

Of the medical personnel the report speaks feelingly. There is a crying need of more physicians, and the need is growing greater continually because of the constant occupation of new posts. On August 10th there were 229 men to supply over 400 posts. When the report was submitted it was estimated that 500 medical officers were needed to properly care for the troops then in the Philippines. Dr. Greenleaf does not believe in the contract system, of which he says in part: "I am now more than ever impressed with the fundamental weakness of the contract system. To place civilians without real rank or authority in the position of quasi officers is an injustice to the surgeon himself, and to the Medical Department, which has to be responsible for his acts; his contract is made for one year only, and after that time he can demand his release from duty, no matter how urgently his services may be needed; while performing an officer's duties he is not one, and this knowledge makes him less exact and prompt in bending to military discipline; if he is wounded, he gets no pension; if he deserts and leaves his post unsupplied with medical attendance, there is no law known to me by which he can be punished or brought back and made to perform his duties; he gets a year's experience and is just beginning to know his duties when his contract expires, and an untrained man takes his place, and the process begins anew. Supplies are wasted, military papers are not properly made out, and to disci-

pline and train men for such short service is a hopeless task. The contract surgeon system is the least economical, the least effective and the least satisfactory system that could be devised." This is a severe arraignment, and one which should certainly have weight, coming as it does from a man who has had ample experience in the working of the system.

The report contains many facts not alluded to here, which are of great interest and importance. Its recommendations are reasonable and most temperately stated, and should receive the attention they deserve at the hands of those in authority.

MOSQUITOES AND YELLOW FEVER.

If recent investigations are to be trusted, and there seems to be no reason to doubt their accuracy, the rôle of the mosquito as a conveyer of infection is about to be very materially extended. As is generally known, researches have been carried on for some months in Cuba by an army board consisting of Drs. Reed, Carroll and Agramonte, for the purpose of determining the relation of the mosquito to the propagation of yellow fever. These experiments have been carefully carried out, with the general result that a definite relation has been shown to exist between the insects and the fever. The establishment of this relationship has led the authorities of Havana to institute a systematic attempt to exterminate the mosquitoes by destroying the larval forms, as recently stated in another column. This is a "large contract."

In view of this investigation, which seems likely to have immediate practical results, it is of interest to call attention to a paper by Dr. Charles Finlay, of Havana, which has recently appeared in the *New York Medical Record*. Dr. Finlay has long been interested in the mosquito theory of yellow fever, and has from time to time written papers on the subject of much theoretic value, although they did not bring the conclusive proof which is demanded of a scientific theory. In 1891 Finlay concluded that the propagation of the disease might best be explained through the agency of an intermediate host, a condition which the tropical mosquito seemed to satisfy. Regarding this he says in his recent article to which reference has been made:

The climatic and topographical conditions which are known to favor the propagation of yellow fever may be reduced to three: temperature (70° to 90° F.), atmospheric moisture with proximity to the sea or to water courses, and low levels (never exceeding 4,000 feet nor generally above a few hundred). The same conditions seem to be likewise indispensable for the vitality, functional activity, and reproduction of the "*Culex* mosquito." Being a hibernating insect whose functional activity can adapt itself only to tropical climates, it becomes benumbed and unable to sting when the temperature falls below 60° or 65° F., and it may thus remain in a condition of apparent death, from which, however, it will revive when the temperature is again raised to about 65° or 70° F., provided the refrigeration has not been carried to below the

freezing point. Moreover, the same limits, below 65° or 70° F., appear to impede the transformation of the larvæ into the winged insect. On the other hand, temperatures beyond 95° F. also deprive the *Culex* mosquito of its movements, and it dies at 105° or 110° F. When the insect is confined in an atmosphere artificially rarefied to correspond to altitudes of 4,000 to 6,000 feet, it is unable to fly, at least for a while, or to sting. If we consider the smallness of its wings it seems unlikely that the *Culex* mosquito will, of its own accord, fly to any considerable height or distance, especially when weighted by the blood which it has ingurgitated. These peculiarities agree with what is known about the propagation of yellow fever, its tendency to invade the lower stories of buildings in preference to the upper ones, and its non-transmissibility in places like the City of Mexico, Puebla, Petropolis, situated at considerable altitudes above the sea level.

Finlay explains in a readable way how under the hypothesis of transmission by mosquitoes, certain outbreaks of yellow fever, otherwise difficult of interpretation, may be satisfactorily accounted for. It has, however, remained for the recent government commission to place the whole matter on a firmer experimental basis, so that from this time forth, no doubt, a systematic attempt will be made to exterminate the insects in those regions in which the disease is more or less endemic. It is hardly necessary to say that a much more complete investigation is required before the mosquito is made wholly responsible for the spread of the fever; it is altogether unlikely that there are not other modes of dissemination, a fact which we should not lose sight of in the enthusiasm of these new and far-reaching discoveries.

THE BRITISH CONGRESS ON TUBERCULOSIS.

THE last General Congress on Tuberculosis was held in Berlin; the next will be held in London, the King of England being president. The last congress was a most interesting and profitable occasion and the next promises to be no less so. The subject is eminently one of international interest, needing international study and co-operation. The main object of the forthcoming congress, as of its immediate predecessors, is to exchange information and experience gained throughout the world as to methods available for stamping out this, the most universal and destructive of all diseases. Papers will be read, and clinical and pathological demonstrations will be given, while the museum, a special feature of this congress, will contain pathological and bacteriological collections, charts, models and other exhibits. Leading authorities in all countries will be invited to contribute to the elucidation of the historical, geographical and statistical aspects of the subject. As a practical result resolutions will be formulated, it is hoped, calculated to indicate the public and private measures best adapted for the suppression of this widespread plague.

It is proposed to divide the congress into four sections: I. State and Municipal; II. Medical, including Climatology and Sanatoria; III. Pathological, in-

cluding Bacteriology; IV. Veterinary — Tuberculosis in Animals.

The meeting will open July 22d, and last through Friday, July 26th. The congress will consist of honorary members, delegates and members. Further information may be had of the secretary general, 20 Hanover Square, London, and to him abstracts of papers or communications should be sent on or before June 15th next.

MEDICAL NOTES.

THE PAST CENTURY IN MEDICINE. — The New York *Sun* has been publishing a series of notable articles on the progress of the last century in great subjects. The sixth paper in this series, on "Medicine," by Dr. Osler, of Johns Hopkins University, is a most satisfactory review. It is at once so simple and clear in language and form as to be perfectly comprehensible to the laity, and yet so free from the inaccuracies of half statements as to be perfectly acceptable to the initiated. This is no small praise. We must content ourselves with one extract from the opening paragraphs of an article which occupies twelve closely printed columns: "To us in the medical profession, who deal with this unit, and measure progress by the greatest happiness to the greatest number, to us whose work is with the sick and suffering, the great boon of this wonderful century, with which no other can be compared, is the fact that the leaves of the tree of Science have been for the healing of the nations. Measure as we may the progress of the world — materially, in the advantages of steam, electricity and other mechanical appliances; sociologically, in the great improvement in the conditions of life; intellectually, in the diffusion of education; morally, in a possibly higher standard of ethics, there is no one measure which can compare with the decrease of physical suffering in man, woman and child, when stricken by disease or accident. This is the one fact of supreme personal import to every one of us. This is the Promethean gift of the century to man."

SANITARY CONDITIONS IN HAVANA. — The following statistics, provided by W. C. Gorgas, chief sanitary officer of Havana, show the general improvement in sanitary conditions in that city: "The number of deaths in December, 1900, was 485. The smallest number for any December in the preceding ten years was in 1893, with 517 deaths. We make an equally good showing when we come to compare the death rate 23.28 for 1900, the next smallest being that of 1899, when we had 27.10. The two smallest rates for December since 1890 have been those of the American occupation, 1899 and 1900. The rate for 1900, compared with that of 1899, for December, shows a continuous improvement over the conditions then existing. Last month we had 214 cases of yellow fever, with 54 deaths; this month 62 cases, with 20 deaths. This is a slight improvement over December of last year, when there were

70 cases, with 22 deaths. The little yellow fever we have comes almost entirely from the recently arrived Spanish immigrants, more than two-thirds of the cases having been here less than one year. Immigration still continues large, 4,206 for December."

ST. LOUIS CITY HOSPITAL ALUMNI. — At the annual meeting of the Medical Society of the St. Louis City Hospital Alumni, held December 20, 1900, the following officers were elected for the ensuing year: President, Dr. Norvelle Wallace Sharpe; Vice President, Dr. Francis L. Reder; Secretary, Dr. John Green, Jr.; Treasurer, Dr. Horace W. Soper.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, January 30, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 122, scarlatina 33, measles 59, typhoid fever 5.

REPORT OF WALTHAM, MASS., HOSPITAL. — The thirteenth annual report of the Waltham Hospital shows the number of patients admitted during the year to have been 586; the largest number of patients in the hospital any one day was 49; number of accidents received during the year was 30; number of bacteriological examinations for diphtheria bacilli was 1,903, and for tubercle bacilli 53; number of scarlet fever cases 42; diphtheria 171; deaths from diphtheria 7; deaths from all causes 34. There was an increase of 46.5% over the previous year in the number of in-patients treated.

REQUESTS TO HOSPITALS. — By the will of the late Robert Codman, of Boston, the following bequests to hospitals are made: Five thousand dollars to the Massachusetts General Hospital; \$5,000 to the Massachusetts Homeopathic Hospital; \$5,000 to the Carney Hospital; \$5,000 to the Boston Lying-in Hospital; \$5,000 to the House of the Good Samaritan; \$5,000 to St. Luke's Home for Convalescents, Roxbury; \$5,000 to the Holy Ghost Hospital for Incurables, Cambridge.

STATISTICS OF MASSACHUSETTS HOSPITAL FOR DIPSO MANIACS AND INEBRIATES. — According to the superintendent's report of this hospital it is learned that the past year has been the most active in the history of the hospital; beginning with 174 patients, it closed with 258 — an increase of 84. The number of commitments was 418 — a gain of 108 over the preceding year.

MEETING OF MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH. — At the annual meeting of this association, held recently in Boston, there was a discussion on the topic of "Glanders in the Human Subject." A paper was also presented by William Lyman Underwood, on "Drainage of Wet, Rotten and Spongy Lands in Cambridge and Belmont."

A POSSIBLE HOSPITAL FOR CONTAGIOUS DISEASE AT CAMBRIDGE, MASS. — The Board of Health of Cambridge is discussing the advisability of the estab-

ishment in the city of a hospital for the treatment of contagious disease. Mayor Dickinson is said to favor the plan.

A CENTENARIAN.—Mrs. Anna Graffam, of Lewiston, Me., died January 23d, at the reputed age of one hundred and one years and nine months.

DIPHTHERIA IN CAMBRIDGE, MASS.—Several new cases of diphtheria have been reported to the Board of Health in Cambridge.

NEW YORK.

REFUSAL OF MUTUAL LIFE INSURANCE CO. TO PAY POLICY.—The refusal of the Mutual Life Insurance Company, of New York, to pay the \$240,000 policy of the late James C. Pearson, of Boston, has developed a legal question said to be unique in insurance annals. The refusal is based on the ground that Mr. Pearson, who four days previously had passed a successful physical examination, was operated on for appendicitis the very day the policy was taken out and the first premium paid. Death occurred within twenty-four hours after the operation. The company in taking this action relies upon the following clause in its application contract: "And this contract shall not take effect until the first premium shall have been paid during my continuance in good health." It has announced its readiness to return to the heirs the \$15,000 constituting the first premium on the policy. Heirs of Mr. Pearson on January 25th filed claim for the full amount of the latter, and their claim raises the interesting question of an insurance company's liability on a policy for which the taker had been accepted by the company's medical examiners, but which was taken out at a later time, when the prospective holder was lying dangerously ill. The family assert that Mr. Pearson's private secretary, who attended to the taking out of the policy after his employer's return to Boston, from New York, acted in entire good faith, being unaware of the latter's sudden and serious illness.

A CASE OF SMALLPOX AT BELLEVUE.—The first case of smallpox met with in Bellevue Hospital since the beginning of the outbreak in the city occurred during the past week. The patient, a young man of twenty, who was admitted one evening about 5 o'clock, remained in the wards over night. He was supposed to be suffering from influenza and it was not until the following day that the true nature of the disease was discovered.

EXTENSION IN USE OF WIDAL REACTION.—Dr. Doty, health officer of the port, has had sent to physicians throughout the State, outside of the larger cities having facilities for bacteriological work, circulars explaining the availability of the Widal reaction in the diagnosis of typhoid fever and offering to test at the quarantine laboratories specimens of blood or serum forwarded by any physician in the State.

TUBERCULOSIS AND TYPHOID AT SING SING.—Dr. Daniel Lewis, president of the State Board of

Health, has made a report on the State prison at Sing Sing in which he calls attention to the prevalence of phthisis and typhoid fever there, and condemns the buildings as unfit for their purpose on account of their low situation and the bad sanitary condition of the premises.

Miscellane.

APPETITES AND PASSIONS.

The *Lancet* has recently commented, in part, as follows on two pamphlets, entitled respectively:

"Counsel for Young and Unmarried Men Respecting Chastity," and "The Proper Discipline to be Observed by Married People in regard to Conjugal Intercourse," and they are stated to be issued "on high medical authority and with episcopal sanction." Their object is sufficiently indicated by their titles. The medical authority concerned in the production dwells with suitable brevity upon the physiological aspects of the case and his observations are accurate and to the point. If we cannot speak as highly of the advice emanating from the 'clerical' authority this is not because we do not see that a sincere attempt has been made to do good. We have two or three general observations to submit on the subject, and more than general observations we cannot make, for individual appetites so vary that we do not wish to be the medium for recording any hard-and-fast limits, even while we see the benefit that might accrue to some people from such guidance. In the unmarried, and especially in the young, continence is the noble aim. We do not dwell for the moment (though this aspect is vitally important) upon the narrower and more selfish view of the physical and moral evils which incontinence may produce; we rather assume the higher ground that a man who ruins, or helps to maintain the ruin of, a female is a sinner against the social law of love. Each young man should act as a trustee for the chastity of every woman and should account as a personal insult and degradation any suggestion to mar her highest development into the type of womanhood. This is the ideal attitude towards unchastity, whether it be assumed out of physiological knowledge, out of faith in the beneficent effect of a Divine will, or (best of all) out of a fortunate blend of both reasons. But incontinence besets the married as well as those to whom sexual gratification is morally forbidden. In married life, as members of our profession know only too well, there frequently occurs a reversion to primitive customs. The wife is still too often considered to be largely a mode of sensual gratification to the man instead of a helpmate, entitled to equal respect of her feelings and sense of dignity. This is well known to the medical man, for it is part of the routine of his life to receive confidences of a perfectly intimate character. And his counsel, based upon knowledge that no general laws can be laid down, is always towards moderation. But we would suggest to the Church a reform of the marriage service, which in its present terms encourages the belief that marriage is largely a device for the multiplication of children, and that the wife in this respect is to 'obey' the demands of a husband, however insatiable. Any teaching which appears to support this view can only debase,

rather than elevate, married life. The Law, following in the steps of the Church, gives a carnal interpretation of marriage, and treats the tie as mainly one of sensual meaning, and so the full dignity of conjugal union is missed. We need an equitable and righteous reform, possible only under fresher and purer conceptions, and a more elevated view accordingly of the married state—a state in which the intellectual, moral, social and spiritual affinities between man and wife shall be cultivated and sought, in place of the more debasing notion which is too generally sanctioned by Church and Law, and which largely forms the predominating element in popular views. The Law by the growing recognition of the personal rights of the wife has shown that its purview of married life is becoming larger and more liberal. Medicine plays its part by inculcating moderation. There are ways in which the Church might help."

Correspondence.

AN ACADEMY OF MEDICINE.

BROOKLINE, January 25, 1901.

MR. EDITOR: The dedication of the new Boston Medical Library building and the recent anniversary of an old medical society lead me to ask the question if it is not possible that the medical profession may be entering upon a new era of activity and progress. While it can be said with truth that scientific medicine has made extraordinary strides in the last fifty years, it appears to me that during this "period of ether" in some ways our social instincts in Boston have been lulled into a condition of somnolence. We have kept our ideas and feelings in cold storage, making such contributions to science out of this store as circumstances demanded, and then rested satisfied with the slight rise of temperature ensuing.

Our growth on the human side, however, has been less, and while perhaps the mutual relation between the physician and patient is as close and intimate as treatment renders absolutely necessary, something of the old-time sympathy and friendliness has become less apparent. With the profession divided into many specialties, general intercourse among physicians also has assumed a different character and there is less co-operation among us. To some extent this may be inevitably necessary, but I believe not to such a degree as is at present the case. We have developed the scientific at the cost of the more human side of our work. If this state of things is to be overcome, and I believe there is a reaction in this direction, we must fan the flame of social intercourse to bring the members of the profession, old and young, together, and make them to each other something more than men of stone and iron. Before the new Medical Library building was finished, it was less easy to do this, as many will bear witness who attended meetings in the old building. It was a good deal like descending into a tomb to go into the old hall and the general atmosphere struck the chill of the grave into one's bones, affecting the men and even the character of the papers they read, which were often corpse-like enough to suit the surroundings.

In the new building all is different; everything is bright, cheerful and suggestive of hope. It is a place where all medical men may meet together, not as icicles, but as brothers of one profession. As, however, there are many of them who have little acquaintance with one another, it is important that there should be distinctly social occasions where men may have a chance to eat something, and smoke and have a practical realization that even the most exalted men of our profession are not too good for human nature's daily food and not even above small beer and

cheap cigars. Above all, let us not become pedants and scientific machines unable to give utterance to anything that will not stand the test of laboratory analysis.

I hail the suggestion of an academy of medicine with delight, as I believe that it can accomplish the purpose on the one hand of improving the general standard of scientific excellence of those who lag behind, and on the other, of bringing to the surface and making potent those social feelings and instincts which have been too prone to lie dormant in another large part of our profession.

I hope that no old society will be rehabilitated, but rather that the academy will be a new movement free from old prejudices and representative of all that is best morally, socially and scientifically. It should contain all of those men who by high aims and serious work show themselves to be worthy members of the profession. To belong to it should not only be an honor but a joy as well, which cannot be said of membership in some of our societies.

One useful purpose the academy can serve is to assume some of the financial burdens of the Medical Library, which must be considerable if it is to go on developing. I believe if properly organized it could raise a large fund, and I hope this side of the matter will receive due consideration in its formation. Let an endowment fund of not less than \$50,000 be guaranteed at the start. If subscribers can be allowed a period of time like five years to complete their subscriptions, it will be more possible to obtain such an amount.

Very truly yours,

WALTER CHANNING, M.D.

KIRKES' HANDBOOK OF PHYSIOLOGY.

CAMBRIDGE, MASS., January 27, 1901.

MR. EDITOR.—I have noted Dr. Harris's letter, "Re 'Kirk's' Handbook of Physiology' in America," in last week's number of the *Boston Medical and Surgical Journal*. Dr. Harris could not have read the reviews carefully or he would understand "that the gloomy forebodings of your reviews"—when the statement was ventured that "probably in a few years this publication will be a thing of the past"—did not apply to "Kirk's Physiology" as produced by Professor Halliburton, but to the "Baker and Harris" edition produced in this country. It has already been pointed out that this edition (Baker and Harris) is already a "thing of the past" in England. May the good work continue!

Yours faithfully,

ALLEN CLEGHORN, M.D.

[We can give no more space to this subject.—ED.]

METEOROLOGICAL RECORD

For the week ending January 19th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer.	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Wet'h'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8 00 A. M.	8 00 P. M.	8 00 A. M.	8 00 P. M.	8 00 A. M.	8 00 P. M.	8 00 A. M.		8 00 P. M.
S...13	29.98	76	31	21	71	66	N.W.	N.W.	12	8	C.	C.	
M...14	29.98	24	30	18	81	85	W.	S.W.	10	8	C.	O.	
T...15	29.87	34	38	30	96	86	91	S.E.	8	10	O.	.03	
W...16	29.72	42	48	37	76	92	84	S.	14	17	O.	.02	
T...17	29.62	38	44	32	73	100	86	W.	9	8	O.	N.	
F...18	29.61	20	32	8	8	9	44	66	N.W.	12	25	O.	C.
S...19	30.27	4	10	1	60	40	50	N.	N.W.	8	14	O.	C.

* O, clouds; C, clear; F, fair; G, fog; H, heavy; S, smoky; R, rain; T, threatening; N, snow. † Indicated trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 19, 1901.

CITIES	Estimated population.	Reported deaths		Percentage of deaths from						
		In each.	Deaths under five years.	Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Epidemic and group.		
New York	3,437,202	1649	377	19.03	20.66	1.33	.67	2.97		
Chicago	1,698,773	—	—	—	—	—	—	—		
Philadelphia	1,293,997	477	93	21.42	16.59	.42	2.52	3.57		
St. Louis	575,238	—	—	—	—	—	—	—		
Baltimore	508,957	212	67	22.65	18.88	.47	2.36	3.77		
Cleveland	321,768	—	—	—	—	—	—	—		
Buffalo	352,307	—	—	—	—	—	—	—		
Cincinnati	325,002	—	—	—	—	—	—	—		
Pittsburg	321,616	145	46	26.91	18.63	1.38	3.45	4.14		
Washington	273,718	—	—	—	—	—	—	—		
Milwaukee	265,315	—	—	—	—	—	—	—		
Providence	175,597	80	24	18.75	16.25	—	2.50	6.25		
Boston	590,892	229	54	23.16	15.73	1.31	.43	7.96		
Worcester	118,431	35	15	14.39	29.40	—	2.86	—		
Fall River	144,863	34	12	17.64	14.70	—	—	—		
Lowell	94,869	40	11	12.50	22.50	—	—	2.50		
Cambridge	91,886	36	12	19.46	11.12	—	—	8.34		
Lynn	68,543	—	—	—	—	—	—	—		
Lawrence	62,559	26	9	21.88	11.52	—	—	3.84		
New Bedford	62,442	33	12	15.15	24.24	—	—	—		
Springfield	62,019	14	3	7.14	21.42	—	—	—		
Somerville	61,443	—	—	—	—	—	—	—		
Holyoke	45,712	18	6	22.24	22.24	—	—	5.56		
Brookton	40,063	8	1	25.00	37.50	—	—	—		
Haverhill	35,175	6	7	19.00	16.67	—	—	—		
Salem	35,656	12	4	15.38	7.69	7.69	—	—		
Chelsea	34,672	13	1	—	—	—	—	—		
Malden	33,664	7	3	14.29	14.29	—	—	—		
Newton	33,387	11	5	18.18	18.18	—	—	9.09		
Fitchburg	31,511	10	7	10.00	10.00	—	—	10.00		
Taunton	31,036	14	2	14.28	21.42	—	—	—		
Glooucester	26,421	8	3	20.37	30.30	—	—	37.50		
Everett	24,336	5	3	20.00	—	—	—	—		
North Adams	24,299	—	—	—	25.00	25.00	25.00	—		
Quincy	23,899	1	1	100.0	—	—	—	—		
Waltham	23,481	7	—	57.16	—	—	—	—		
Pittsfield	21,266	—	—	—	—	—	—	—		
Brookline	19,935	—	—	—	—	—	—	—		
Chicopee	19,167	6	2	—	33.33	—	—	—		
Medford	18,244	9	2	—	33.33	—	—	—		
Newburyport	14,478	9	2	11.11	11.11	11.11	—	—		
Melrose	12,962	5	1	20.00	—	—	—	20.00		

Deaths reported 3,204; under five years of age 787; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 143, acute lung diseases 612, consumption 337, diphtheria and croup 129, diarrheal diseases 39, typhoid fever 39, scarlet fever 31, whooping cough 8, measles 6, cerebrospinal meningitis 5.

From whooping cough Philadelphia 2, New York, Pittsburg, Boston, Worcester, Malden and Newburyport 1 each. From cerebrospinal meningitis Baltimore, Pittsburg, Worcester, New Bedford and Everett 1 each. From scarlet fever New York 22, Boston 3, Philadelphia and Pittsburg 2 each, Baltimore and Salem 1 each. From measles New York 3, Boston 2, Pittsburg 1.

From typhoid fever Philadelphia 12, New York 11, Baltimore and Pittsburg 5 each, Providence 2, Boston, Worcester, Lynn and North Adams 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending January 5th, the death rate was 17.5. Deaths reported 3,964; acute diseases of the respiratory organs (London) 330, diphtheria 79, whooping cough 71, measles 56, fever 47, diarrheal 37, scarlet fever 33.

The death rates ranged from 8.7 in Derby to 22.5 in Liverpool; Birmingham 14.4, Bradford 17.2, Bristol 14.6, Cardiff 13.9, Gateshead 18.6, Halifax 18.1, Hull 15.9, Leeds 20.3, London 17.9, Manchester 21.5, Newcastle 15.2, Norwich 11.2, Nottingham 15.3, Plymouth 17.6, Portsmouth 12.0, Salford 20.1, Sheffield 21.4, Sunderland 17.1, Swansea 16.5, West Ham 15.4.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 26, 1901.

C. N. FISKE, assistant surgeon, detached from the "Wheeling" and ordered to the "Medican" when the former is put out of commission.

H. O. SHIFFERT, assistant surgeon, appointed assistant surgeon from December 26, 1900.

D. N. BRITTOLETTE, medical inspector, detached from the Medical Examining Board, Washington, and ordered home January 31st.

A. C. H. RUSSELL, surgeon, ordered to Washington, for duty as a member of the Medical Examining Board, January 31st.

W. H. RUSH, surgeon, ordered to the Pensacola Naval Station for recruiting and other duty.

R. K. SMITH, passed assistant surgeon, detached from the "Pensacola," February 2d, and ordered to the "Wisconsin," February 14th.

M. V. STONE, assistant surgeon, detached from the "Solace" and ordered to the "Isle de Luzon."

H. H. HASS, assistant surgeon, detached from the "Isle de Luzon" and ordered to the "Solace."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JANUARY 24, 1901.

PURVIANCE, GEORGE, surgeon. Granted leave of absence for two days, January 18, 1901.

WILLIAMS, L. E., surgeon. Granted leave of absence for three days, January 21, 1901.

BEAN, L. C., acting assistant surgeon. Granted leave of absence for two days from January 18th. January 17, 1901.

CHAIRO, R. C., acting assistant surgeon. Granted seven days' extension of leave of absence. January 22, 1901.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of the society will be held in Sprague Hall at the Medical Library Building, 8 The Fenway, on Monday, February 4th, at 8.15 P. M.

Papers: Dr. Henry Jackson, "Disease of the Myocardium." Dr. Horace D. Arnold, "The Condition of the Myocardium as Affecting Cardiac Murmurs."

ARTHUR K. STONE, M.D., Secretary, 657 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section will meet at the Medical Library, 8 The Fenway, on Wednesday evening, February 6, 1901, at 8.15 o'clock.

Papers: "Relief Afforded by Operation on Abdominal Adhesions," by Dr. A. T. Cabot.

"Report of Cases of Sarcoma," by Drs. Munro, Blake and Lund.

F. G. BALCH, M.D., Secretary, 279 Clarendon Street.

RECENT DEATHS.

AGUSTINE SHURTLEFF, M.D., M.M.S.S., died in Brookline, January 27, 1901, aged seventy-four years.

CHARLES WISTAR STEVENS, M.D., M.M.S.S., died in Charleston, January 25, 1901, aged sixty-four years.

ERSKINE E. HAMILTON, M.D., died in Springfield, Mass., January 24th, at the age of thirty-four. He was graduated from the College of Physicians and Surgeons, New York.

HENRY J. HERRICK, M.D., a well known physician of Cleveland, O., died January 28th. He was for many years a professor in the Medical Department of the Western Reserve University.

JAMES WATSON STONACH, M.D., of New York, died in Belleville, N. J., on January 23d, of cardiac disease, aggravated by influenza. He was born in Forres, Scotland, in 1834, and was graduated from the Medical Department of the University of the City of New York in 1872.

BOOKS AND PAMPHLETS RECEIVED.

Report of the Laboratory of Pathology of the University of Buffalo, Medical Department. No. 1. 1900.

Report of the Surgeon-General of the Army to the Secretary of War for the Fiscal Year ended June 30, 1900. Washington, 1900.

Uterine Tumors: Their Pathology and Treatment. By W. Roger Williams. Fellow of the Royal College of Surgeons. New York: William Wood & Co. 1901.

Introduction to the Study of Medicine. By G. H. Rorer, Professor Extraordinary in the Faculty of Medicine of Paris, etc. Authorized translation by M. S. Gabriel, M.D. With additions by the author. New York: D. Appleton & Co. 1901.

Experimental Research into the Surgery of the Respiratory System. An essay awarded the Nicholas Senn Prize by the American Medical Association for 1898. By George W. Cripe, A.M., M.D., Ph.D. Second edition. Philadelphia: J. B. Lippincott Co. 1900.

A System of Practical Therapeutics. Edited by Hobart Amory Hale, M.D. Second edition, revised and largely rewritten. Vol. I. General Therapeutic Considerations; Prescription Writing; Remedial Means as other than Drugs; Preventive Medicine; Diathetic Diseases and Diseases of Nutrition. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

A Series of Original Papers on Gonorrhea.

GONORRHEAL INFECTION.¹

BY BENJAMIN TENNEY, M.D., BOSTON.

In the last few years intelligent opinion has settled on the gonococcus of Meisser as the bacterial agent in practically all cases of urethritis. The consideration of non-gonorrheal urethritis by Guiard, published in the French journal of genito-urinary diseases for 1897, leads him to a conclusion which I am sure we will all endorse, namely, that every case of urethritis which lasts more than a few days is, or at least may have been at the start, a true infection by the gonococcus. Certainly today no patient's story of "strain" or error of diet will be accepted as conclusive evidence of a non-gonorrheal urethritis, and no man familiar with laboratory methods will accept any sort of argument short of a most careful bacteriological examination.

That mild and transient inflammations of the urethra, with purulent discharge, do occur in the course of acute fevers, attacks of gout or articular rheumatism, and are acquired from instruments or from sexual contact must be admitted. I have seen 2 cases recently, with a slight mucopurulent discharge lasting three and four days, in which I was unable to find any organisms which decolorized by the Gram method. The pus cells contained large diplococci which resembled, both in size and in their growth on agar, diplococci which I have obtained from male urethrae which had never been infected by the gonococcus.

Guiard reports cases of typhoid fever, secondary syphilis, malaria, rheumatic fever and gout where satisfactory examinations were made and no gonococci found.

In no other reported cases, whether attributed to mumps, diabetes, tuberculosis, or articles of diet, does he consider the claim proved. In discussing non-gonorrheal urethritis due to sexual contact, he mentions 1 case where a man contracted a urethral inflammation, lasting a short time, showing no gonococci, from a woman who showed a few typical gonococci in leucocytes from her urethra and posterior cul-de-sac of her vagina. He quotes 30 cases described by Ranzier, Bockhardt, Legrain, and others where the urethritis lasted but a few days and showed no gonococci. In 1 case the bacillus coli communis was found, and in the others a variety of cocci, one of which after being isolated in pure culture produced a transient inflammation in several healthy urethrae. He personally has never seen an acute case where he felt sure the attack was not primarily due to the gonococcus, though the infecting material may not have contained the living germs but only some substance produced by their growth, which has the power of poisoning the urethral epithelium and destroying its resistance to less virulent germs.

As to the progress of gonorrheal infection on mucous membranes, I have found nothing of value in the literature since the work of Bumm published in 1885 and that of Legrain in 1888. They agree that the growth of the organism may be divided into three stages: (1) On and in the epithelial cells; (2)

in the subepithelial layer and leucocytes, where they develop very rapidly; (3) in the epithelial cells again, as the growth of a sort of dam of new tissue beneath them furnishes a layer unfavorable to the development of the gonococci. This certainly agrees with the smears which we get in the different stages, and with the pathological description of a urethra which Bockhardt obtained ten days after inoculation with a pure culture. Bumm's work was done on the conjunctival mucous membrane of babies infected during delivery, and the specimens were from one and a half to thirty-two days after birth. After twelve hours the organisms were in the epithelial cells and a few leucocytes were appearing. From the third to the sixteenth day the gonococci were in the pus cells and subepithelial tissue, on the eighteenth day only in the superficial layer, on the twenty-third day a few in edges of the most superficial cells, on the twenty-fifth day only on surface and in detached epithelium, and on the thirty-second day he found no gonococci.

The persistence of the infection is a matter of great importance and also a matter where the greatest care in diagnosis is necessary. In the acute stage diplococci in the pus cells can be taken to represent gonococci with almost any bacterial stain, and the resulting error will be slight and not important. In the declining stage, when pus cells must be found on the threads or by sedimentation, the greatest accuracy in staining by Gram's method is essential. Many men are reasonable and the reasonable man will take no chances of infecting others so long as knows the probability of his doing so. Moreover, there is always the possibility of his re-infecting himself. The often quoted statement, "once infected, always infected," was made by the Noeggerath who spread abroad those remarkable statistics of New York men and women, and the statement is entitled to about as much consideration. While we know that this germ in some individuals will reproduce itself for months and even years, in some pocket of the urethra, prostatic or seminal vesicle, it usually disappears within three to five months. It must always be remembered that the normal urethra which has never been infected by gonococci carries diplococci which very closely resemble the gonococci when stained with the ordinary methyl blue. I have never been sure of the difference under these conditions.

The persistence of the infection appears to be due to the same constitutional conditions which favor the infection. One of my patients in whom the undoubted gonococci could be found two years after his last infection, finally married with my consent and has a healthy wife and fine children, but has become a sufferer from periodic attacks of gout. Another, who came to me eighteen months after infection, had a slight consolidation in the apex of one lung, as well as a gleet discharge containing gonococci. Both disappeared after a few months in Colorado. Cases where the use of alcohol is persisted in are well known to run a long course, and the first instruction given to every gonorrheal patient in the clinics as well as in the office is "no rum."

But outside these three conditions which are well recognized as favoring its continuance, the usual result of careful treatment is a complete cure so far as the possibility of harm to the patient or his family goes.

Every practitioner knows of men who have had

¹ Read before the Boston Society for Medical Improvement, December 31, 1900.

gonorrhoea at some time, and who have married and had healthy wives and clear-eyed children. If this were not the rule, I fear the proportion of pus tubes would be even greater than at present, both in private practice and clinics. That sterility may and often does result from a gonorrhoeal infection is a simple and reasonable proposition, but sterile marriages are not necessary sterile because the wife has been infected by the husband. He may have become incapable of impregnating by the obliteration of his seminal canals, and then have starved out his gonococci, before marriage. I cannot believe, nor do the gynecologists with whom I have talked believe, that infection of a wife by a husband who has had no visible discharge for months is at all a common event. Nevertheless it undoubtedly has occurred in some cases, and I regard it a part of the duty of the doctor who treats men with this disease to have a square talk with every patient, and fully explain why he ought to make sure by as competent an examination as he can get that he is completely free of his gonococci before he marries, no matter when that may be.

The most interesting recent work has been done on toxin production by the gonococcus. Christmas, in the *Annals of the Paris Pasteur Institute* of May last gives the latest results of his and others' work. He cultivated gonococci on a medium composed of three parts of human ascitic fluid with one part of rabbit bouillon. He produced a poison, .002 of a cubic centimetre of which, diluted with salt solution and injected into the brain of a guinea pig, kills the pig in five to seven hours, while the same bulk of salt solution without the poison produces hardly a symptom. The total bulk of the injection was always .05 cubic centimetre. Smaller doses produce death after a longer time, or else a form of intoxication from which the animal recovers with a certain acquired immunity to the poison. This immunity can be increased by successive doses until the serum of the animal's blood contains an antitoxin which can be used to neutralize the toxin injected into a fresh animal.

A year ago he had an antitoxic serum which neutralized two hundred and fifty times its bulk in fatal doses. This neutralization he accomplished by mixing the two at ordinary temperatures, three or four hours before injection, by injecting both toxin and serum into the brain at the same time, though not necessarily into the same hemisphere, or by injecting the serum within three days before the toxin. His antitoxin has no effect when injected after the toxin. He injected 2 cubic centimetres of a one-tenth dilution of this toxin into a human urethra and allowed it to remain two or three minutes. It produced a burning sensation and was followed by a mucopurulent discharge without gonococci lasting a few days. It remains to be seen whether this work has any practical value to the human animal. As the damage and discomfort to the ordinary individual appear to be due more to the marvellous fertility of the organism than to its toxin-producing power, one would think the usefulness of an antitoxin would be limited to the complications of gonorrhoea which are accompanied by constitutional symptoms, but time will show.

Another matter of great interest in considering this infection is the proportion of the community which becomes infected at some period of life. For obvious reasons this becomes a mere matter of estimation, and the estimates vary greatly. Noeggerath is quoted as

having claimed that in New York City 800 out of every 1,000 men suffer from this infection. Further, that 90% of these are married men, and that 3 out of every 5 married women have become infected. This is absurd on the face of it. Another Continental writer says that in the large cities 10% of the married men have chronic gonorrhoea and another 10% acquire it after marriage. From this he computes in some way that 5% of all married women become infected.

Still another found 10% of 1,330 gynecological cases suffering from the effects of the disease, and in a later series of 161 cases 18% were found infected. This leaves a margin of 8% of those who were infected but not suffering. Let us suppose that 18% of all his hospital and private cases were infected, we have still to inquire what proportion of the women of his town were gynecological cases. If half of them could be classed as such, the total proportion of women infected would be 9%, which may be a fair estimate for a Continental city.

Another estimation comes from my own experience. In a country college class of 80, where I had rather exceptional opportunity for knowing the personal life of every man, I knew of 4 who contracted gonorrhoea. If we double this to cover men whose condition I did not know, which would be very liberal, and then allow that as many more have contracted gonorrhoea since their college days, we have a total of 16, or 20%. These men would be fairly representative of the native born population of our country—some from city families of large wealth, most from families of comfortable condition, and a few who were working to pay their own way through.

Men who are especially interested in this subject can hardly help overestimating the proportion of cases of gonorrhoea, and even those who treat these cases from the standpoint of the surgeon or general practitioner are prone to forget the great mass of mankind who require the services of neither until the time comes to die decently and in order. My present impression is that 20% of the males and 5% of the females of the community may have become infected at some time, but certainly no more. I hope to have some more reliable statistics later, bearing on the proportion of males infected, but at present it is all a matter of approximation to the correct figures.

With most of the contagious diseases a period of immunity follows the attack, but with this disease the common impression is that the opposite is true. There is little in literature and nothing in the history of my own patients which bears exactly on this point. The only reference made to this is in some experimental work of Juda-sohn, who introduced pus from a fresh gonorrhoea into six urethra which were in the chronic stage. Of these two only started afresh.

Without question gonorrhoea resembles other bacterial diseases in the resistance offered by different individuals to its progress and even to its onset. Some individuals lead promiscuous lives for years and escape infection, even having contact with immunity where others acquire gonorrhoea. Some individuals acquire a gonorrhoea, have no complications, and regard themselves cured of a disease no worse than a hard cold in four or five weeks. Others acquire a disease which in onset, incubation and bacterial diagnosis differs in no demonstrable way from the preceding type, and yet they carry a mucoid discharge or shreds in the urine, showing pus cells with gonococci,

for months. In most cases the gonococci probably are confined to the urethral tissues, while in others they escape by the blood or lymph channels to find lodgment in some joint or tendon sheath, or even in the heart. Chance is the lack of reason usually assigned to cover these conditions, but there is more than chance in it. It seems to me a reasonable proposition that the same conditions which favor the persistence of the disease, and stimulate the pathological process, should also favor the infection.

The chief conditions which we recognize as having this power are the use of even moderate amounts of alcohol, sexual excitement, a tendency to gout or rheumatism and tuberculosis. The use of alcohol has especially interested me. I have never had a gonorrheal patient who was a total abstainer and rarely one who did not admit an excess of alcohol at the time of his infection. This, of course, can be reasoned out in two ways. Without an excess of alcohol a man's moral sense, or his prudence, would keep him from exposing himself as he does when he has the excess. But I cannot help believing that alcohol in the circulation or in the urine affects the urethral epithelium and partially destroys the normal resisting power of the cells. How else can we explain the fresh start which a declining gonorrhea takes when the patient fails to follow our advice to "let run alone"?

In the July number of the *Journal of Experimental Medicine* for 1896, Abbott reports the results of his work on the influence of acute alcoholism on the normal vital resistance of rabbits to infection. He administered alcohol before and after inoculating the animals with pure cultures of human bacteria, using the bacillus coli communis, the streptococcus and the staphylococcus aureus. Throughout his experiments "the alcoholized animals not only showed the effects of inoculation earlier than did the non-alcoholized rabbits, but in the case of the streptococcus inoculations the lesions produced were much more pronounced than are those that usually follow inoculation with this organism." Some preliminary work of my own on the infection of rabbit urethra with gonorrheal pus has been very significant in its results, though as yet not conclusive. But if by administering alcohol in doses sufficient only to produce a mild intoxication we can diminish animal resistance to human infections, it is certainly not a wild deduction that the same process occurs in man. I would not maintain that alcohol is the only reason for the usual human susceptibility to this organism, but I do believe that it has an influence which is too little recognized at present.

THE BACTERIOLOGICAL DIAGNOSIS OF THE GONOCOCCUS.¹

BY OSCAR RICHARDSON, M.D., BOSTON,
From the Clinico-Pathological Laboratory of the Massachusetts
General Hospital.

THE following paper presents the views held in the Laboratory of the Massachusetts General Hospital in regard to the bacteriological diagnosis of the gonococcus.

Owing to the absence of Dr. James H. Wright, the director of the laboratory, it has devolved upon me to state what those views are.

For practical purposes the gonococcus may be identified with a reasonable degree of certainty in suspected gonorrheal pus by cover-glass examination. This method of identification depends upon the fact that the gonococcus differs from the ordinary pus cocci in being decolorized by Gram's method of staining. Its morphology and its position inside the leucocytes are by no means diagnostic, for other cocci may be found inside leucocytes which are indistinguishable from the gonococcus in shape. The important diagnostic point, therefore, for the gonococcus is its property of decolorizing by Gram's method. The other points, of morphology and position inside the leucocytes, are not necessarily characteristic. It has been claimed that in gonorrheal pus cocci may be found which decolorize by Gram's method, and which are not gonococci, but we have never seen such microorganisms.

The application of the method of cover-glass examination combined with Gram's method of staining for the identification of the gonococcus is a simple manipulation, and the details of the method need not be repeated here, but it requires some experience on the part of the person doing it, or it may lead to erroneous observations. The method must be applied with certain precautions which, as a rule, are apt to be neglected. Practically the most important precaution is to smear the pus properly on the cover glass. Usually it is too thick.

In general, it may be said that the best preparations are those obtained by scraping off the pus from the cover glass as much as possible with a platinum loop or knife point, after it has been placed thereon. This procedure spreads out the leucocytes in a thin film, allows the reagents to act well and gives a clear and definite picture under the microscope.

Another important precaution to be observed is to be sure that the aniline oil gentian-violet solution has not decomposed. This solution should not be used when it consists simply of a clear fluid and a brown sediment. To avoid errors in this regard, the solution should not be more than two weeks old.

So far we have only considered the recognition of the gonococcus in gonorrheal discharges from the standpoint of the practical man. From the so-called scientific standpoint, we cannot consider the cover-glass examination as being conclusive. The results of the cover-glass examination from this point of view must be controlled by cultures and it is necessary to isolate the suspected coccus and further prove its identity by the determination of its cultural peculiarities.

The use of cultures for the determination of the gonococcus may be considered also to have a certain value over the cover-glass examination alone, because it might enable us to determine the presence of the gonococcus when it is present in very small numbers. Culture methods have been applied to the solution of the question of the infectious nature of gonorrheal shreds with more or less success. We have had no practical experience with this subject, but we think that we are safe in saying that a negative result with cultures from gonorrheal shreds by no means excludes the presence of gonococci in them.

From the standpoint of the pathologist, the chief interest today attached to the gonococcus is the rôle it plays in inflammatory processes, other than in gonorrhea. The identification of the gonococcus in pyo-

¹ Read before the Boston Society for Medical Improvement, December 31, 1900.

salpinx, arthritis, tenosynovitis, endocarditis, and in peritonitis requires more than the simple cover-glass examination and the application of Gram's method of staining. In these conditions the pathologist demands that the suspected organism be isolated in pure culture and its peculiarities in cultures shown to agree with the well-known peculiarities of the gonococcus. If cultures are not applied, the results of cover-glass examinations, although agreeing with the idea that the gonococcus is present, amounts from a scientific standpoint to little more than a probability. In other words, it does not suffice to prove that a given case of arthritis is due to infection with the gonococcus by showing that Gram decolorizing cocci inside of pus cells are present in the exudate, but it must be shown in addition to this that these cocci will grow only on special culture media and it must be rigidly determined that they will not grow on ordinary culture media.

Furthermore, it must be shown that these colonies on special culture media have certain appearances, and that the micrococci composing such colonies are decolorized by Gram's method and have a decided tendency to group in fours. The test of the behavior of the cocci, so isolated, towards the Gram staining reaction is of great importance, and is to be applied with certain precautions.

The first of these precautions to be observed is that the culture must not be more than forty-eight hours old, because some Gram staining cocci in older cultures will be observed to be decolorized when treated by Gram's method. The second is that the cover-glass preparation should not be made too thick, and the judgment, as to whether the cocci decolorizes or not after treatment with Gram's method, should be made only from portions of the field where the cocci are well separated from one another and not from portions where the cocci are aggregated in masses. This precaution is necessary because, where the cocci are aggregated in masses, those in the interior of the mass escape the action of the reagents. These criteria for the identification of the gonococcus in cultures must be rigidly carried out in order to avoid a very easy mistake in bacteriological diagnosis. In brief, no culture of a micrococcus is to be regarded as a culture of the gonococcus unless the organism grows only on special media in colonies of a certain appearance, decolorizes by Gram's method and shows a decided tendency to grouping in tetrads.

The necessity of rigidly subjecting the suspected gonococci, obtained in cultures, to these criteria has been emphasized by a recent observation of a case of acute arthritis of the knee clinically of gonorrheal origin. Cover-glass examination of the exudate showed Gram decolorizing cocci inside of the pus cells which were regarded at the time as gonococci. The cover-glass examination of the vaginal discharges also showed micrococci inside pus cells decolorizing by Gram. At the time the pathologist had no doubt but that the case was one of gonorrheal arthritis. The cultures, however, from the exudate in the knee showed an organism which had a considerable resemblance to the gonococcus, so much so, indeed, that it was only after it had been cultivated through a number of generations and had been carefully subjected to the foregoing criteria that the pathologist was compelled, against his will, to decide that the cocci was not the gonococcus. It was found to grow on ordi-

nary culture media. Its colonies were not identical with those of the gonococcus, but sufficiently so to come within bacterial variations. It decolorized by Gram like the gonococcus, but it did not show the decided tendency, possessed by the gonococcus, to group itself in fours.

Concerning the relationship of this organism to the gonococcus, the pathologist has nothing to offer, except to say that he does not think that this organism should be regarded as a variety of the gonococcus.

In conclusion, a word might be said concerning the frequent negative results of the bacteriological examination of inflammatory conditions supposed to be due to the gonococcus. The common experience in cultures from pyosalpinx, arthritis and similar conditions is that no bacteria grow on cultures on special media, nor are any bacteria found by cover-glass examination. We are inclined to explain these results as being due to the destruction of the gonococci after their arrival in the tissues, rather than as being due to the results of a toxin transported there from a distance. It seems reasonable to suppose that the gonococcus might set up a very active inflammation and an accumulation of inflammatory products and then die out, leaving, however, these products as an irritating body to continue the inflammatory process.

Moreover, we know that the bodies of dead gonococci have irritating and pyrogenic properties. Certain it is that in many instances of arthritis and of pyosalpinx the most painstaking examination may fail to show any sign of the gonococcus or other bacteria.

TREATMENT OF ACUTE GONORRHEA.¹

BY FRANKLIN G. BALCH, M.D., BOSTON.

THIS is not to be an elaborate article on acute gonorrhea, but rather a short paper telling of some of the methods from which I have seen results.

As to prevention.—Some people have told me that after a doubtful connection they always take an injection of a weak solution of permanganate of potash, and that they never become infected when they have done so. For a person who understands how to take an injection, and who can be relied upon not to try it when under the influence of liquor, this may be a safe procedure, but for the ordinary run of such people it is unwise and liable to be productive of more damage than good. I have had patients come to me the day after and have irrigated the urethra myself with permanganate, 1 to 1,000, or a 4% solution of boracic acid. In none of these cases has a gonorrhea followed, but I am very doubtful whether it would have anyhow. Theoretically it should be an extra safeguard, for the gonococci would not then have penetrated the cells and could easily be reached by an antiseptic.

If, however, a person has been infected and comes for treatment with the very first appearance of any moisture at the meatus, or perhaps only a slight tickling sensation, what advice should he receive? There are so many sides to the question that I generally talk to him somewhat as follows after getting, if possible, a positive slide. Gonorrhea is a disease which it may take anywhere from three weeks to three years or more to recover from. Sometimes it can be aborted.

¹ Read before the Boston Society for Medical Improvement, December 31, 1900.

If successful, that means that a patient is under treatment for from two to six weeks. It is best to treat the case twice a day during the first week or ten days, and the patient uses an injection himself two or three times a day for two or three weeks more. By this method the patient will probably be more comfortable, have less discharge, and get well somewhat more quickly and with less danger of complications. It is not certain that the disease will stop short. It probably will not. If a patient thinks that he cannot give up so much time at first, I tell him that I can give him some medicine and see him perhaps twice or three times in the first week, and then once a week for as long as it takes to effect a cure.

There are many advocates of very many injections in abortive treatment. Personally I have come to believe in only three, nitrate of silver, permanganate of potash and protargol. In the very early stages the disease is confined to the anterior urethra and an injection that will reach that part of the canal is all that is required. I have been more successful with nitrate of silver than with anything else, used as follows: First, have the patient empty his bladder. This washes out the urethra as far as any discharge goes, but leaves some urine in it. As urine combines with nitrate of silver and precipitates some of the silver, I next irrigate with plain boiled water. An ordinary McElroy glass syringe with a blunt end serves very well for this purpose. Strip the penis gently to get out all the water possible. Next inject a syringeful of the silver solution. If the lips of the meatus are puffy, I use a solution of a strength of 1 grain to the ounce. If there is no evidence of very active inflammation I use 2 grains to the ounce. This should be held in for about a minute, when it should be allowed to escape and the urethra should again be washed out with water. Do this twice the first day. Increase the strength of the solution to 2 grains to the ounce the second day, and the next day increase to 3 grains to the ounce. Higher than this it is unwise to go. A few years ago I used to increase the strength of the solution until I was using from 6 to 8 grains to the ounce, but I had 2 cases which had acute exacerbations follow the higher strength. This has never happened where I did not go above 3 grains. The weaker solutions are just as efficient. In the cases I speak of there was scanty urine, backache, headache and a temperature of 103° to 104° . They had to go to bed for several days. There is usually some scalding with the first one or two injections, but nothing unbearable, and after two days patients usually do not complain. Scalding on micturition often ceases after the first injection. The discharge becomes thin and watery after a few days, and often ceases after five or six days. It returns if the treatment is then discontinued, so that it is best to continue the injections for several days more, gradually decreasing the amount of nitrate of silver. If at the end of ten days there is no discharge, let the patient use an injection of permanganate of potash, 2 grains to 16 ounces of water. He should begin by using it twice a day and continue to use it for two weeks or so. When permanganate of potash is used from the beginning instead of nitrate of silver it is best to irrigate with a large amount of a weak solution rather than with a little of a stronger one. One to 4,000 is strong enough. In my hands a Kiefer nozzle has not been satisfactory, and I use a No. 6 English soft-rubber catheter attached to the

nozzle of a douche bottle. With the bottle at an elevation of not more than 3 feet the solution has not force enough to get back into the bladder, but flows forward very readily around the small catheter. A soluble lubricant should be used for the catheter. A quart of this solution as hot as can be borne comfortably should be allowed to flow in and out, and where possible it should be done twice a day. This should be kept up for ten days, and then the patient should take injections himself for ten days longer.

Where it is impossible to see a patient as often as these two methods require protargol is a safe injection to let him use himself. A $\frac{1}{2}\%$ solution is as strong as it is best to begin with, and if there is any great amount of scalding this should be diluted. An ordinary 2-drachm syringe should be used and the injection retained for at least three minutes. Ten minutes is better, but few patients will do it. This should be repeated three times a day for the first ten days, and then at longer intervals until a cure is effected.

With all three of these methods it is often necessary to give a mild astringent injection at the end to get rid of the final glueing together of the lips of the meatus in the morning. For this purpose the following prescription is useful: Sulphate of zinc from 4 to 8 grains, fluid extract of hydrastis $\frac{1}{2}$ ounce, and rose water up to 4 ounces. Strong solutions of silver nitrate applied through an endoscope, or strong solutions of permanganate or corrosive sublimate by injection will rarely cut a gonorrhoea short. They are very painful, are apt to lead to serious complications, and are so seldom of any benefit that they are justifiable only under extraordinary circumstances.

If the patient presents himself only after the disease has been fully developed for several days, and there is a thick yellow discharge with scalding, painful erection, etc., there is no use in trying to abort the trouble. If an injection is used at all it should be very mild. It is usually safest to give no local treatment for a time, but rely on medicine. The remedies which are useful, or are said to be useful, in gonorrhoea are reckoned by hundreds. As the gonococcus grows in an alkaline medium, drugs to render the urine alkaline would seem to be theoretically contraindicated. The citrate and acetate of potash are useful, mainly, in that they make a patient thirsty. The same result can be accomplished by making him drink water as a medicine. If it does not upset his digestion at least 2 quarts a day should be drunk. Compound salol capsules are good and should be taken after meals and before going to bed. They give about the same results as sandal oil, but without the backache which that so often causes, and they do not as often disagree with the stomach. Methylene blue is also of some use. It is necessary to see that you get methylene and not methyl blue, as the latter has no effect. It is best given in capsules containing 1 grain of methylene blue, 1 drop of oil of cassia, and 1 drop of oil of sandal wood. Three capsules a day is usually as much as a patient can take, and at times the dose has to be reduced to 2 after forty-eight hours. More causes very frequent micturition and tenesmus. The urine is green, and stains the clothing if allowed to come in contact with it. Urotropin has not done as well as it was at first hoped it would. Given in large doses it causes great scalding. Where the bladder has become infected and there is a dirty alkaline urine

it is extremely useful and often accomplishes very prompt results. Salol is indicated in the same class of cases as urotropin, but is not quite as efficient as urotropin as a urinary antiseptic, while it has the same disadvantage of causing scalding when given in considerable amount.

As to diet, if we except peppery and spiced foods there are few things which do harm. A simple diet is best, especially when taking medicine which is liable to upset the stomach. Nothing with any alcohol in it should be allowed, and ginger ale is just as bad on account of the pepper in it. I have seen a case which was doing well lighted up as badly by a bottle of ginger ale as by a bottle of beer.

Other things being equal, the quieter a person keeps the better he will do. Bicycle and horseback riding should especially be avoided. Keeping the bowels open and a hot bath before going to bed lessens the tendency to chordee. It should be impressed upon patients that all sexual excitement is bad for them. They should be told to handle the penis as little as possible, and not keep stripping it to see how much of a drop they can find. A suspensory bandage lessens the liability to epididymitis, and should be worn from the beginning of the trouble. If inflammation should occur, rest in bed and an ice bag give the greatest relief. In patients with a narrow meatus it is often advisable to cut it at the beginning, as it is not possible to give injections satisfactorily unless there is a fairly good opening.

It must always be borne in mind that while an injection can cure a discharge it can also keep one up. In obstinate cases it is occasionally surprising to see how quickly they will clear up when all treatment is stopped. An astringent injection in the early stages of a gonorrhea is unjustifiable. It cannot kill the gonococci nor materially retard their growth. It does often give a false sense of security which later events prove was wholly unwarranted.

The idea that it is not well to do anything for a gonorrhea except give citrate of potash in large doses is fortunately passing away, though in a certain class of dispensary practice I often come to the conclusion that there is a great deal of truth in what one of my instructors once said to me when I asked him why he did not give injections. His reply was, "What is the use? Most of them drink it and the rest squirt it into their bladder."

GONORRHEA IN WOMEN.¹

BY W. L. BURRAGE, MD., BOSTON.

At the outset it is well to bear in mind some of the characteristics of the gonococcus. It has been shown that the gonococcus is somewhat dainty in his diet and habitat. He requires air and he thrives best in an alkaline medium. He lives in columnar and not in pavement epithelium, and, needing oxygen, he does not as a rule go far from the surface. The phagocyte is not the special enemy of the gonococcus, and when the latter ceases to exist it is because he cannot find food and surroundings to his liking rather than because he has been eaten by the phagocyte.

In the course of the inflammatory process set up by the gonococcus the cylindrical epithelium, in which the

germ has its home, is cast off and thus the process tends to cease. As shown by Bumm, gonorrhea is essentially a disease of the epithelial layers.

In considering the different portions of the genital tract of the female that are most frequently affected by gonorrhea, we naturally look for those where there is cylindrical epithelium. At the mouth of the urethra are the racemose glands of Skene. These are lined with cylindrical epithelium. In the urethra, which, to be sure, is lined with pavement epithelium, there are mucous crypts which correspond to Littre's glands in the male, and the mucous membrane of the urethra is in folds except during urination, and thus furnishes lurking places for the cocci. The canal of the cervix has many Nabothian glands with walls of cylindrical epithelium, and the glands of Bartholin are also lined in the same way. The vulva, vagina and intravaginal cervix are covered by pavement epithelium, and the vaginal secretion, made acid by the lactic-acid bacteria of Döderlein, is inimical to the life of the gonococcus and other pathogenic bacteria. The uterine canal from the external os to the openings of the tubes is lined with a simple layer of ciliated cylindrical epithelium. In the cervix there is a submucous layer, but in the body of the uterus the uterine glands rest directly on the muscle. These uterine glands are all on the surface, and are shed to a greater or less degree at the catamenia. There are no glands in the tubes, but the walls of the tubes are in folds and are pouch like, thus affording tarrying places for the cocci. The external os, the internal os, and the isthmus of the tube are narrow paths which may serve as barriers to the progress of the gonococcus, so also the neck of the bladder and the sphincter aid in shutting out disease from the bladder and rectum.

A majority of authors give the following as the most frequent seats of chronic gonorrhea in the order of frequency: Urethra, cervical canal, Bartholin's glands, uterus, tubes, vulva, vagina, and bladder and rectum. Vulvitis and vaginitis are rare except in certain acute cases and in children. In very young women, in those with delicate mucous membranes and light hair, and where the mucous membrane is succulent, as in pregnancy, gonorrheal vaginitis is more common than it is in women who have intact and firm epithelium in the vagina.

Experimentally, Bumm found that the period of incubation of acute gonorrhea was twelve hours; in twenty-four hours the attack was well established. Clinically acute gonorrhea in the female is much less frequent than in the male. The disease is not, as in the male, always preceded by a period of acute invasion, the symptoms of which necessarily attract the attention of the patient and the physician, and for this reason gonorrhea in woman is often overlooked. The symptoms and signs are for the most part those of subacute or chronic gonorrhea from the start.

The frequency of chronic gonorrhea in women has excited a great deal of discussion ever since Noeggerath published his first paper on the subject in 1872. He stated that 80% of all gynecological cases have latent gonorrhea. Sanger, from an examination of 1,930 cases, both in hospital and in private practice, diagnosed gonorrhea in 12%, and this was in the eighties, after the discovery of the gonococcus by Neisser (1879). Sanger's percentage seems to be a fair one for all cases, and is pretty generally adopted

¹ Read before the Boston Society for Medical Improvement, December 31, 1900.

by writers on this subject. In clinics made up largely of prostitutes the percentage of gonorrhea is necessarily higher, whereas in a better class of private practice the percentage is lower.

The diagnosis is made by the history, by the clinical course, by the appearance of the genital organs, and by the detection of the gonococcus in the discharges. Until recently it has been necessary to rely on the finding of the diplococci in the pus cells, using the Gram method of decolorizing. Now the bacteriologists have succeeded in cultivating the gonococcus outside the body on human hydrocele agar, and Neisser and Bröse and other prominent workers in this field are agreed that cultures should take the place of cover-glass preparations in the diagnosis of gonococcus infection.

From the examination of cover-glass specimens taken from a total of 2,107 cases by Schwartz, Goll, Neisser, Weinrich, Van Schaick and Bröse and Schiller, all of the cases giving the clinical history of gonorrhea, the gonococcus was found in 23%.

The relatively small proportion of cases in which the gonococcus is found makes diagnosis by bacterial methods alone extremely uncertain, and the absence of the coccus is no proof that gonorrhea is not present.

O. Bodenstern considers the diagnostic points as to chronic gonorrhea to be as follows: (1) *a.* History of ophthalmia neonatorum in children of the patient; *b.* former ardor urinae; *c.* gonorrhea in the husband. (2) Disease of Bartholini's glands. (3) A reddened urethral orifice. (4) Erosions of the cervix. (5) Involvement of the urethra.

P. Bröse and H. Schiller think the clinical course more important than finding gonococci in the secretion from the urethra. They found the gonococcus in only 20% of their chronic catarrhal cases. The signs they consider important are swelling of the urethral meatus, stricture of the urethra, condylomata, inflammation of Bartholini's glands, macule gonorrhoeica of Sänger, tissue defects and scars in the vulva, vaginitis maculosa and granulosa.

A great deal of stress has been laid of late on the appearance of the vulva. A reddened and puffy condition of the mouths of Skene's glands, with a small amount of secretion to be expressed from them, is a common condition. Condylomata are present in patients who are uncleanly, but they are pretty constant in gonorrhea also. A purplish areola like a flea bite around the orifice of one or both of Bartholini's glands—the macula gonorrhoeica of Sänger—is often seen.

Stricture of the urethra in the female is by no means as rare as it has been supposed to be, and with the frequent use of the cystoscope our ideas of the pathology of the affections of the urethra and bladder are gradually undergoing a marked change. Chronic endometritis—a catarrhal alternating with a purulent form—is very commonly met with, and pyosalpinx is one of the late sequelae. Gonococci are found in 20% of these pyosalpinx cases. Gonorrheal cystitis and proctitis are frequently seen in the clinics of many observers. More accurate observations with properly conducted bacteriological tests are especially needed in these diseases.

It is important that a patient who is about to be examined for gonorrhea should not cleanse the vulva and vagina with douches, and that she should not have

passed her urine for several hours, otherwise it is often difficult to get secretion from the glands and the urethra. It is sometimes better to examine near the menstrual period, because at that time the congestion of the uterine organs increases the discharges, and it is probable that more gonococci are thrown off. Here we may find an explanation for the popular belief that a man will contract gonorrhea from intercourse with a woman during her menstrual period. Relatively few gonococci at the intermenstrual time may be multiplied into many at the menstrual epoch.

Too great care cannot be taken by the physician in examining cases of suspected gonorrhea. After the vulva has been inspected and its condition noted, and after cultures or cover-glass specimens have been taken, the examining finger, preferably covered with a thin rubber cot, should be anointed without contaminating the remaining lubricating medium. I use Lubri-Chondrin from collapsible tubes. It is very important not to introduce a catheter or sound into the bladder or uterus, and before making a rectal examination, the vulva and nates should be carefully cleansed with an antiseptic solution, and the examining hand thoroughly washed and a new cot put on the finger. After use, the instruments and the cots which have been employed should be boiled and the hands given a special washing and scrubbing in an antiseptic solution.

There has been considerable discussion whether there is any such thing as latent gonorrhea. Taylor, of New York, held that the gonococcus dies and leaves behind it a chronic inflammation. Thorburn, of England, studied 81 families in his practice, in which there had been 33% of gonorrhea in the husband previous to marriage. Taking all the cases of abortion, sterility, uterine and pelvic inflammations and living births, he found that the infected showed no difference from the non-infected, and in the pelvic inflammatory cases there was a slight preponderance on the side of those who had not had previous gonorrheal infection.

From a clinical point of view every physician of experience has had in his practice men who have had gonorrhea previous to marriage, and have subsequently had families of healthy children, and their wives have been free from uterine disease, so that in some cases at least gonorrhea must be absolutely cured.

As causative influences in the production of uterine disease, we must not lose sight of sepsis following labor and abortions, especially induced abortions, to say nothing of unclean uterine treatments—often unwittingly septic—at the hands of physicians.

On the other hand, Wertheim, Finger and Haberdar proved by inoculation experiments that a chronic gonorrhea can cause an acute gonorrhea in another person. Wertheim thinks that the reason that it is often difficult to identify the gonococcus is because only the young cocci take the stain and the old ones do not. Toulon in 1894 noted a degenerated type of gonococcus, which is unrecognizable by ordinary methods of examination. It was seen in cultures of gonococci which were from seven to fifty-one days old and consisted of a granular and amorphous mass. By transplantation he got characteristic colonies. Even with a culture fifty-one days old, experiments demonstrated that gonococci may be present in gonorrheal threads, and yet may not be recognizable in cover-glass preparations, but only in cultures. He thought with Wer-

them that a urethra becomes tolerant to the gonococcus, but that the gonococcus does not lose its virulence when transplanted to a favorable culture medium.

J. Judasohn, of Berne, announces the following conclusions as a result of his study of this question: (1) A mucous membrane affected with chronic gonorrhea may react by exaggeration of the inflammation when there is a multiplication of the gonococci which it harbors or when new gonococci are introduced; (2) a mucous membrane affected with chronic gonorrhea may no longer react in case of multiplication of its own cocci, but may respond by a recrudescence of the inflammation upon the introduction of new cocci; (3) a mucous membrane affected with chronic gonorrhea may enjoy a sort of immunity from acute gonorrhea. He says further that we know nothing of the immunity of the organism on account of the existence of gonorrhea; even a continued chronic gonorrhea in one organ does not prevent an acute inflammatory attack in another, for example, acute epididymitis in chronic urethral gonorrhea.

If the following experiments of Wertheim are verified by other observers they will have an important bearing on the question of the inoculability of gonorrhea. A direct experiment from a pure culture of gonococcus from a gleet discharge of two years' standing gave the following results: (1) Attempted reinfection of the original urethra with this culture was always a failure; (2) the culture when transplanted to a coccus-free urethra produced typical acute gonorrhea; (3) infection from this back again to the original urethra gave a fresh gonorrhea, which, after a typical acute course of five or six weeks, again subsided into a chronic gleet. This explains the fact that an apparently healthy subject of chronic gonorrhea may infect his hitherto unaffected wife, and become again infected from her, that is, the gonococcus, by passing through the new culture of the wife, again becomes virulent for the husband.

In answer to the question, When should the physician advise marriage after gonorrhea? Kromayer states that a man may marry when the urethritis is all gone. The gonococcus may be absent, but it is not safe until the discharge has ceased. If the advice is not taken the husband should urinate before coitus, there should be only one coitus in twenty-four hours, and the wife should take a douche after it. Frequent coitus, because of the increased congestion of the sexual organs and the destruction and bruising of the epithelium, increases the danger of infection.

If we are called upon to pronounce when a woman is entirely free from the danger of transmitting gonorrhea, it is at once apparent that we have to face a more complicated problem than we have in the case of gonorrhea in the male, because of the many possible lurking places for the gonococcus in the sexual organs of the female. As a practical matter we may say that a woman is cured of gonorrhea when there are no signs of chronic inflammation about the uterine organs, and when two or more negative cultures have been taken from the urethra and cervical canal.

The treatment of gonorrhea in women cannot be considered at length in a paper of this character. It must suffice to say that the treatment varies according to the structures which are attacked. In the more acute stages, when the parts are hypersensitive, douches and extreme cleanliness are to be advised by way of local treatment; in the chronic stages

vaginitis is most successfully treated by cleansing the vagina with an antiseptic solution and packing it with cotton tampons soaked in medicated solutions, or with dry cotton dusted with an antiseptic or non-irritating powder. In this way the folds are taken out of the mucous membrane, and the applications come into most intimate contact with all parts. As a germicide protargol, in solutions of from 1% to 5%, seems to be displacing nitrate of silver as the standard remedy, and has given better results than the many other salts of silver. I have found vaginal suppositories of protargol useful and efficacious, also vaginal suppositories of ichthyol, as well as the use of the latter drug with glycerin on cotton packings.

In the treatment of chronic urethritis applications to the mucous membrane of the urethra through a small cystoscope of solutions of nitrate of silver, protargol and ichthyol, and also the use of urethral suppositories of the same drugs, have given the best results. Stricture of the urethra is best treated by gradual dilatation with urethral sounds, although rapid dilatation, the patient being under ether, has often given satisfactory results. Skene's glands are treated by similar applications made with a fine wire applicator wound with cotton, and in intractable disease of these glands it is necessary to lay them open into the lumen of the urethra.

The treatment of cystitis, endometritis, salpingitis and proctitis due to the gonococcus does not differ from the treatment of these affections when caused by other bacteria.

The treatment of gonorrhea should be persisted in until the disease is thoroughly eradicated.

TREATMENT OF CHRONIC GONORRHEA.¹

BY GARDNER W. ALLEN, M.D., BOSTON.

IN some cases of gonorrhea a more or less copious, thin, mucopurulent discharge persists for a long time in spite of all efforts to control it. There is an absence of subjective symptoms; in fact such cases are often mild from the beginning; the mucous membrane seems flabby and lacking in tone, showing little tendency to respond to remedies. These are cases of chronic diffuse urethritis. They are often aggravated by active local measures and over-treatment must be carefully avoided.

But, ordinarily speaking, gonorrhea may be said to have reached the chronic stage when the inflammation has become localized at one or more points along the course of the urethra. The discharge, commonly called gleet, is very slight, and the urine is transparent, but contains shreds of mucus and pus. The points at which the subsiding inflammation most commonly lingers are the penoscrotal angle and that portion of the pendulous urethra just anterior to it, the bulbomembranous junction, the prostatic urethra and much less frequently the fossa navicularis.

The tissue changes following an acute gonorrhea, which determine the localization of the disease at these points, have an important bearing on treatment. The mucous glands or follicles of the urethra are particularly numerous about the penoscrotal angle and just anterior to it. They are very liable to be involved in the inflammation together with the tissues about them

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and the entire submucous layer surrounding the urethra, which becomes infiltrated with round cells and shows a tendency to cicatricial contraction. In other words, this is a very common seat of stricture of large calibre complicated with inflammation of the mucous glands. The submucous layer about the deep bulbous portion of the urethra close to the anterior layer of the triangular ligament is also very subject to deposit of granulation tissue with contraction, and here we are more likely to have strictures of small calibre, either soft and easily dilatatable or very dense and tough. In the posterior urethra the tendency to stricture formation does not exist, but the follicles of the prostate may be involved and the inflammation not infrequently extends up the ejaculatory ducts into the seminal vesicles.

In the treatment of these conditions the objects to be aimed at are the removal of fibrous deposits, the restoration of the thickened and rigid mucous membrane to approximately its original soft and elastic condition, and the cleaning out of diseased follicles and glands.

The first principle of this treatment is dilatation; dilatation of the anterior urethra to check the cicatricial contraction, cause the absorption of the morbid deposit and open up the follicles so that medicated solutions can penetrate them, and dilatation of the posterior urethra in order to open the follicles of the prostate in the same manner and to stimulate circulation in the passively congested mucous membrane.

Ordinary dilatation by means of sounds is often unsatisfactory, chiefly because in many cases it cannot be carried far enough to accomplish results and because it is apt to cause a good deal of irritation and reaction. To cut the meatus sufficiently to admit large sounds is an operation which, although sometimes necessary, should be avoided if possible. By means of dilators which can be passed through a moderate-sized meatus the urethra can be stretched to a point far beyond what is possible with the largest sounds and yet cause little or no reaction. This dilatation may be done as gently and gradually as need be at successive visits without any of the discomfort caused by passing a snug-fitting sound through a rigid and unyielding urethra, perhaps painfully distending the meatus at the same time.

For the purpose of stretching the urethra the four-branched dilators of Kollmann are the best. A straight instrument is used for the anterior urethra and a curved one for the posterior. In this way only a portion of the urethra is dilated at a time. The urethra is much more tolerant of extreme dilatation at one point than of a less degree applied throughout its length. It is surprising how little pain at the time and how little subsequent reaction are experienced in cases where for special reasons it seems advisable to dilate to what might be considered an extreme degree, that is, to 40 or more. Ordinarily we stop several sizes short of this.

After dilatation the local application of various remedies is effected by means of injections or irrigations, and later the urethra is inspected through the endoscope and local applications made under control of the eye to such points as require them.

The course of procedure in an average case of anterior urethritis would be somewhat as follows: To begin with, when the meatus is very narrow it should be cut to a moderate degree, say to 26 or 28, as the

calibre of the dilators with the rubber cover is about 23 or 24, and it should be possible at any time to use a fair-sized endoscope. If the patient object strongly to meatomy, dilatation may be fairly well done with an Otis urethrotome without the knife. First, an endoscopic examination may be made to aid diagnosis. Eroded or granular patches, inflamed follicles and rigidity of the mucous membrane can be plainly seen. With a bulbous bougie any narrowing, if of sufficient degree, can be detected and located. It is well to learn as much as possible of the topography of the urethra before using the dilator, although this instrument also is useful in diagnosis as well as in treatment. It is passed well down and opened by slowly and gently turning the screw. Should there be little or no narrowing of the urethral calibre it can be screwed up easily to a high point without pain. When, however, there is stricture a sense of resistance is noticed and considerable force is required in turning the screw and the patient complains of pain. At this point, of course, we stop and either screw down the instrument and remove it or leave it in a few moments. Having removed it, the urethra should be washed out with a solution of corrosive sublimate, potassium permanganate or anything else that may seem advisable, or we may inject protargol. This drug may be used in these chronic cases in solutions of 10% or even 20% without pain or reaction of consequence, and works extremely well. I generally inject about half a drachm into the bulbous urethra, and while holding the meatus tightly closed, rub it in thoroughly from the outside. For the first few days after dilatation, while the follicles are still wide open, the patient should use an injection of bichloride, silver nitrate or permanganate twice a day. This treatment may be repeated in a week, or the endoscope used, according to circumstances. In case of stricture this must be gradually dilated at weekly intervals until practically done away with before the endoscope will be of much use. For local applications through the endoscope, nitrate of silver in solutions of a strength of from 3% to 10% gives the best results.

In the deep bulbous and prostatic portions the curved dilator is used. When the follicles of the prostate are involved massage is of great assistance. First, the patient passes his water or part of it, and its appearance is carefully noted, for it furnishes the best guide to the progress of treatment. Then, with some fluid in the bladder, either part of the urine held back or a few ounces of sterilized water injected after micturition, the prostate is thoroughly massaged by the finger in the rectum. The patient now urinates again, entirely emptying his bladder. This urine or fluid is also carefully inspected at each visit, especially with regard to the presence in it of the short, clumpy shreds which come from the follicles of the prostate. Then the posterior dilator is passed and screwed up slowly as far as the patient can bear without discomfort, left in a few minutes, removed, and an injection of permanganate, silver nitrate or protargol thrown in. This may be repeated once a week. As a rule no treatment is required in the intervals.

When the seminal vesicles are involved, stripping or massage of these organs is done in connection with the treatment just described. Sometimes a chronic discharge proceeds from the vesicles alone. In this case treatment is confined to them, and stripping is all that is required.

So it appears that when gonorrhea has become localized in the deeper structures of the genito-urinary tract, energetic measures are called for. Time and perseverance are required. Sometimes little improvement will be noticed, the discharge remaining about the same, being kept up perhaps by treatment. In such cases permanent improvement may be expected after the active local measures have been brought to an end. And in cases of doubt as to whether this local treatment has been sufficiently thorough, it is well to suspend treatment for a time and note how much improvement follows and how permanent it may prove to be.

THE SEMINAL VESICLES IN GONORRHEA.¹

BY CHARLES L. SCUDDER, M.D., BOSTON,

Surgeon to the Massachusetts General Hospital Out-Patient Department; Assistant in Clinical and Operative Surgery, Harvard University Medical School.

SEMINAL vesiculitis may be either acute or chronic. The occurrence of acute seminal vesiculitis during the course of an acute gonorrheal urethritis is rare. In 400 cases of gonorrhea, 160 of which cases were acute, there were 32 cases of prostatitis, 1 case of vesiculitis, and 15 cases of prostatitis and vesiculitis. These were cases observed by Colombini in 1897, and reported.²

Direct gonorrheal infection, that is, the extension from the urethra along the ejaculatory duct and into the vesicle, is therefore extremely rare. Such inflammations are very acute and of an extreme type. The contents of the vesicle become purulent, the vesicle wall and the perivesicular tissues are involved, and occasionally the peritoneum, which lies close to the summit of the vesicle, is also implicated. There are a few cases reported in which a general peritonitis has resulted from such peritoneal involvement. One vesicle alone is usually involved in the inflammatory process.

The element of germ infection in these cases is of very great importance. Beside the gonococcus in certain other cases presenting the signs of an acute seminal vesiculitis, the only germ found present has been the colon bacillus. It is probable that infection may take place, therefore, not only by continuity along the surface of the urethra through the seminal duct, but by direct invasion from contiguous tissues, such as the rectum.

The symptoms of acute seminal vesiculitis are almost wholly inflammatory in character, characterized by fever, pain and tenderness. The pain may be referred to the suprapubic region, to the sacrum, to the spermatic cord, to the scrotum, to the kidney, to the bladder, or to the urethra. The tenderness may be referred to the suprapubic region, where muscular rigidity may be evident, or to the region of the seminal vesicles by rectal palpation.

The examination of the urine in these cases of acute vesiculitis is of the greatest importance. While purulent material is collecting within the sac of the vesicle, the acute symptoms are at their height. Immediately upon the emptying of the vesicle the acute symptoms subside, and at this time, when the symptoms have diminished in severity, pus appears in the urine.

So that while the acute inflammatory process is at its height the urine may be nearly clear, but it becomes purulent with the decrease of the symptoms and the escape of pus from the vesicular cavity.

The involvement of the perivesicular tissues is determined by palpation of the vesicles by rectum. The vesicles, instead of being easily detected in their swollen condition, are more or less obscured by a very great general swelling in their immediate neighborhood, and the edema or boggy condition of the palpating finger extends over a wide area. When pus accumulates in these perivesicular tissues it may find an exit either into the peritoneal cavity or into the bladder, or into the rectum, or it may become absorbed. A few cases of pyemia have been reported which originated in an acute seminal vesiculitis. Along with very acute seminal vesiculitis, the prostate is usually somewhat enlarged, that is, congested, and pressure upon the prostate will cause pain. The maximum degree of tenderness is elicited when pressure is made over the seminal vesicle itself.

Treatment of acute seminal vesiculitis.—At the outset, measures directed toward checking the inflammatory process should be taken. If pus is present it should be evacuated either by incision and drainage through the rectum, or by incision and drainage through the perineum.

Chronic seminal vesiculitis.—Chronic vesiculitis is due either to indirect gonorrheal infection, resulting from an extension to the vesicle of inflammations connected with urethral lesions, the source of which was gonorrhea, or to tubercular infection.

*Symptoms of chronic seminal vesiculitis of gonorrheal origin.*³—No inflammatory symptoms are present. The symptoms are functional or neurotic in character. Complaint is made of perverted sexual desire, irregular seminal emissions and neurotic sensations. Certain mental symptoms may be present in these cases which are quite characteristic.

Many cases of so-called gleet may be found to be due to a chronic seminal vesiculitis, and many cases of chronic seminal vesiculitis may be the occasion of many of the neurotic and hypochondriacal symptoms seen in genito-urinary practice.

The treatment by massage of the vesicles should be instituted before resorting to extirpation. Extirpation of the sac of the seminal vesicle should be reserved for extreme cases, associated with serious or severe subjective symptoms.

*The operative routes to the seminal vesicles.*⁴—There are three routes by which the seminal vesicle may be reached, the inguinal, the perineal, or the sacral.

The steps of the inguinal operation are as follows. The descriptions are those given by Bolton: (1) Incision over the inguinal canal parallel with Poupart's ligament to scrotum; (2) splitting aponeurosis of the external oblique over the canal, separation of vas, and enucleation of testis; (3) ligation of deep epigastric vessels and incision of transversalis fascia; (4) separation of peritoneum from iliac fossa wall and pelvis and bladder along the course of the vas deferens to the ureter; (5) division of vas, its withdrawal from around the ureter; (6) separation of vas and vesicle from base of bladder and from prostate and their removal.

¹ Read before the Boston Society for Medical Improvement, December 31, 1900.

² *Contrib. f. die Krankh. d. Harn. u. Sex. Org.*, 1897, S. 521.

³ Eugene Fuller. *Disorders of the Male Sexual Organs*.

⁴ Bolton: *Journal of Genito-Urinary Diseases*, vol. xvii, 1899, p. 551.

The perineal operation is done in the following steps: (1) A curvilinear incision from one tuberosity of the ischium to the other, crossing the perineum about an inch in front of the anus and dividing the insertion of the sphincter ani into the tendinous centre of the perineum; (2) division of the anterior fibres of the levator ani and exposure of the rectum and prostate, and the separation of these till the base of the prostate and lower ends of the vesicles are reached; (3) division of one or both ejaculatory ducts at the base of the prostate by a transverse cut, seizure of the vesicle and its forcible extraction.

The steps of the sacral operation, using the Rydygier incision, are these: (1) The Rydygier incision, namely, beginning just behind the anus the oblique limb is carried up and slightly outward to the level of the junction of the fourth and fifth sacral vertebra, dividing the tissues attached to the side of the coccyx and last piece of the sacrum. The transverse limb crosses the lower end of the sacrum at the upper end of the oblique. A few strokes of the osteotome divide the sacrum and allow the triangular flap so formed to be turned down, exposing the rectum. The rectum is next displaced to the right and the prostate exposed and then working from below upward the base of the bladder with the attached vesicle and vas is easily brought into view, but at some depth. Moderate distention of the bladder brings the vesicle nearer to the surface and makes its removal a matter of no great difficulty. (2) Displacement of the rectum and exposure of the prostate and base of the bladder. (3) Isolation of either or both vasa and vesicles directly under the eye and their removal.

GONORRHEAL PROSTATITIS.¹

By JOHN BAIST BLAKE, M.D., BOSTON.

WE are to consider briefly in this paper inflammatory processes involving the prostate, which accompany, complicate, and are dependent upon a pre-existing or coexisting gonorrhoeal urethritis. Such processes may vary markedly in duration, intensity and extent.

In duration they may be either acute or chronic, and last from three days to three weeks, or from months to years. In extent they may be limited to prostatic follicles, may involve the entire organ, or may penetrate the capsule and extend to the surrounding tissues. In intensity they may be of any degree, from a simple congestion with vague symptoms to rigors, fever, prostration and perhaps death.

It is obvious, therefore, that the clinical picture of gonorrhoeal prostatitis may be a many-sided one, and it should not be forgotten that in all its aspects, particularly in symptomatology, treatment and prognosis, it is further modified by the fact that it rarely exists unaccompanied with other complications: a posterior urethritis always precedes it; in the acute cases cystitis in some degree almost invariably accompanies it, and in the chronic condition it is with equal frequency associated with vesiculitis.

Anatomy.—The prostate is a roughly pyramidal musculoglandular organ, directly continuous with the neck of the bladder, situated behind and slightly below the pubes, from which it is separated by the cellular tissue of the space of Retzius. Posteriorly,

only a fold of rectovesical fascia intervenes between it and the rectum. It is enclosed in a thin but firm fibromuscular capsule. It is about $1\frac{1}{4}$ inches deep, $1\frac{1}{2}$ inches wide, and $\frac{3}{4}$ inch thick, and its apex touches the posterior layer of the triangular ligament. The ancient and time-honored simile likening its shape to a chestnut is a description which applies with considerable accuracy as well to the comparison as to the gland itself. The mass of the prostate lies behind the urethra, which in this position has an almost vertical direction. The prostate consists of two parallel lobes connected posteriorly by a bar or collar. Normally a distinct third lobe does not exist.

A section shows a series of more or less complicated lobules, or glands, opening by from fifteen to thirty-two ducts into the prostatic sinus of the urethra. Five-sixths of the organ is glandular substance. Muscular fibres surround each lobule, of which there are forty or fifty. Elastic fibres keep the mouths of the ducts closed. The connective tissue is amply sufficient to furnish the necessary support to the glandular structures. The muscular substance is arranged primarily to compress the prostate, not to act as a vesical sphincter.²

Frequency.—Accurate statistics of the frequency of gonorrhoeal prostatitis are not obtainable by the writer. Montagnon and Eraud, quoted by Finger, say that the prostate is affected in 70% of all posterior urethritides. It is difficult to perceive how a posterior urethritis of any severity can fail to be accompanied by some degree of prostatic congestion, and if so it is only a question of opinion as to the amount of congestion which merits classification as a separate entity. Statistics of frequency will therefore vary with the accuracy and thoroughness of the observer; with the habits, mode of life and general condition of the patient, and with the character of the treatment. If the prostate be examined by rectum as a routine measure in every case of posterior urethritis the 70% given above will certainly be found not excessive.

A well-defined prostatic abscess, however, as the result of gonorrhoea, is not a common occurrence. The following figures are taken from the card catalogue of the Boston City Hospital for the years 1881 to 1896: Abscess of prostate, 11 cases; prostatitis, 37 cases; prostatic hypertrophy, 241 cases. Of the 11 cases of abscess at least 3 were not obviously of gonorrhoeal origin, and at least 5 of the cases of prostatitis were not distinctly associated with gonorrhoea. On the other hand, these figures only denote those cases in which the prostatic element dominated the situation, and do not include those in which it only complicated a more severe condition. They are, therefore, only relative, but emphasize the infrequency of the condition.

Etiology.—Within the past eight years the etiology of most of the complications of gonorrhoea has been scientifically established. Among the latest contributions are those of Young, of Johns Hopkins, who has shown that the gonococcus may be the sole cause of acute and chronic cystitis, double pyonephrosis and general peritonitis. I have been unable to find in print the results of similar work upon the prostate.

Infection of the prostate may come by direct extension from the urethra, by the blood or urine (tubercle,

¹ Read before the Boston Society for Medical Improvement, December 31, 1900.

² Walker: Johns Hopkins Hospital Bulletin, vol. xi, p. 242.

typhoid) or by continuity of tissue. In gonorrhea it always comes from the urethra and from a pre-existing posterior urethritis. It is evident, therefore, that it may be due either to the gonococcus alone, or to a mixed infection, since we know that many cases of gonorrhea become a mixed infection early in their history. It is to be hoped that the investigations which have explained etiology and pathology of other gonorrheal complications will soon be duplicated in those involving the prostate.

Clinically, a posterior urethritis always precedes a prostatitis, even though the latter be due to manipulations with unclean instruments. Anything which irritates or tends to increase the congestion accompanying a posterior urethritis may act as an exciting cause of a prostatitis. Among many agents may be mentioned alcohol, coitus, prolonged sexual excitement, exposure to cold, forcible and injudicious injections, horseback riding, bicycling, and such violent exercise as running, jumping, etc. The jolting coincident to a railroad journey may be a determining factor.

Prostatitis usually appears at the end of the second or during the third week of urethritis, though it may, of course, come later. It may be worth while to repeat that it may be either acute or chronic, and that the acute cases may be of the type of simple congestion; of inflammation limited to the follicles and perifollicular tissues; of a process involving both follicles and parenchyma and progressing to pus formation of greater or less degree, and, finally, of a process involving almost the entire gland and extending to the periprostatic tissues. The chronic type is almost always follicular, though occasionally it is characterized by one or more small abscesses which develop without most of the typical symptoms. The duration of the acute congestive and follicular types is from three days to three weeks, parenchymatous and purulent from one to three months, and the chronic for months or years.

Congestion.—The beginning of congestive prostatitis may be suspected when the symptoms of an existing posterior gonorrhea increase, and pain and a feeling of soreness and weight deep in the perineum become especially prominent. If under these conditions rectal examination shows a prostate tender or hot or both, further data for the establishment of a diagnosis are not need. An increase in size may or may not be present, and even the increase in pain may be comparatively slight. The urethral discharge will probably be diminished. Under these conditions the patient should be put immediately to bed, bowels moved with salines, the diet made still more bland and hot rectal injections of moderate size given and retained. A hot-water bag may be placed against the perineum. Opium with or without belladonna may be given in suppositories, if the pain increases; and oil, sandal will moderate the accompanying cystitis. European writers recommend highly Finger's hollow bulbous rectal tube, through which flows a continuous stream of cold water. It is introduced into the rectum and rests against the rectum.

The symptomatology of prostatic congestion is essentially an exaggeration of posterior urethritis, and its treatment is therefore an extension and elaboration of that of the latter.

Follicular.—In the follicular type the deep perineal distress and pain increase, and may radiate and shoot into the rectum or groin, or be referred to the

end of the penis. Micturition is still more affected and tenesmus develops; frequently a drop of blood appears at the meatus, the result of the spasmodic action of the bladder sphincter at the end of the expulsive effort. The prostate is usually increased in size, and often one or more particularly tender spots denote the position of the inflamed follicles. The urethral discharge is usually diminished.

Parenchymatous.—With the involvement of the parenchyma, the increase in size becomes still more marked. The prostate, exquisitely sensitive, projects far into the rectum, causing a continuous, painful and, of course, ineffective desire to stool. Difficulty of micturition increases even to complete retention, and spasm of both urethral and rectal sphincters is almost constant. The general condition of the patient is seriously affected.

Abscess.—The formation of an abscess is almost always accompanied by rigors with marked exacerbations and sharp remissions of temperature, and a sensation of throbbing in the perineum, together with all the symptoms which accompany deep-seated suppuration. Fluctuation can often be discovered by rectal examination. Extreme prostration, suspicions of attendants and physicians, rejection of treatment, and delirium are not unusual. The prostatic abscess may point and break in almost any direction, the most frequent localities being the urethra, the rectum and the perineum in the order named. Occasionally the rupture is in two of these places simultaneously. Segond's classical collection of 102 cases showed rupture into urethra in 64, rectum in 43, perineum in 15, ischiorectal fossa in 8, and also in the groin, the prevesical space, the peritoneal cavity, the abdominal wall and the pelvic foramina. In the City Hospital cases above quoted 4 burst into the urethra and 2 into the rectum. As a rule the cavity granulates and fills rapidly and no further trouble results, but a urinary fistula may remain. This happened in 10% of Segond's group. The abscess cavity may be still further infected from the urethra or rectum with fatal results.

The mortality in prostatitis may be due to a variety of causes. Post³ mentions 3 cases. One died in three weeks from the beginning of the gonorrhea and one week after the first symptoms of abscess, with fever and delirium. A second died in two months from pyemia and metastatic abscesses in lungs, liver and other organs; and a third from prostatic abscess with double pyelonephritis.

The mortality is variously estimated from 3 $\frac{1}{2}$ % by White to 30% by Segond. Apparently different types of cases had been examined.

Retention is present in a large majority of cases; it may be relieved by repeated catheterization; by inserting a small catheter and leaving it in place, or by aspirating over the pubes. Unless we desire to utilize the catheter to facilitate discharge of the abscess through the urethra—as frequently occurs and as is sometimes recommended—aspiration is the method of choice. The surgical treatment is to afford drainage for the pus. If the abscess points into the rectum, after stretching the sphincter and cleansing the lower bowel, the fluctuating point may be incised with a bistoury, or punctured with a trocar, preferably the former. It is questionable whether any advantage is to be obtained by introducing gauze into the incision.

³ Boston Medical and Surgical Journal, 1887, vol. cxvi, p. 417.

If the diagnosis is established before the abscess points into the rectum or perforates into the urethra, it should be opened through a median or crescentic incision in the perineum; this may involve a deep and rather difficult dissection and a wound not easy to drain effectively. High temperature and chills should cease as soon as thorough drainage is established, and retention is immediately relieved.

Periprostatitis.—Purulent periprostatitis differs only in extent from prostatic abscess. Symptomatology and treatment are practically the same. (It may be regarded as a later stage of parenchymatous inflammation.)

Prognosis.—In congestive and follicular prostaticitis the prognosis is good. In purulent parenchymatous and periprostatitis it is guarded and dependent upon the possibility of effective drainage and on the patient's general condition.

Chronic prostatitis may result from a pre-existing acute condition, or may, and usually does, develop from a chronic posterior urethritis. It is usually follicular. Occasionally a chronic parenchymatous condition is found, with the development of numerous milary abscesses. The symptoms are largely those of chronic posterior urethritis, with the addition of perineal tenderness, and an accompaniment of neurasthenia. The follicular type is characterized by the presence at the meatus of a thick, glairy mucus, which appears after stool or during sexual excitement, the so-called prostaticorrhea. These chronic processes are almost invariably associated with vesiculitis and their duration is indefinite. The treatment is that of chronic posterior gonorrhea and of sexual neurasthenia—cold baths, general tonics, healthful habits, and locally, cold sounds, deep injections of nitrate of silver and, in the absence of acute symptoms, massage of the prostate.

GONORRHEAL CONJUNCTIVITIS.¹

BY CHARLES H. WILLIAMS, M.D., BOSTON.

DR. BRADFORD has asked me to add a few words to the discussion of this subject, in regard to the gonorrheal inflammations of the eyes. It has been estimated that from one-third to one-half of the existing cases of blindness have been caused by gonorrheal inflammations of the eyes, generally as a result of infection of the cornea, and the ulceration and sloughing which often destroy more or less of the cornea. The disease generally occurs in infants, from one to five days after birth, or in young adults, and in almost all cases is caused by carrying to the surface of the conjunctiva some of the diplococci of Neisser (gonococci) either at the time of birth or in the subsequent washing of the infant's eyes, or by dirty fingers, towels, etc., in adult life. Other pyogenic organisms may give rise to a purulent conjunctivitis similar to the true gonorrheal form, so that it is not possible in any given case to say that the trouble must be due to gonorrheal infection without making a bacteriological examination, although in most cases it would be true.

In ophthalmia neonatorum the disease begins with a slight redness of the lids and a watery discharge from the eyes, the swelling of the lids rapidly increases, the discharge becomes streaked with mucus

and is soon quite purulent and abundant. Swelling of the lids may be so extreme as to prevent their being opened for proper cleansing or examination except by use of a lid elevator, and the pressure of the lids on the cornea may become so great as to require a canthotomy. The inflammation of the conjunctiva will in time disappear without any serious results to vision, but the principal attention must be constantly directed to the condition of the cornea, to prevent, if possible, the infection of its tissue with the purulent matter.

For this purpose the first and most important treatment is the careful removal of the purulent discharge. This should be done every fifteen minutes or half hour, if necessary, night and day for the few days the disease is at its height, and at longer intervals as the discharge decreases. It is necessary to remove this discharge as thoroughly as possible, taking care that no damage is done to the protecting epithelium of the cornea. It does not make much difference what liquid is used for irrigating the conjunctival sac provided it is not irritating; my own preference is for a warm saturated solution of boric acid, used in quantities of half a pint to a pint at a time, by means of a small fountain syringe and a tube provided with a glass nozzle, with its end drawn out to a tube not over one-eighth inch in diameter, the end being carefully rounded in the flame. This should be cautiously inserted between the eyelids with the end carefully turned away from the cornea toward the upper part of the conjunctival sac, and moved across the lid so that the discharge may be removed from the whole of the conjunctival sac by the warm stream of irrigating fluid. Various forms of hollow lid elevators have been devised in which the fluid enters the shaft of the elevator and is discharged through a series of fine openings at its edge, which rests in the upper part of the sac, but in using any form of irrigating instrument great care must be taken not to injure the cornea.

The eyes of the nurse should be protected from any chance of infection by the spattering of a drop of the discharge into her eyes, and for this purpose a mica shield reaching well up on the forehead and extending to the temples can be used; protectors of this kind are used in sleighing to shield the eyes from the bits of flying ice and snow, and answer the purpose very well.

In the early stages of the disease, both in infants and adults, applications of cold may be made by means of cloths cooled on ice and laid over the eye, with frequent changes as the cloths get warm; but the cold applications should not be continued if any corneal complications arise. Nitrate of silver solutions should not be used in the early stages, but in the later stages of the disease, after the intense swelling of the eyelids has begun to subside and the discharge is more purulent, a 2% solution may be applied to the conjunctival surface and then neutralized with a salt solution, with good results, but nothing should take the place of the constant cleansing away of the discharge by gentle means as often as is necessary. Solutions of protargol, from 20% to 40%, applied to the everted lids in the later stages of the disease will in many cases work well, but it seems to be a less reliable remedy than the nitrate of silver. The edges of the eyelids and the surrounding skin should be protected with vaseline.

¹ Read before the Boston Society for Medical Improvement, December 31, 1900.

In patients who are in poor physical condition the application of heat will often prove better than cold; this can be done by hot cloths of several thicknesses which have been ironed with a hot flat-iron and applied to the eye as soon as they can be borne, or an electrically heated pad, in which the temperature can be well regulated, can be used. The patient should be kept in bed, the bowels well open, and if necessary tonics should be added to a liberal diet.

The danger of corneal complications is greater in adults, especially when they are in poor condition, than in infants, and in some severe cases it may be necessary to do a canthotomy or even to divide the upper eyelid vertically in order to relieve the pressure on the cornea and ensure its proper cleansing and treatment; after the inflammation has subsided the edges of the cut can be freshened and the lid united by fine sutures without any marked disfigurement. If the cornea becomes hazy and a small ulcer forms, continue the irrigation, use 1% atropine three times a day, and hot applications rather than cold. In some cases of marginal ulceration solutions of eserine, one-half grain to the ounce, may be used every four hours, but it must be used with care, and when the ulceration is central atropine will probably work better. With infants, especially in large lying-in hospitals, the number of cases of ophthalmia neonatorum has been much reduced by the prophylactic treatment proposed by Crodd; he advised putting two drops of a 2% solution of nitrate of silver into the conjunctival sac immediately after birth, the lids having been first carefully wiped dry with a clean cloth, and care being taken not to get any of the water in which the child is washed into the eyes. In all cases in which there is any suspicion of gonorrheal trouble this method should be followed, also in large lying-in hospitals, but in ordinary cases of private practice it is usually not necessary.

When first seen, especially in adults, if the disease has only affected one eye, the other eye should be at once protected by covering it with a small pad of absorbent cotton over which gauze is placed, cut so that it reaches above the eyebrow and below the eye; this gauze should be fastened to the skin by repeated applications of collodion, special care being taken to make a tight joint at the bridge of the nose, over which some discharge is very likely to find its way. The gauze should be covered with collodion over its whole surface, and if necessary a piece of mica can be inserted in a window cut in the centre of the dressing, as recommended by Dr. Knapp, the cotton pad being omitted; the sound eye can thus be better watched and the patient can look about him.

The patient and all his attendants should be warned of the very infectious character of the discharge, and the necessity of burning all dressings that have been brought in contact with any of the discharge from the diseased eye.

WHEN IS A GONORRHEA CURED?¹

BY PAUL THORNDIKE, M.D., BOSTON.

WHEN is a gonorrhea cured or ended? No one knows, and yet upon the answer to this question many social and moral problems of the greatest importance depend. We must admit at the beginning that the

question cannot be answered. We do not and can never know when a man whose urethra has become infected with a gonorrheal inflammation ceases to be a dangerous person to those with whom he may have sexual relations. We believe we know that many such men do recover, as proven by subsequent experience. Many of them certainly do recover, so far as our present means of ascertaining that fact goes; they do marry and have healthy wives and children. Many others who believe they are well certainly do infect their wives.

Noeggerath, in 1872, in a paper which excited comment throughout the whole medical world stated that men infected with gonorrhea never recovered, and that 90% of these men, when they married, infected their wives. A few years later he formulated his conclusions somewhat as follows: "(1) That gonorrhea in the male, as well as in the female, persists for life in certain sections of the organs of generation, notwithstanding its apparent cure in a great many instances; (2) that there is a form of gonorrhea, which may be called *latent* gonorrhea, in the male as well as in the female; (3) that latent gonorrhea, in the male as well as in the female, may infect a healthy person either with acute gonorrhea or gleet; (4) latent gonorrhea in the female, either the consequence of an acute gonorrheal invasion or not, if it pass from the latent into the apparent condition, manifests itself as acute, chronic, recurrent perimetritis or ovaritis, or as catarrh of certain sections of the genital organs; (5) latent gonorrhea, on becoming apparent in the male, does so by attack of gleet or epididymitis; (6) above 90% of sterile women are married to husbands who have suffered from gonorrhea, either previous to or during married life."

These statements were made as the result of the author's clinical experience, and were made at a time when the gonococcus was still unknown. The discovery of the gonococcus does not seem to have markedly changed the force of these conclusions and when we remember that even in the anterior urethra remnants of the disease (possibly capable of reactivity) may exist and defy our most careful efforts to discover them; when we remember that it has been pretty definitely proved that in the greater number (probably over 90%) of all cases of acute gonorrhea the deep urethra is invaded; when we realize that the seminal vesicle is undoubtedly involved many times for every once that such involvement is discovered; when we think that a gonorrheal pyelitis may occur and continue to exist indefinitely with no knowledge to that effect on the part of its possessor; when we realize that all we can do to combat such a disease is to reach and treat such portions of it as we may with the means at present at our command, and to leave nature to handle the rest of it (no small part in many instances), we cannot be surprised at the character and scope of Noeggerath's statements. Nor can we disprove them except by offering in contravention to some of them, clinical observations and experiences of a character similar to his own. I take it, however, that it was not intended by the gentlemen who arranged this series of papers on gonorrhea, that this one should try to deal in detail with these various statements, nor is it necessary for the purposes of this paper to do so. It makes little difference just how far we, as individuals, are able to acquiesce in these statements

¹ Read before the Boston Society for Medical Improvement, December 31, 1900.

concerning gonorrhea. The medical world is united in realizing that gonorrhea is not the simple disease it was once considered, but is one which often spreads to places where its local treatment is impossible; which very often becomes chronic and sometimes defeats the efforts of the most expert for its eradication; which in very many instances retains its contagious capabilities long after its very existence is supposedly ended.

What can we, as physicians, do about such a state of affairs? We can do two things: (1) We can use every effort to prevent the exposure of innocent women to this infection, and (2) we can teach the rest of the world, both medical and non-medical, the necessity for being similarly careful. Most men have probably had a gonorrhea at some time in their lives. Whether or no we believe that none of these men have ever been cured, we certainly cannot forbid them all to marry; but we can subject all those who come within our reach to the most rigid examination, and then tell them either that we can find no trace of the disease and so believe them safe to marry, or that we have found traces of disease which it is absolutely necessary shall be treated and if possible cured. Most such cases depend upon a definite cause, which can be found and generally eradicated.

In brief, all acute cases should be freed from all traces of discharge, both that visible at the meatus and that showing as shreds in the urine, and should remain so free for a period of months, during which time the patient has lived his usual life, eating, drinking and exercising as he will. In the chronic cases, the *cause* of the discharge, whether it be a stricture already formed, granulating patches, areas untreated and uncured in the posterior urethra, involvement of the seminal vesicles, or any one or more of the many possible causes, must be sought for by one competent to so search, and when found must be treated and cured. This can generally be done, but often takes a number of months for its accomplishment. Having been so accomplished, the patient must pass through a period of probation similar to the one mentioned above. There remain a few cases where the most rigid examination of the whole urethra, prostate and seminal vesicles fails to reveal any lesion to account for the persistent drop or shred. In these cases it is my belief that efforts should be made to re-establish an acute inflammation by judicious local irritation with injections, and then a careful search for gonococci should be made in the discharge thus re-established. Should none be found after a number of examinations, the artificially produced inflammation is allowed to subside, which it should do in two to three days, and the remaining shred or drop be repeatedly and carefully examined for gonococci, preferably by another physician than yourself. If they are not found and the discharge is mucoid in character, the patient must probably be allowed to marry, but must still be told of the risk he runs. (Personally, I believe it to be a slight one.)

Of the various methods and instruments necessary for proper examination of these cases there is no time to speak. Nor is it expedient for the work is work for the expert and not for the general practitioner. The writer's personal belief may be summarized something as follows:

(1) That the methods of examination at present at our command are fairly adequate to determine in any

individual case whether there are still contagious possibilities in that case.

(2) That the methods of treatment at present at our command are fairly adequate for the treatment of those cases where remnants of disease are found.

(3) That all such remnants of disease should be treated whether they contain gonococci or no; and that they can be intelligently treated only after they are found and located.

(4) That there are a few cases where the remnant of discharge persists, but where no cause for its persistence can be found by the writer in spite of many most careful efforts. Some of these cases must probably be allowed to marry with traces of discharge still discoverable; but none such should marry until every possible effort has been made to demonstrate its non-contagious character and until the possibility of future trouble has been explained. It is the writer's custom to have more than one opinion in any case of this kind.

Medical Progress.

PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND F. J. COTTON, M.D., BOSTON.

(Continued from No. 5, p. 111.)

CHRONIC VILLOUS POLYARTHRITIS AND ARTHRITIS DEFORMANS.

The former is, according to Schüller,²² a bacillus affection. Characteristic bacilli were found in 20 cases operated upon by him. The bacilli were found in the fringes and in the synovial tissues. These bacilli were cultivated and produced in guinea pigs a similar process. In arthritis deformans the affection does not attack the synovial membrane, but the cartilage covering the ends of the bone. The affection apparently is one of metabolism. At least no micro-organisms have been discovered. In the former affection Schüller uses guaiacol-iodoform glycerin injections, which are to be repeated. Operative method has the disadvantage that it requires for its completion a long continuous after treatment. In his later cases, thiocoll was used instead of guaiacol. The injections are of no use in arthritis deformans. In the latter affection the writer endeavors to treat by giving a diet which is poor in lime, in opposition to what other writers have used. A little milk is given, and under this treatment an increase in the elimination of lime in the urine is observed.

CHRONIC RHEUMATISM AND ARTHRITIS DEFORMANS.

Müller²³ insists on the necessity of a careful diagnosis in these cases. Chronic rheumatism belongs more properly in its treatment to the department of internal medicine. Arthritis deformans needs to be treated by surgical means and gymnastics.

Clement Lucas²⁴ has collected 20 cases of joint disease in infants, apparently gonorrheal consecutive to gonorrheal ophthalmia. In most of the cases the ophthalmia dated from birth and infection in parturition. The arthritis appears usually in the second or third week. All joints may be affected, most often

²² Berlin, klin. Woch., 1900, Nos. 5-7.

²³ Zeit. f. orth. Chir., Bd. viii, H. 1.

²⁴ Transactions of Medico-Chirurgical Society of London, 1899, lxxxii, p. 137.

several at a time, most frequently the knee and the wrist. Duration seems to depend largely on the treatment and cure of the ophthalmia. Usually the arthritis lasts four or five weeks. In 2 cases there was suppuration necessitating operation.

CONGENITAL DISLOCATION OF THE KNEE.

Drechsman claims that this affection, although not rare, has been less written about than congenital dislocation of the hip. The prognosis of treatment if the cases are taken early is much more favorable than in congenital dislocation of the hip, and consists of early forcible reduction of the deformity. The obstacle to reduction is the shortening of the quadriceps; this can be either divided or stretched. The limb should be put up in a plaster-of-Paris bandage in a corrected position.

TRANSPLANTATION OF THE TENDONS.

Lange,²⁵ in the place of tendon transplantation, that is, the sewing of the tendon of a strong muscle to a paralyzed tendon, substitutes what he calls periosteal transplantation. He considers that the advantage of this is that instead of inserting a strong muscle into a weak tendon, he can insert strong muscles into the desired point of bone, making an attachment where he wishes. He thinks that in this way it may be possible to lay aside apparatus in 80% or 90% of the cases of this deformity. He presents a case of paralytic varus where the tibialis anticus was split and one part stretched to the outer part of the tarsus with excellent result, also a second similar case. In 2 earlier cases the biceps and semitendinosus tendon were transplanted into a quadriceps tendon, without results, owing to the feeble condition of the quadriceps. He, therefore, in 3 later cases connected the tendon of the biceps and the tendinosus with the periosteum of the tibia, making a connection between the tendon of the semitendinosus and of the biceps and the periosteum by strong silk thread, which passed subcutaneously between the patella and the skin to the tibia, and was sewed to the tuberosity of the tibia. The result is reported to have been excellent.

Popper²⁶ reports successful results of arthrodesis of the knee and the astralagotibial articulation. The patient before the operation was only able to walk on all fours. The operation has also been done successfully in paralytic valgus, and also in the wrist in the case of a paralyzed hand.

PERIOSTEAL TRANSPLANTATION, ARTHRODESIS IN INFANTILE PARALYSIS.

Hoffa²⁷ recommends arthrodesis, and has practised it in a case where both knees and the astralagotibial articulation were operated on and obliterated. The boy had previously been able to walk only on all fours. The operation has also been performed with success in paralytic deformity of the wrist.

TORTICOLLIS.

Pfeiffer, in a monograph (Berlin, 1900) on the treatment of torticollis, reports 25 operated upon and 13 treated by massage. The birth of these children was in 18 in pelvic presentation; 6 were artificial; 1 foot presentation; 11 the head position, besides 3 cases of turning and 4 cases aided with forceps. The

writer is of the conclusion that torticollis from intra-uterine position is not common, if it has ever been accurately observed. The most common cause is the tearing of the sternocleidomastoid muscle which takes place in pelvic presentation. The right is the most common side. The most important moment for the injury to the muscles is the turning of the head, the muscular contraction in early attempts at breathing. A hematoma following an injury, and an interstitial fibrous myositis, will call forth a contraction of the muscle. If an improvement is to be seen in the sternocleidomastoid energetic massage will be sufficient, but if induration is obstinate, excision of the callus is desirable. If the muscle is degenerated, open incision is preferable to myotomy. An apparatus correcting position is desirable for awhile.

OPERATIVE TREATMENT OF SPASTIC TORTICOLLIS.

Kalmus²⁸ describes the result in 95 cases, treated by operation, upon which 118 operations were performed. In 11, the stretching of the spinal accessory nerve was undertaken, 3 were cured. With a section of the accessory nerve, 23 were cured, 20 showed improvement, 4 were but slightly helped, and 1 died of erysipelas. In 15 cases after the resection of the accessory, further operative interference was undertaken: in 13, resection of the cervical nerves followed, in 2 resection of the sternocleidomastoid with a destruction of the accessory. Of those cases on which the cervical nerve was divided, 10 were healed and 3 were benefited. In the same way in those on whom, after the destruction of the accessory, a resection of the sternocleidomastoid followed, cure resulted. Two resections of the cervical nerves without the resection of the accessory resulted 1 cured and 1 improved. In 15 cases the cervical nerves were affected, and 11 of these were healed.

A comparison of this method, that is, the combination of muscle division and resection of the cervical nerve with a previous resection of the accessory, gave better results than in Kocher's procedure, by muscle resection, but the writer thinks that further investigation is necessary. Internal treatment is without benefit. Electricity and massage combined with orthopedic treatment is sometimes successful.

(To be continued.)

Recent Literature.

*Description of the Human Spines Showing Numerical Variation in the Warren Museum of the Harvard Medical School.*¹ By THOMAS DWIGHT, M.D., LL.D., Parkman Professor of Anatomy in the Harvard Medical School. Published by the Society, 1901.

In a monograph of 75 quarto pages Professor Dwight describes a collection of 45 anomalous human spines which he has been several years in bringing together. Some of the specimens are unique, others are extremely rare. All are ligamentous preparations, which precludes the possibility of error in the number of vertebrae in reassembling the spines. The an-

¹ *Memoirs of the Boston Society of Natural History*, vol. v, No. 7.

²⁸ *Beitr. zur klin. Chir.*, 1900, Bd. xxvi, S. 189.

²⁵ *Münch. med. Woch.*, 1900, No. 15.

²⁶ *Wien. klin. Rund.*, 1900, No. 20.

²⁷ *Loc. cit.*

nounced purpose of the paper is "to discuss what these spines teach concerning the significance of numerical variation of the vertebrae" and "to make the collection available to others."

Assuming that Rosenberg's theory of the forward migration of the ilium in ontogenetic development is true, Dr. Dwight seeks to discover if it explains satisfactorily numerical variation in the number of presacral vertebrae. He concludes that the "intercalation theory" or "the better one of an error of segmentation" does not exclude Rosenberg's. As irregularities occur in so many combinations in the several parts of the spine it is difficult to fix upon a starting point. Rosenberg and most biologists would compare the twentieth vertebrae of one spine with the twentieth of all others, but Dr. Dwight believes that if it can be shown that a certain vertebra has a distinct teleological value it is to be taken as a starting point. He therefore adopts Welcker's idea of a *vertebra fulcralis*. This is the one that has most to do with supporting the ilium, normally the twenty-fifth. Sometimes it is difficult to decide which is the *fulcralis*, but where everything is variable we cannot "exact absolute stability from the *fulcralis*."

If we regard the spine above the pelvis as an apparatus that develops as a whole for the performance of several functions, we can understand why a tendency exists for parts in the same relative position with reference to the *vertebra fulcralis* to develop in the same way. It is unlikely that there is a precise number of human vertebrae. Variations increase downward until in the region below the vertebrae supporting the ilium the number becomes very unstable. Dr. Dwight finds in this investigation further proof in support of his well-known belief that many of the morphological variations are to be accounted for on the ground of fortuitous variation about a mean rather than as oscillations between reversion and progression.

The collection is classified in five groups: (1) Normal number of presacral, but with irregularities at the junction of the thorax and neck or at the junction of the thorax and loins; (2) twenty-sixth is the *fulcralis*, but the twenty-fifth is not quite separated from it; (3) more than twenty-four presacral; (4) imperfectly developed presacral; (5) less than normal number of presacral.

Among the remarkable specimens are two spines with two additional presacral with the last one sacralized on one side; a case of fusion of axis and third; a spine with fused atlas and axis, suppressed cervical, an additional lumbar, and sacralized on one side; a spine with anterior arch of atlas wanting, cervical rib on one side reaching sternum, suppression of thoracic vertebrae; one in which there is a cervical rib to manubrium on one side, with the next rib ending in place of normal second, with no contact between the cartilages, suppression of a thoracic vertebra.

In conclusion Dr. Dwight states a number of deductions that seem justified and lays stress upon the action of "a vital principle" as a determining cause of the variations described; for example, "variations which separately seem either reversive or progressive generally lose that appearance when the whole spine is considered." "After the occurrence of the original error in development there is a tendency for the spine to assume as nearly as possible its normal disposition

and proportions. This, as do also concomitant variations and indeed all development, implies a vital principle."

This paper considers a difficult subject, is based upon prolonged research, involves biologic principles of the first importance, presents new material and arrives at suggestive conclusions. It is illustrated with numerous drawings and is accompanied by a selected bibliography of 23 titles.

Experimental Research into the Surgery of the Respiratory System. An Essay awarded the Nicholas Senn Prize by the American Medical Association for 1898, by GEORGE W. CRILE, A.M., M.D., Ph.D., Professor of Clinical Surgery, Medical Department, Western Reserve University; Surgeon to St. Alexis Hospital; Associate Surgeon to Lakeside Hospital, Cleveland. Second edition. Philadelphia: J. B. Lippincott Co. 1900.

We did not have the pleasure of seeing the first edition of this essay, which, the author states, was undertaken in view of the fact "that there are a number of phenomena attending operations and injuries of the thorax and respiratory tract which are not sufficiently well understood for ready application in surgery." It is the result of research work extending over two years.

The writer has taken up the following different subjects in experimental work: "On the Cause of the Phenomena Attending the Inhalation of Hot Air and Flame," "On the Effect of Filling the Chest with Fluid," "On the Effect of Prolonged Manipulation of the Brachial Plexus and the Nerves Supplying Some of the Muscles of Respiration," "On the Cause of Collapse or Death from Blows on the Lower Chest or Epigastrium," "On the Mechanism of Drowning," "On the Cause of Certain Symptoms Observed on Entering an Atmosphere of Increased Barometric Pressure," "On Foreign Bodies in the Pharynx and Esophagus," "On Foreign Bodies in the Trachea and Larynx," "Laryngotomy," "Tracheotomy," "Intubation," "On the Cause of Certain Phenomena Attending Considerable Traction on the Tongue."

The author has brought to his work a knowledge of the technique of experimental physiology and has endeavored to explain some of the obscure phenomena that occur in surgery of the respiratory system. It is an essay which will repay careful study and is very suggestive as to lines of research work. We trust that Dr. Crile will continue his work, which is an investigation of surgical phenomena by methods of research work used in a physiological laboratory.

Tirard's Medical Treatment. A Textbook of Medical Treatment of Diseases and Symptoms for the Use of Students and Practitioners of Medicine. By NESTOR TIRARD, M.D., F.R.C.P., Professor of Principles and Practice of Medicine, King's College, London. Adapted to the U. S. Pharmacopoeia by E. QUIN THORNTON, M.D., of Jefferson Medical College, Philadelphia. In one octavo volume of 624 pages. Philadelphia and New York: Lea Brothers & Co. 1900.

The author is professor of the principles and practice of medicine in King's College, London. This volume may be regarded as a supplement to the usual textbooks on medicine, in which the section

on treatment which follows those on history, symptomatology, diagnosis and prognosis is apt to be somewhat curtailed by the exigencies of a necessarily limited space. The sequence of the chapters rests on an anatomical and physiological basis. Where formulae are given they have been adapted to the U. S. Pharmacopœia. The volume is an octavo of 630 pages and is divided into 25 chapters. The work of the author and the presentation by the publishers have been well done. The book will be found a useful one by advanced students and by thoughtful practitioners of medicine.

The Prevention of Valvular Disease of the Heart. A Proposal to Check Rheumatic Endocarditis in its Early Stage and Thus Prevent the Development of Permanent Organic Disease of the Valves. By RICHARD CATON, M.D., F.R.C.P., Hon. Physician Liverpool Royal Infirmary, Emeritus Professor of Physiology, University College, Liverpool. With 6 illustrations. London: C. J. Clay & Sons, 1900.

In this little book Mr. Caton supports the old dictum that the best treatment for acute rheumatism is six weeks in bed, at least in those cases in which the endocardium is attacked. He wisely pleads for prolonged rest, in cases where the valves are involved, as the most important element of success, to which a flannel suit, a light diet, small blisters applied to the upper part of the thoracic wall and the administration of sodium or potassium iodide are contributing factors. He reports 86 cases showing the success of this method of treatment. To some, however, the earping critic might urge that the murmur which developed was dynamic and not organic. The early chapters in the book are devoted to the frequency and gravity of valvular disease. A short chapter on pathology is contributed by Dr. Abram.

Tropical Diseases. A Manual of the Diseases of Warm Climates. By PATRICK MANSON, C.M.G., M.D., LL.D., F.R.C.P. (Lond.). Revised and enlarged edition, with 114 illustrations and 2 colored plates. London, Paris, New York and Melbourne: Cassell & Co., Ltd. 1900.

The first impression of the first edition of this book appeared in April, 1898, and was reprinted three times. The present is a revised and enlarged edition. During the two and a half years elapsing between the first and second editions much attention has been given to tropical diseases and some important changes have taken place in the views obtaining in regard to some of them. Dr. Patrick Manson is an eminent and experienced authority on tropical diseases.

While making no pretension to being more than an introduction to the department of medicine of which it treats, this handy little manual of 681 pages of reduced octavo size will be found most convenient and reliable either for the student, the physician's library or the traveller. The illustrations are good and well selected and the general make-up excellent.

The Prevention and Cure of Obesity. By ARTHUR B. CARTER. Boston: The Rockwell & Churchill Press. 1901.

This small book of 15 pages on a very knotty question does well to confine itself largely to the author's personal experience, "who reduced his weight forty pounds in nine months." As a record of a single case, the book is of value and interest.

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ANNUAL REPORT OF HARVARD COLLEGE, 1899-1900.

THE annual report of Harvard College, meaning thereby of Harvard University, a copy of which for the academic year from September, 1899, to September, 1900, lies before us, is never a dull and may generally be found to be a suggestive document. The present report is no exception to this rule, although the portions relating strictly to the Medical Department are perhaps less important than on some previous occasions.

The average age of the entering Freshmen in the Academic Department has diminished slightly of late years, chiefly because there has been a decrease in the number of abnormally old persons admitted. Three-eighths of the Freshmen admitted in 1900 were nineteen years of age or more. The president considers it desirable, and in this those interested in the graduate schools or departments as well as in the college must concur, that the proportion of persons entering between seventeen and nineteen should largely increase. In his opinion, there is no good reason why nine-tenths of all the boys who mean to go to Harvard College should not be fully prepared for admission at eighteen years of age.

The dean points out that it is too early as yet to determine whether the new method of admission to Harvard College is more difficult than the old, or less difficult. The fact seems to be that increase in some directions is counterbalanced by diminution in others.

The dean of Harvard College and the dean of the Lawrence Scientific School, writing without any comparison of views, both complain of the fact that students are inclined to neglect their duties because of small ailments, which in after life would never be allowed to interfere with their daily work. It is stated that this tendency should be resisted by all the administrative officers and by public opinion among teachers and students alike, for it is a bad preparation for the strenuous work of after life.

The dean furnishes tables relating to various points in the working of the elective system. These tables, it is thought, confirm the results of previous inquiries in several important respects: "Thus, they prove that

under a wide elective system there will be no extreme specialization, and there will be a fair amount of judicious choice of correlated subjects. The general conclusion is that a boy of eighteen who has had a good training up to that age will ordinarily use the elective system wisely, and that the boy who has had an imperfect or poor training up to eighteen years is more likely to accomplish something worth while under an elective system than under any other. The group system is the right one for professional schools in which the future career of every student is assumed to be determined. When a youth has made up his mind to be a minister, a lawyer, or a mechanical engineer, there are, of course, certain studies to which he should by preference devote himself. A student in arts and sciences, if he knows what his future profession is to be, may wisely choose his studies with reference to that profession; but to that end free election is what he needs and not inflexible groups. A prudent student in arts and sciences who does not know what his profession is to be will choose his studies from among those which give him pleasure and in which he has capacity to excel, because it should be somewhere in these fields that he should find his future calling. For such young persons Shakspeare's advice is the wisest possible — 'No profit grows where is no pleasure taken': — in brief, Sir, study what you most affect."

The president informs us that: "Observers of the newcomers to the Scientific School who have compared them with the newcomers to the college have formed the opinion that the average physique of the young men who enter the Scientific School is superior to that of those who enter the college. This observation is borne out by the fact that the Scientific School contributes a larger proportion of men to the various athletic teams and crews than the college. The cause of the phenomenon is not easy to discern. A corroborative fact appears in the absence records of the two departments: the demands made by the Scientific School upon its students under the group system are more severe than the demands made by Harvard College on its students under the free elective system; but there is no more sickness, or tendency to break down, observable among the students of the school than among the students of the college."

The neglect of the subject of physics by students, both of the college and the graduate school, still continues, and is considered one of the most curious phenomena in the university of today. In this respect, there is a great contrast between the department of physics and the department of chemistry, the resort to the chemical courses being much larger. In fact the chemical laboratories are full to overflowing. "The advanced courses in physics require a good knowledge of mathematics and this requirement may restrict the numbers choosing them; but the elementary courses do not require any advanced mathematics. The applications of physics in modern industries are certainly as extensive as the applications of chemistry,

and the subject is even more many sided than chemistry. There is, as has been several times pointed out in these reports, a strong demand for competent teachers of physics, as well as for engineers who have received thorough training in heat, light and electricity. This limited resort to the courses in physics is not at all peculiar to Harvard University; it seems to be a widespread phenomenon. There are some indications that the number of students attending these courses is gradually increasing, but that increase ought to be large and rapid."

It is interesting, on the other hand, to note that: "The psychological laboratory furnished the demonstrations given in Professor Münsterberg's elementary course in psychology, a course chosen by three hundred and forty-six students, and also the experiments in Dr. MacDougall's course in experimental psychology; but its chief work was, as usual, original research carried on by advanced students and the instructors. Some of the subjects of investigation were complicated color illusions, the difference between memory for words, for perceived objects and for activities, the relations between memory and attention, some subconscious motives of judgment, the relations of rhythm and rhyme, symmetry in artistic composition and the mutual interference of several coinciding volitional impulses. Some work was also done in animal psychology, a new department of the laboratory which was established in 1898-1899. Two of the subjects studied were the symptoms of memory in the newt and the training of the crayfish in new habits."

"The number of students prepared to do original work in investigation is increasing. As the psychological seminary is also increasing, the congestion in the laboratory becomes more and more troublesome. The department of philosophy needs very much a new building, with ample room for laboratories, seminars and library, and as remote as possible from the noises of the city."

A considerable portion of the president's report is devoted to the expedition of the Cuban teachers to Cambridge in the summer of 1900 and its results. The general conclusion is reached that the expedition fulfilled to a remarkable degree the enthusiastic expectation of good anticipated for it by its promoters. In regard to the physique of the visitors, it is stated as a conclusion from general observation and from measurements taken by Dr. Sargent, that the Cuban women compare more favorably with the American women than the Cuban men with the American men.

The system of medical visitation of students is reported as continuing to prove itself useful in a high degree. The short course of lectures given by the medical visitor at the opening of the current year on the physical evils to which the student may be exposed, and on the means of preventing injury to health by avoiding excess in eating, drinking, taking exercise, or working, or by eating or drinking too little, sleeping too little, and taking no exercise, was thronged.

The Medical School has a larger proportion of teachers to students than any other department of the university, if one excepts the Divinity School. This makes the instruction in the Medical School very costly, and the tendency of the new methods of instruction, introduced during the past year, will inevitably increase rather than diminish this cost. Our readers will remember that the chief characteristics of these new methods were a condensation of the basic subjects of the first two years—such as anatomy, physiology, chemistry, pathology—into half-year periods; the division of the classes into small sections, and the combination of practical with written examinations. It is certainly too early to definitely determine the results of this method. The dean of the Medical School reports that the results show the changes to be in the right direction. The sequence of studies is better than under the old method. The reports from most of the instructors are favorable. In clinical chemistry the system does not seem to have worked well. The department of anatomy is disposed to suspend judgment with regard to final conclusions. No practical readjustment of the studies of the third and fourth years has yet been accomplished; but the amount of sectional teaching is greatly increased, and practical examinations are combined with the written.

The accommodations of the present Medical School building are reported as totally inadequate to the demands of the lecturers and the regular teachers in the laboratories. The dean states that scientific investigations and research work by the teaching staff are almost at a standstill, all the available room being needed for the sole purpose of teaching students. More land has been secured, and the necessary buildings must and doubtless will be provided.

GONORRHEA FROM A MEDICO-LEGAL STAND-POINT.

THE series of articles on gonorrhea published in this week's JOURNAL, and previously read at a meeting of the Improvement Society, are well worthy of attention. They present the most advanced views on the subject in many of its relations. Perhaps they present as wide a study of the subject as could be presented in a single evening, but one of the most interesting points from which they may be regarded is the value of the portions of the subject which are left out. If we undertake to indicate some of the interesting omissions, it is not for the sake of undervaluing the papers, but for the sake of showing how wide a field for study still remains.

The gonococcus must some time be studied as to its relations outside of the human body. Has it a habitat in either the vegetable or the animal world, and is its distribution possible without direct human intervention? What is the clinical difference between the urethritis in which the gonococcus is found and in which it is absent? The recognition of the fact that

a gonorrhea may reappear after very considerable time has done much to simplify some of the difficult questions as to its origin, but there are still many cases which we are unable to explain.

It has always been an interesting subject to study the eruption which is described by the French as an occasional accompaniment of gonorrhea. Such an eruption seems to be unknown in this country and no one has as yet tried to reconcile the difference in the observations there and here.

Cowper's glands are known as the seat of a series of abscesses resulting from gonorrhea, but they still present a subject for investigation. The recent observations of the pathologists in regard to the occasional pathological complications are of great interest, and might well have been discussed for the instruction of the Improvement Society. And, in the light of recent pathological studies, gonorrheal rheumatism is of even greater interest. In connection with rheumatism, rheumatoid iritis deserves mention, but perhaps the most serious interest is awakened in the consideration of the medico-legal relations of the gonococcus. On the statements made in these papers there can be no question that the search for the gonococcus as made by the ordinary practitioner can be of absolutely no value in a court of law. If there is any value in a medico-legal sense in the gonococcus it can come only from the testimony of an expert and must be put practically upon the same basis as the search for poisons. It is even a question whether the study of its entity is sufficiently far advanced to make the testimony of an expert fit for production in court. This coccus was first known by its morphology, then by the fact that it was contained within the pus cells, then by its behavior under methods of staining, and now we are told that it can be fully recognized only by its method of growth in certain selected culture media, and that it will not grow on ordinary culture media.

No germ yet studied holds quite the same relations to the human race as the gonococcus. Its recognition is not of so great value to the patient in regard to treatment as in regard to the etiology of the disease. The reputation of individuals and the future happiness of families depend upon our knowledge of that organism. To such questions as arise in connection with it, no reckless, uncertain or doubtful answer can be admitted.

It seems fairly well established that the gonococcus is the active agent in the existence of gonorrhea. One cannot then be sure of a contagious gonorrhea unless the gonococcus is identified. No one but an expert in bacteriology can be sure of the gonococcus. Even the expert in bacteriology cannot be sure of the identity of the gonococcus except from its growth on certain media. Surely these cultural peculiarities on artificial media are not alone sufficient to justify the expert in swearing away a reputation. The absolute value of these cultures needs to be tested by their action upon the human urethra under circum-

stances which render any infection of that urethra, either in the past or during the time necessary for observation impossible, before the opinion of the expert can be unreservedly accepted. One cannot be sure that such experimentally infected urethrae can ever be cured, so that the opportunities for such crucial tests must be very few. One cannot then be surprised to find such statements as that in J. Dixon Mann's volume, on "Forensic Medicine and Toxicology," published in 1893: "Vibert and Bordas believe that the distinction between gonorrhea and leucorrhoea cannot be determined with absolute certainty by bacteriological examinations even of the most complete kind, and, therefore, that an expert is not justified in affirming the nature of a discharge on this ground. These views were accepted by the *Société de Médecine Légale de France*, before which body the statements were made. In the present state of bacteriology we are not in a position to say that the presence or absence of gonococci would justify a statement on oath either for or against specific infection."

A statement made some years ago in one of our courts must hold good today. The gonococcus is highly interesting and of the greatest importance from a scientific point of view, but its position is not so firmly established as to make it a proper subject for medico-legal consideration.

MEDICAL NOTES.

A PHYSICIAN FINED FOR BEING LATE AT COURT.—A physician has recently been fined in Philadelphia for not appearing promptly at court in answer to a subpoena. The reason for the delinquency was the serious illness of a patient, to whom the physician thought his first attention should be given. The judge is reported to have said that his first duty was to the court and that although the case was so serious, it was, nevertheless, better that a patient should die than that the Commonwealth should be treated with contempt. The fine was finally remitted.

BUBONIC PLAGUE IN WALES.—It is officially reported that a mill worker at Cardiff is suffering with bubonic plague. Another mill hand is suspected of having the disease.

A BOLD BUT NOT A BAD STEP.—The *Lancet* has at length taken heart of grace to burst the ceremonies of long habit and conservatism, and having waited until the beginning of the new century, has finally with great boldness ventured to put titles at the head of its editorials.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, February 6, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 70, scarlatina 28, measles 38, typhoid fever 7.

STATISTICS FROM THE ANNUAL REPORT OF THE CAMBRIDGE, MASS., BOARD OF HEALTH.—The reported cases of diphtheria for the year 1900 show an increase of 423 over those recorded in 1899, or almost 50 per cent. The greatest increase was in Ward 2, where 215 more cases developed last year than during the year before. A noteworthy section of the report is that which says that there was a decrease of 61 cases in East Cambridge, which has always been regarded as the part of the city in which the spread of contagious disease is most likely to occur. The case death rate percentage was 7.78. This is regarded as a low fatality record considering the total number of cases. Eleven more cases of typhoid fever were reported in 1900 than in the year previous. The reported cases of measles show a decrease of 335 from those of 1899. The decrease was evident in every ward in the city. Eighteen more cases of scarlet fever were reported in 1900 than in the preceding year. The total number of deaths recorded was 1,547.

PHYSICIANS' AUTOMOBILES ON PARK ROADS.—Chairman Stratton of the Boston Park Commission has sent the following note to certain physicians, who have petitioned that they might be allowed the privilege of using their automobiles at all hours on the park roads, when upon professional business: "After careful consideration the board has voted that it cannot grant the petition of yourself and other physicians to use automobiles in all park roads at any and all hours when upon professional business. We feel that it would not be in the public interest to suspend the rules for a particular class, even one so deserving of consideration as your profession. In the extremely rare cases where it would be a matter of life or death, and two or three minutes are of vital importance, I do not suppose that you would hesitate to infringe a park rule or that any one would call you to account for so doing."

THE CARE OF CASES OF DELIRIUM TREMENS AND SUSPECTED INSANITY.—The question of the proper place to care for places of delirium tremens and suspected insanity is again under discussion. At a recent meeting of the Public Institutions Conference Dr. H. C. Baldwin, chairman of the Board of Trustees of the Insane Institutions Department, brought out the objections to the present plan of sending such cases to Deer Island. It was suggested that the City Hospital was the proper place for them. The trustees of the City Hospital are said to be opposed to the plan.

INSPECTION OF TENEMENT HOUSES.—The Boston Board of Health has begun an inspection of the tenement houses, relative to overcrowding. The inspectors have received instructions to make an examination of all dwelling houses occupied by more than three families, and where they discover defective sanitary arrangements, to take such action as is necessary to make the rooms and surroundings clean and healthy. In order to prevent unsanitary overcrowding the board

has decided to enforce more strictly the law which demands at least 300 cubic feet of air for each individual.

BOSTON HEALTH STATISTICS.—The number of deaths reported to the Board of Health for the week ending February 2d was 213, as against 223 the corresponding week last year, showing an increase of 20 deaths, and making the death rate for the week 22.6. The deaths from consumption were 28, pneumonia 37, whooping cough none, heart disease 26, bronchitis 11, marasmus 1. There were 2 deaths from violent causes. The number of children who died under one year was 28, under five years 58, persons more than sixty years 63, deaths in public institutions 63.

QUARANTINE AT CHARLESTOWN NAVY YARD.—Owing to the prevalence of diphtheria in and about the Charlestown Navy Yard, the training ship *Wabash*, the Marine Barracks and the Naval Prison at the Navy Yard have been placed under quarantine, as a precautionary measure.

BURIALS WITHOUT COFFINS.—It is alleged that an old Jewish burial custom of burying bodies without coffins has been revived in Boston. The Board of Health has investigated the matter and has ruled that the practice be discontinued.

DIPHTHERIA AT THE NAVAL HOSPITAL, CHELSEA.—About 30 cases of mild diphtheria have developed at the Marine Hospital in Chelsea. There is no apprehension regarding an extended spread of the disease.

NEW YORK.

THE BELL ANTI-CHRISTIAN SCIENCE BILL.—On January 30th a hearing was given at Albany, by the Assembly Committee on Public Health, on the bill prepared under the auspices of the Medical Society of the County of New York and of the State Medical Society, and popularly known as the "Bell Anti-Christian Science Bill," which, in the form of an amendment to the Public Health Law of 1893, makes the following definition of the practice of medicine: "Any person shall be regarded as practising medicine, within the meaning of this act, who shall prescribe, direct, recommend, or advise, for the use of any other person, any remedy or agent whatsoever, whether with or without the use of any medicine, drug, instrument, or other appliance, for the treatment, relief or cure of any wound, fracture, or bodily injury, infirmity, physical or mental, or other defect or disease." The hearing was attended by a large number of Christian Scientists, several of whom spoke against the bill, and by a considerable number of the medical profession. Among those who made arguments in favor of its passage were Dr. Elsner, now president of the State Medical Society, Dr. A. Jacoby, of New York, Drs. Clark and How, of Buffalo, and Mr. Andrews, counsel for the Medical Society of the County of New York.

FALSE ANSWER IN INSURANCE APPLICATION.—In a suit brought in the Supreme Court in Orange

County, to recover the amount of a policy in the Northwestern Life Assurance Company, the defence interposed was that a false answer was made by the insured in his application for insurance. It was claimed that the answer, to the effect that former applications of the insured had not been rejected, was false. Proof was given at the trial that the answers in the application were in the handwriting of the company's agent; that the deceased made a full statement of his previous rejections to the agent; that he was not informed of the character of the answers inserted in the application, and that the application was not read to him when he signed it. The Appellate Division in Brooklyn affirmed judgment rendered in favor of the plaintiff, holding that the evidence was sufficient to sustain a recovery, and that the plaintiff was not required in such an action to secure a reply in order to entitle him to give testimony showing that the answers had been erroneously written by the company's agent.

DR. MARY WALKER ON BURIAL IN SKIRTS.—When Dr. Mary Walker, who is at present a resident of Albany, read an account of the funeral of Murray Hall, the woman who for so many years was regarded as a man, she is reported to have indignantly said: "I think it an outrage that they buried that poor woman in skirts. If anybody tries to put skirts on me after I'm dead I'll haunt them."

SMALLPOX.—During the past week a considerable number of cases of smallpox have been found in an upper East-Side district inhabited almost exclusively by Italians, and on the night of February 1st the officials of the Health Department made a systematic visitation of this "Little Italy," as the district is known, with the result of discovering 7 additional cases and the body of a child who had died from the disease during the day. Had it not been for the protection afforded by a force of 300 policemen, who formed a cordon around the district, they would undoubtedly have suffered violence at the hands of the excited residents. In one barricaded apartment 3 children, all suffering from smallpox, were discovered under a bed. Other cases were found hidden in closets and cupboards and in one or two instances fathers took their sick children in their arms and died with them over roofs of houses.

MURRAY H. HALL WAS A "LADY."—One of the richest contributions made in recent years to "crown-er's quest" lore is to be found in the verdict rendered last week by the jury in the case of the Hall woman, who passed in the community for so many years as a man. It was in the following remarkable language: "Murray H. Hall came to his death from natural causes. He was a lady."

ANNUAL REPORT OF STATE BOARD OF HEALTH.—The annual report of the State Board of Health shows that in 1900 the total deaths in the State numbered 128,468, an excess of 6,617 over the mortality of 1899, and of 8,000 over the average of the past

five years. The influenza epidemic of the year was unusually severe, lasting six months, and probably adding 11,500 to the number of deaths. There were 14 deaths from smallpox, 10 of which occurred in New York City.

SING SING PRISON BUILDINGS CONDEMNED.—On January 30th, the State Board of Health passed a resolution declaring the buildings of Sing Sing Prison unfit to be occupied by human beings and recommending that immediate steps be taken to remedy the existing conditions.

PRESIDENT AND VICE PRESIDENT OF MEDICAL SOCIETY OF STATE OF NEW YORK.—On January 31st, Dr. Henry N. Elsnor, of Syracuse, was elected president, and Dr. Louis N. Lanehart, of Hempstead, vice president of the Medical Society of the State of New York.

A CENTENARIAN.—Isaac Landy, a native of Kiev, Russia, died on January 28th, at the reputed age of one hundred and five. He did not come to this country until he was ninety-four years old, when his son, living in New York, sent for him.

Miscellany.

THE LAST ILLNESS OF THE QUEEN.

WE are enabled to publish the following authoritative account of the last illness of Queen Victoria:

The Queen's health for the past twelve months had been failing, with symptoms mainly of a dyspeptic kind, accompanied by impaired general nutrition, periods of insomnia, and later by occasional slight and transitory attacks of aphasia, the latter suggesting that the cerebral vessels had become damaged, although Her Majesty's general arterial system showed remarkably few signs of age. The constant brain work through a long life of royal responsibilities, and the imperial events, domestic sorrows, and anxieties which have crowded into later years, may no doubt be held in some measure to account for this discrepancy between the cerebral and general vessel nutrition. Both the thoracic and abdominal organs showed no sign of disease. The dyspepsia which tended to lower Her Majesty's originally robust constitution was especially marked during her last visit to Balmoral. It was there that the Queen first manifested distinct symptoms of brain fatigue and lost notably in weight. These symptoms continued at Windsor, where in November and December, 1900, slight aphasic symptoms were first observed, always of an ephemeral kind, and unattended by any motor paralysis.

Although it was judged best to continue the negotiations for Her Majesty's proposed visit to the Continent in the spring, it was distinctly recognized by her physicians and by those in closest personal attendance upon her that these arrangements were purely provisional, it being particularly desired not to discourage Her Majesty in regard to her own health by suggesting doubts as to the feasibility of the change abroad to which she had been looking forward.

The Queen suffered unusual fatigue from the journey

to Osborne on December 18th, showing symptoms of nervous agitation and restlessness which lasted for two days. Her Majesty afterwards improved for a time, both in appetite and nerve tone, in response to more complete quietude than she had hitherto consented to observe.

A few days before the final illness transient but recurring symptoms of apathy and somnolence, with aphasic indications and increasing feebleness, gave great uneasiness to her physician.

On Wednesday, January 16th, the Queen showed symptoms of cerebral exhaustion. By an effort of will, however, Her Majesty would for a time, as it were, command her brain to work, and the visitor of a few minutes would fail to observe the signs of cerebral exhaustion.

On Thursday these symptoms were more marked, with considerable drowsiness, and a slight flattening was observed on the right side of the face. From this time the aphasia and facial paresis, although incomplete, were permanent.

On Friday the Queen was a little brighter, but on Saturday evening there was a relapse of the graver symptoms, which, with remissions, continued until the end. It is important to note that notwithstanding the great bodily weakness and cerebral exhaustion the heart's action was steadily maintained to the last, the pulse at times evincing increased tension, but being always regular and of normal frequency.

The temperature was normal throughout. In the last few hours of life, paresis of the pulmonary nerves set in, the heart beating steadily to the end.

Beyond the slight right facial flattening there was never any motor paralysis, and except for the occasional lapses mentioned, the mind cannot be said to have been clouded. Within a few minutes of death the Queen recognized the several members of her family. — *British Medical Journal*.

HYPNOTISM IN FRANCE.

ACCORDING to the *British Medical Journal*, by a recent decision the *Cour de Cassation*—which is the High Court of Appeal in France—has finally settled a question which has been left open ever since, six or seven years ago, two provincial assize courts gave contradictory decisions upon the question whether the treatment of patients by hypnotism or so-called "magnetism" constituted a breach of the law which forbids the practice of medicine by those who do not possess proper qualifications. The French law is so precise that there was no great difficulty in coming to this conclusion, the only defence being that the treatment of patients by hypnotism did not constitute the practice of medicine; but this contention was promptly set aside, as it cannot be maintained nowadays that medical treatment is limited to the administration of drugs. The French law restricting the practice of medicine to properly qualified persons is founded upon the principle that for the welfare of society no one should be allowed to exercise such delicate and important functions as are implied in the treatment of disease unless he has passed through as complete a training as the existing state of science can afford in all those branches of learning bearing upon the structure, the functions and diseases of the human body, as well as upon the actions of remedies.

METEOROLOGICAL RECORD

For the week ending January 26th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Ther- mometer	Relative humidity.	Direction of wind.	Velocity of wind.	Wet'th °.	Rainfall in inches.
Daily mean.	Daily mean.	Maximum.	Minimum.	Daily mean.	8 A.M.	8 P.M.	
S.. 20 34.7	13 29 3	81	80	W.	18	13	C.
M.. 21 29.9	38 45 29	71	65	S.W.	15	19	C.
T.. 22 30.31	32 44 32	76	73	N.W.	15	10	C.
W.. 23 30.31	26 34 17	92	75	N.E.	10	10	C.
T.. 24 29.91	32 36 24	88	90	S.W.	18	10	C.
F.. 25 29.53	34 38 30	90	72	N.	6	14	C.
S.. 26 29.53	30 39 34	81	76	N.W.	15	12	C.

* O, clouds; C, clear; F, fair; G, fog; H, haze; S, smoky; R, rain; T, threat-
ening; N, snow. † Indicated time of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 26, 1901.

CITIES	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1482	390	22.07	17.28	1.48	.81	3.51
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	—	—	—	—	—	—	—
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	606,397	225	63	21.31	22.30	—	.89	3.55
Cleveland	381,768	—	—	—	—	—	—	—
Buffalo	352,337	—	—	—	—	—	—	—
Cincinnati	325,402	—	—	—	—	—	—	—
Pittsburgh	321,616	135	46	18.58	21.25	—	5.86	3.66
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	55	12	16.80	28.35	—	2.10	2.10
Boston	569,862	290	72	24.00	16.17	3.08	3.08	8.47
Worcester	118,421	33	10	18.18	12.12	3.02	—	3.03
Fall River	104,863	28	13	21.04	13.15	—	—	2.63
Lowell	94,899	34	11	15.18	18.41	—	—	10.80
Cambridge	91,886	37	9	45.50	15.50	—	—	—
Lynn	68,513	—	—	—	—	—	—	—
Lawrence	62,659	21	7	9.52	14.28	—	—	—
New Bedford	62,412	—	—	—	—	—	—	—
Springfield	62,479	25	12	16.00	8.00	—	4.00	4.00
Somerville	61,643	18	5	22.20	27.75	—	5.55	—
Holyoke	45,712	—	—	—	—	—	—	—
Brookton	40,963	—	—	—	—	—	—	—
Haverhill	37,475	17	3	14.44	16.76	—	22.72	—
Salem	35,656	11	1	18.18	9.09	—	—	—
Chelsea	34,072	11	5	25.00	25.00	—	12.10	—
Malden	33,664	8	1	—	—	—	—	—
Newton	32,587	11	1	9.09	9.09	—	—	—
Pitchburg	31,531	13	5	—	15.38	—	—	—
Taunton	31,036	7	1	33.33	14.29	—	—	—
Honolulua	26,121	6	2	24.99	16.66	—	8.33	—
Everett	24,326	12	3	42.87	42.87	—	—	—
North Adams	21,200	7	1	—	—	—	—	—
Quincy	23,809	8	1	—	—	—	—	—
Waltham	23,481	6	1	16.67	—	—	16.67	—
Pittsfield	21,766	—	—	—	—	—	—	—
Brookline	19,925	—	—	—	—	—	—	—
Chelsea	19,167	6	5	16.67	16.67	—	16.67	—
Medford	18,244	7	1	11.29	11.29	—	14.29	—
Newburyport	14,178	—	—	—	—	—	—	—
Melrose	12,962	—	—	—	—	—	—	—

Deaths reported 2,572; under five years of age 685; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 579; acute lung diseases 44; consumption 200; diphtheria and croup 167; diarrheal diseases 56; typhoid fever 36; scarlet fever 31; whooping cough 14; cerebrospinal meningitis 9; measles 7. There were 31 deaths reported from influenza.

From whooping cough New York 6, Pittsburg 3, Boston and Cambridge 2 each, Providence 1. From cerebrospinal meningitis Boston, Worcester and Somerville 2 each, Baltimore, Providence and Gloucester 1 each. From scarlet fever New York 22,

Boston 8, Revere 2, Worcester and Salem 1 each. From typhoid fever New York 12, Boston and Pittsburg 8 each, Baltimore and Providence 2 each, Lowell, Springfield, Chicopee and Medford 1 each. From measles Boston 4, New York 2, Pittsburg 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending January 12th, the death rate was 19.6. Deaths reported 4,442; acute diseases of the respiratory organs (London) 352, whooping cough 110, diphtheria 81, measles 66, diarrhoea 56, fever 41, scarlet fever 35.

The death rates ranged from 12.8 in Huddersfield to 27.3 in Salford: Birmingham 21.4, Bradford 19.7, Brighton 16.7, Bristol 20.0, Cardiff 16.2, Derby 13.8, Halifax 13.7, Hull 18.4, Leeds 20.1, Liverpool 24.9, London 19.6, Manchester 22.8, Newcastle-on-Tyne 20.0, Norwich 21.5, Nottingham 22.7, Plymouth 18.6, Portsmouth 30.5, Sheffield 21.0, Sunderland 21.3, Swansea 19.9, West Ham 14.1.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 2, 1901.

W. A. McCLURG, medical inspector, commissioned a medical inspector, November 9, 1900.

H. O. SHIFFERT, assistant surgeon, ordered to the "Franklin," E. J. GROW, assistant surgeon, detached from the "Culgoa" and ordered to the "Glacier," and also to duty at Olongapo, P. I.

J. COWAN, pharmacist, detached from the "Culgoa" and ordered to the "Glacier," and also to duty at the Naval Hospital, Cavite, P. I.

M. R. FIOGOTT, passed assistant surgeon, died at Annapolis, Md., January 31, 1901.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JANUARY 31, 1901.

McINTOSH, W. P., surgeon. To proceed to Jeffersonville, Ga., for special temporary duty. January 30, 1901.

PERRY, T. B., surgeon. Granted leave of absence for thirty days from February 11th. January 30, 1901.

McMILLAN, JOHN, assistant surgeon. Upon expiration of leave of absence to proceed to Wilmington, N. C., and assume temporary command of the service during the absence of Surgeon T. B. PERRY. January 30, 1901.

CORFUT, G. M., assistant surgeon. To proceed to Cleveland, O., and assume temporary command of the service during absence of Surgeon W. J. FETTER. January 26, 1901.

BOARD CONVENED.

Board convened to meet at Washington, D. C., on Tuesday, February 5, 1901, for the physical examination of second Assistant Engineer R. F. HALPIN, Revenue Cutter Service. Detail for the Board, Surgeon FREDERICK H. HALL, chairman; Surgeon G. T. VAUGHAN and Assistant Surgeon B. S. WARREN, recorder.

LECTURES ON THE NEUROSES AND PSYCHOSES OF SPIRIT AND DRUG DISEASES.

Dr. T. D. Crothers, of Hartford, Conn., will deliver a course of clinical lectures "On the Neuroses and Psychoses of Spirit and Drug Diseases," at the hall of the New York School of Clinical Medicine, 328 West 43d Street, New York City. The first lecture will be given February 18th, at 8 p. m. The profession is cordially invited to attend.

RECENT DEATHS.

THEODORE DE CLERMONT MILLER, M.D., of New York, died on January 28th, from pneumonia, at the age of fifty-nine. He was a native of Washington County, N. Y., and was graduated from Bellevue Hospital Medical College in 1866.

HOMER OCTAVIUS FEWITT, M.D., the oldest practicing physician in Cortland County, N. Y., and one of the best known citizens in that section of the State, died from pneumonia at his home in the town of Cortland, on January 30th. He was born in Lebanon, N. Y., March 31, 1819, and had practised in Cortland since 1849.

STEPHEN CHANDLER GREGGS, M.D., formerly one of the leading practitioners of Brooklyn, N. Y., and highly esteemed as an obstetrician, met with a painful death at Nutley, N. J., on February 1st. Dr. Greggs had been helplessly paralyzed for some time, and, in the absence of his usual attendant, fell from an invalid chair into a grate fire and was fatally burned. He was a native of Pomfret, Conn., and eighty-one years old. He was graduated from Brown University and from the Medical Department of the University of the City of New York. He had practised in Brooklyn for forty-one years and retired about five years ago.

Original Articles.

A CASE OF CESAREAN SECTION FOR COMPLETE PLACENTA PREVIA.¹

BY C. H. HARE, M.D., BOSTON.

Gynecologist to the Boston Dispensary and to Out Patients at Carney and St. Elizabeth Hospitals; Visiting Gynecologist to the Woman's Charity Club Hospital.

On October 24, 1900, Dr. Francis D. Donoghue read a paper before this society on "The Treatment of Placenta Previa by Cesarean Section." The paper can be found in the *Boston Medical and Surgical Journal* of December 6, 1900. In that paper the varieties, frequency, diagnosis, treatment and literature bearing on this subject are so fully discussed that they will not be repeated in this communication.

For the benefit of present and future study any new method of treating this most fatal complication of pregnancy certainly ought to be reported. So far as known, Dr. Donoghue's case was the fourth and my own the fifth case of placenta previa to be treated by Cesarean section, and I therefore desire to place on record a case in which the mother died in eleven hours after the operation and a premature child of about seven and one-third months died thirteen days after delivery.

Mrs. 2,318 entered the Carney Hospital about 2 A. M. November 9, 1900. She was sent in by Dr. Wm. H. Boodro, to whom I am indebted for the following history: She was born in Norway, age twenty-seven years, mother of two children aged five and two years, but the character of those labors is not known. She had had no abortions. The last menstrual period began March 26th, making the expected date of delivery December 31st. Dr. Boodro was first called about 2 A. M. November 8th; she had been flowing at times for twenty-eight days, and had once called a doctor. For three or four days before entrance there had been a constant slight flow, which became alarming after coitus a few hours before he was called. He found some clots but no dilatation and no pains. He made the diagnosis of placenta previa, explained her condition and danger, and advised her going to the hospital at once, but was flatly refused by herself and husband, and he then refused any further care or responsibility of the case; but he was again called about 1 A. M. the next night, when he was told that she had been having labor pains for an hour or two, and had flowed "quarts," as herself and husband put it. Dr. Boodro's examination showed a patient almost pulseless; the bed soaked with blood; many clots in the bed and filling the vagina; the os dilating. He at once sent for the Carney Hospital ambulance; firmly packed the vagina, but blood soon leaked through the packing; gave three pints of salt solution by rectum, and strychnia and other stimulants under the skin.

On my arrival at the hospital she was still bleeding freely. The os admitted the finger tip, which felt placenta entirely covering the cervix. The patient's pulse was 140 and very poor quality. The child was living, and though from the story it was about one and two-thirds months premature it was yet easy to think of the possibility that the child might be a month older than reckoned.

The case was certainly bad to face, either for a

vaginal or abdominal delivery. It seemed to me the risks lay between rapid dilatation, version, delivery, and immediate intra-uterine packing to control the continued hemorrhage from a cervix probably torn, but certainly stretched and tired, against the risks of a Cesarean section; a known high mortality to both mother and baby by the intrapelvic route against a hoped for lessened mortality by Cesarean section even though such hope in the absence of reported cases was based on theory. I was in a hospital with everything one could ask at my disposal for a quick Cesarean section; it was my judgment that the danger would be about equal to the mother by either route, but less for the child by the abdominal route, and I advised Cesarean section, to which the patient gave consent.

She was at once sent to the operating room. The abdomen was prepared while ether was being given. A girl baby weighing five and one-half pounds was delivered in one minute and four seconds after the first incision in the abdominal wall. The baby breathed after a moderate amount of effort to resuscitate. The greater part of a very large placenta was on the right and posterior side of the uterus, but a smaller segment was attached to the opposite side, thus entirely covering the os. A few minutes were allowed for the uterus to contract and loosen the placenta and membranes, after which they were easily removed. The uterus contracted well. It was closed with two layers of interrupted suture of chromicized catgut. There was no bleeding from the incision in the abdominal wall, uterine wall, or placental site. From entrance to the hospital salt solution was given at intervals under the breasts, by rectum, and various stimulants hypodermically. After the uterus was opened a nearly constant stream of hot salt solution was poured into and upon it until the abdomen was closed, and the abdominal cavity was left filled with it. Ether was not well borne. The radial pulse was barely countable and intermittent before the first incision and at times during the operation could not be counted. The patient was returned to her bed one-half hour after beginning the operation. There was never any more vaginal bleeding. Pulse improved slowly. Temperature rose to 102.2°, then dropped to 100°. She rallied enough to inquire about the baby, and to talk with her husband. She was especially apprehensive about death and talked much about dying. After a few hours she became quiet and drowsy, but delirious when roused, and died eleven hours after operation. The baby left the hospital when eight days old, but died of acute inanition, we are told, five days later.

In looking back upon this case one can hardly help saying that this woman in all probability sacrificed her own life by refusing to follow the advice of Dr. Boodro at the time of his first visit. There is every reason to expect that a strong, healthy woman, which she is reported to have been, could easily have gone through a Cesarean section after the loss of a moderate amount of blood, since she survived the collapse before willing to go to the hospital, the continued loss of blood until delivered, and the shock of the operation for so many hours.

After reading statistics and cases and hearing the reports of other cases of complete placenta previa, I am led to believe that in most cases Cesarean section is fully as safe for the mother as delivery by the older methods and that Cesarean section will save far more babies—in fact, there should be almost no mortality

¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, December 26, 1900.

with viable babies delivered by Cesarean section. For cases where the mother is already collapsed from loss of blood we have some very bad statistics to argue for some new method of delivery; and with suitable surroundings and assistants I believe in Cesarean section. Taking cases as they come, with the life of both mother and baby to be considered, I believe Cesarean section will save more lives than vaginal delivery.

For the benefit of statistics to argue for my belief in Cesarean section I should have adopted vaginal delivery and in case of need let the fatality be lost in the large number already reported, and have awaited a more favorable case for a newer method of treatment. Until more cases are reported judgment must certainly rest between statistics and theory. Your severest criticism upon my judgment in this case is invited.

THE WOOLLEN YARN TRUSS IN INFANTILE INGUINAL HERNIA.¹

BY E. S. BOLAND, M.D., BOSTON.

It may be thought absurd to talk about hernia in this section, but as obstetricians we meet the congenital or infantile form often, and as the trusted family physician one ought to keep up with what is best to do for it until the little patients are well or old enough for operative interference for cure.

Malgaigne's statistics give 1 case of inguinal hernia out of every 21 children under one year old, and Bertillon believes that the proportion among poor and neglected children is relatively greater. Of course, a large percentage will recover spontaneously with little or no treatment, if hygienic conditions are observed, but doubtless the cure will be hastened or assured if some retentive means is used. The average mother has but little faith in the expectant treatment, and unless you are prepared with some very definite and promising statement and apparatus, she will not be apt to carry out your general hygienic directions.

The truss may be only a placebo, but even placebos are sometimes a necessity under conditions as we find them. If you fail to do something for the trouble, she will soon go to some one who will, and she may drift into less considerate hands.

It is hardly necessary to speak even briefly of the etiology of this form of hernia, but I think that so much has always been said about congenital anatomical conditions predisposing thereto that the fact is almost lost sight of that it is very often due to preventable conditions following birth. In treating such hernias, these predisposing or aggravating causes must be counteracted as much as possible to ensure a cure. Crying from colic, gaseous distention from indigestion or unsuitable food, coughing, straining from constipation or phimoses, vomiting, and rough handling or improper position in holding a baby may induce it, and must be avoided by general hygiene.

Ochsner insists, in addition, on the horizontal position in bed for at least six weeks, with the foot of the crib elevated so as to keep the hernial sac emptied and so allow nature to obliterate the canal.

Excluding strangulated hernias, which in infancy are fortunately rare, and call, as in the adult, for

prompt surgical treatment, the great majority of these hernias can be retained by simple apparatus, and the emptied sac collapsing is obliterated by adhesion of its walls, fat accumulation or what not. To secure this end, the worsted skein truss has much to recommend it in the first year, when the frame is small, thin in flesh and tender to mechanical pressure or irritation. It is easily made to measure at the bedside, and afterward can be reduplicated by the mother at a cost of a few cents, so as to have several changes at hand. It must be worn day and night, even during the bath, and only removed when wet or soiled.

It does not annoy the child, and its use ensures the hearty co-operation of the mother in carrying out the equally important corrective measures. Before applying it, be sure to exclude undescended testicle or encysted hydrocele of the cord. Difficulty of reduction ought to suggest these conditions rather than a hernia.

To ensure success the protrusion should be slowly and thoroughly replaced, and the truss adjusted so as to retain it and still not be tight enough to chafe or annoy the infant. Although so cheap and simple, some skill is needed in making and using this skein truss.

Measure with a tape line the distance around the child on the plane of the pelvic inlet, beginning with and coming back to the hernia, then carry the line down on the perineum and up and out in the gluteofemoral crease and almost to where it would touch the girdle part. Mark this length on the woodwork of the door or window casing, and at each end of it drive in a three-inch nail half way to the head. Over these nails wind the worsted, previously rolled from the skeins as bought, just tight enough to keep from kinking, and use thirty to forty threads according to size and strength required. Remove the skein, tie in the two loose yarn ends, and in one end loop a foot of white tape, and the truss is ready.

Carry it around the child with the long end at the affected groin, pass this longer end through the other loop and draw the long end down under the corresponding thigh and out and up in the gluteofemoral crease and tie the tape to the girdle. The doll which will be passed around will be the best means of illustrating the application. The doubled and loosely twisted yarn is so elastic that it will keep up a constant tug that will take up any slack made by the motion of the child. To the medical, or rather the surgical mind of today, the brilliant results of aseptic operations for radical cure make any other way look like a makeshift. But to the timid and solicitous mother, the fear of the knife, and especially the possible removal from home of the infant for operation, renders the tentative use of the truss a necessity.

Its use must be coincident with general measures to reduce intra-abdominal pressure to ensure the best results. Though this home-made affair has been before the profession thirteen years (since Pye described it in 1887) it is not as well known even yet as it should be.

Dr. W. J. Taylor, who wrote the hernia article for Keating's Encyclopedia of Diseases of Children, said that he had used it but once, and in Dr. J. A. Ochsner's admirable paper, read last June at the American Medical Association, he does not even mention it at all.

¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, December 26, 1900.

It is useless to take your time in detailing my 4 successful cases, for they are all practically alike. All were boys, the trouble was recognized early, the protrusion returned without difficulty and retained by the skein truss under the watchful eye of the mother. In fact, one mother, a trained nurse, by the way, was so anxious to ensure a cure and avoid operation that, having moved out of my neighborhood, she continued the use of the truss on her boy until at five years he began to kick on his own account against wearing it longer. Usually a cure can be effected in a year or less, but the continued use of it causes but little inconvenience. In 2 cases it failed, the children being somewhat older and their mothers inattentive. In 1 case I failed to recognize an encysted hydrocele of the cord, and in spite of my failure to reduce it, tried the truss on it with no result. Another practitioner proved equally lacking in acumen, and also failed to recognize the true nature of the tumor and to relieve it. This case turned up at the Children's Hospital on Huntington Avenue, and was promptly recognized and operated on successfully. I mention this case to show the ease with which one can be mistaken in such cases.

Résumé. — (1) The use of some retentive apparatus will hasten and assure the natural tendency toward cure in infantile hernia; (2) the worsted yarn truss is easily made to measure at the bedside; it is cheap, comfortable and can be worn by frail or delicate infants, where the ordinary truss is useless or too irritating; (3) with this or any other truss vigilance and intelligence must counteract the underlying or associated causes of the hernia.

DISINFECTION WITHIN OR WITHOUT THE BODY IN DIPHTHERIA.¹

BY M. A. VEEDER, M.D., LYONS, N. Y.

THE effectual control of diphtheria in an individual or a community is a problem that is exceedingly complex. Really, there are at least three forms of disease that have been confounded under the name of diphtheria. It is only since bacteriological methods of study have come into use that these have been distinguished from each other with precision, they formerly having been regarded as modifications of the same disease, rather than as separate diseases. They are diphtheroid, characterized by the presence of staphylococci mostly; true diphtheria, characterized by the presence of the Klebs-Löffler bacillus; and septicemic sore throat, characterized as a rule by the presence of streptococci.

Although these diseases occur separately from each other, they are nevertheless often associated in a characteristic way. Diphtheroid predisposes to the onset of diphtheria, so that if a patient having the former is exposed to the infection of the latter, diphtheria begins at once without an incubation period. In like manner either diphtheroid or diphtheria may prepare the way for septicemic sore throat. Indeed, it is doubtful whether streptococcus infection can establish itself in the throat at all without some pre-existing disease, or lesion of the parts, just as erysipelas starts from some small scratch or puncture.

Thus the septicemic form of sore throat, although very fatal, is not very contagious.

Diphtheroid is a harmless affection except as it predisposes to diphtheria, or septicemic sore throat, or both. Diphtheria in and of itself is dangerous, but is most dangerous if it becomes the channel through which septicemic infection gains access to the body.

As against the streptococcus infection, antitoxin is powerless, but the antistreptococcus serum may be used with good effect. It is a peculiarity of the streptococcus to locate itself in the exceedingly tough and foul-smelling membrane that is characteristic of these cases. Hence the application of strong disinfectant remedies accurately to this membrane, as, for example, painting it with pure carbolic acid, has appeared to be of service, this being a measure not to be recommended in ordinary diphtheria.

Erysipelas, puerperal fever and septicemic sore throat are all forms of streptococcus infection, closely related to each other. Indeed, all these diseases may originate each other, the liability so to do depending upon the location of the infection in or on parts of the body accessible to touch rather than upon differences in the nature of the infection itself. The physician attending cases of either of these kinds, for his own security and that of his patients, must apply the principles of surgical cleanliness accurately and completely. It may become necessary to go so far even as to abstain from seeing cases of ordinary diphtheria, lest they become septicemic through contact of the physician in attendance upon erysipelas, puerperal fever, or septicemic sore throat. During epidemic prevalence of diphtheria the occurrence of diseases of either of these classes may have a special significance, and should be carefully watched, with full understanding of the danger involved.

Furthermore, every surgeon knows that the danger of septicemia is very much increased if operations are undertaken in buildings where the plumbing is bad, and where there are untrapped drains. It is true that antiseptic dressings decrease the risk somewhat even under the most unfavorable surroundings, protecting the wounded surface more or less completely. But a sore throat cannot be protected every hour and minute as is done by such dressings, and if that throat be diphtheritic, the barriers against septicemic infection are as absolutely down as though there were an open wound. The traditional prejudice against foul drains and the like as a source of specially malignant diphtheria is not without warrant. Indeed, such receptacles and not the throat itself appear to be the natural habitat of infection of this class. If carried on the person it is by accident rather than as a part of the usual life history of the streptococcus infection.

The Klebs-Löffler bacillus, on the other hand, appears to find its natural habitat in the throat, it becoming more or less atypical when grown in culture media outside the body. Although irregular in form, and having its presence masked by that of other microorganisms, there is nothing to prevent its growth in the albuminous matter crusting the interior of drain pipes that are never cleaned or flushed, unless it be too low a temperature at times. But the dried sputum from a diphtheria patient kept at ordinary temperatures has been found capable of originating living colonies of the bacillus for six months. This being

¹ Read at the meeting of the Medical Society of the State of New York, January 29, 1901.

the fact, the Klebs-Löffler bacillus certainly could remain alive perhaps from year to year in underground drains, although leading a fluctuating and precarious existence. Such receptacles are especially liable to contamination through rinsings or expectoration from the mouths of persons having diphtheria, and thus also the infection may be renewed and kept alive, the persons living on the premises originating their own antitoxins and becoming immune. Where this has happened, quarantine and antitoxin, no matter how carefully applied with the aid of bacteriological tests, fail to eradicate the disease completely. The writer has encountered what appear to be beautiful illustrations of this in three or four large institutions.

In an emergency of this sort, where it is not possible to wait for improvement of drain pipes and plumbing, it is well to know that such fixtures when incapable of being flushed adequately can be sterilized by the aid of chlorine gas. In the presence of the septicemic form of sore throat especially this resource may be of the highest importance.

Nor is the diphtheroid form of sore throat unimportant. This form of throat trouble is much more common at all times than is generally supposed, not attracting attention, recovery being so rapid, unless the more serious diseases of the throat become prevalent, whereupon numerous cases of this sort are brought to the attention of the physician, and are commonly classed as diphtheria for reasons that will appear shortly.

As has already been intimated, diphtheroid predisposes both to diphtheria and to septicemic sore throat, shortening the incubation period to such an extent that the bacteriological test may show the throat clear from diphtheria one day and strongly infected the next. There being such increased susceptibility, a diphtheroid case may readily become diphtheria in the very act of examination unless adequate precautions are taken.

The fact that the physician's own throat is not red or sore is not proof that it is not infected, for infection often occurs without symptoms, particularly in adults when strongly exposed, and there is no stronger exposure than to receive the spray that comes from the mouth and nostrils of a child that is crying and coughing, as they often do, during an ordinary examination of the throat. The writer has met with very conclusive evidence that such particles of spray floating in the air are able to convey the Klebs-Löffler bacillus a distance of several yards. If the physician thus infected during an examination goes to another case without proper precaution, even though it be at an interval of several days, his own breath and the spray from his lips in the act of talking, if nothing more, may convert a case of harmless diphtheroid into severe diphtheria in an hour.

This is the danger also that militates against the use of the bacteriological test to determine whether quarantine shall be established or not. Such testing can be relied upon with confidence at the outset of quarantine only when it can be known with certainty there is no secondary source of infection such as that just described. In other words, unless physicians in attendance upon cases of diphtheria, or moving about in a community where there is diphtheria, have their own throats tested in order to see whether they themselves are clear of infection, and especially whether any precautions they may take are adequate, it is bet-

ter to regard all cases of diphtheroid as diphtheria, provisionally, using the bacteriological examination mainly for the removal of quarantine rather than for its establishment. If these suggestions are followed out thoroughly there may be a surprise awaiting not a few members of the profession. The very anxiety that leads to seeing cases frequently and testing and examining them often may be a means of spreading the disease.

The routine that the writer has been led to adopt is to be provided with squares of antiseptic gauze and corrosive sublimate tablets. A square of such gauze may readily be held over the mouth and nostrils with the left hand, while the right hand is free to use the tongue depressor or swab. Both hands and face should be wet with the sublimate solution before and after the examination, and the gauze may be burned after being used. This, together with frequent spraying and cleansing of the mouth and throat and nostrils, and bacteriological testing, affords very complete security against either giving or receiving infection.

There are many precautions that will readily suggest themselves in regard to the care and disinfection of articles that have touched the mouth and lips, and on which infection may remain for extended periods in the form of dried saliva. Perhaps the worst of all such articles is an ordinary lead pencil, the use of which should be absolutely forbidden every diphtheria patient.

The infection of milk through the agency of some one having a diphtheritic throat coughing or sneezing while handling it seems to have occurred in a case or two that have come to the knowledge of the writer. Sterilization of milk by boiling is the proper method during diphtheria epidemics, and always.

As regards ridding the mouth and throat of the infection, there are a few points that deserve more extended notice than can be given them on this occasion. Especially important is the behavior of the diphtheria bacillus where there are cavities in the teeth. In such cases the person thus infected becomes immune as if from antitoxin, but there is frequent recrudescence of sore throat trouble, more or less typical in its resemblance to ordinary diphtheria. Often there are red spots somewhere near the bad tooth, or exactly opposite it on the interior of the cheek. These come and go, and there may be evanescent traces of membrane on the tonsils at intervals of weeks or months. Bacteriological examination at times shows the presence of the bacillus and at times its absence. Sometimes it can be found by inserting the swab into the tooth cavity when not apparent elsewhere in the mouth. A very interesting case of this sort under the observation of the writer, after an exceedingly prolonged quarantine, infected another person through the intermediary of a lead pencil, showing that although the bacillus had been present and absent in a curious way, and the throat symptoms had varied fitfully, that nevertheless there was true diphtheria infection throughout a period of at least four months. In this case there was a deep cavity between two teeth and recovery was not perfect until the tooth itself was removed.

In these cases the bacillus appears to be nourished by fresh supplies of particles of food, such as meat and potato, lodging in the cavity, as in a culture tube at each meal. Thus the process is perennial, and the

infection does not die out as it does when the throat alone is infected. It would seem that sterilization of the tooth cavity by cauterization would reach the source of the trouble at once, but it does not, the few bacilli remaining elsewhere in the mouth apparently re-infecting the cavity. A better plan is to insert a pledget of cotton saturated with some disinfectant solution before and after meals. Even then in very bad cases it may be necessary to have the tooth extracted.

An observation of this sort is very suggestive as to the amount of care required to be of any material service in ridding the mouth and throat of diphtheria infection by methods of disinfection. The perfunctory use of sprays, swabs or gargles accomplishes so little, apparently, in shortening the time of quarantine that some physicians practically have come to rely on giving the antitoxin and waiting. But where the infection is harbored and kept alive in the manner that has just been described, neither the antitoxin nor waiting will ensure recovery within any reasonable length of time. Meanwhile the person may have infected unconsciously an entire neighborhood or town.

Very likely the bacillus when lodged in the spongy portions of the tonsils, or in some fold behind the palate, or in the nostrils, will die out gradually as the person becomes immune, but the process of its removal may be hastened and made more secure by constant sterilization of the parts as far as possible. Remedies for this purpose should not be irritating, so that they may be employed constantly at very frequent intervals, the growth of the bacillus and its diffusion through the mouth being very rapid. Peroxide of hydrogen made alkaline by lime water, or by the addition of equal parts of Dobell's solution, is very good. Freshly made chlorine water with the addition of a little tincture of iron is highly efficient. A soft camel's hair toothbrush kept in a two-per-cent. solution of carbolic acid and used with a lather of castile soap is of great service, as is also dental floss drawn between the teeth. Such measures persisted in will clear up the most refractory case as determined by bacteriological examination, as a rule, in about a month, very few cases showing perfectly clear in as short a time as three weeks.

It has been the purpose of the present discussion to outline a few leading features, so that whatever measures of disinfection are adopted, whether within or without the body, they may be used with full knowledge of the dangers and difficulty and complexity of the subject of the control of diphtheria.

Clinical Department.

A CASE OF IDIOPATHIC DILATATION OF THE COLON.¹

BY MAURICE H. RICHARDSON, M.D., BOSTON.

THE following case will show, I think, that there is much to be learned about dilatations of the colon and the so-called phantom tumor. The patient presented in the first place symptoms so suggestive of chronic appendicitis that her surgeon removed the appendix (January 13, 1899). This operation — beneficial for a short time, through suggestion perhaps — was not

permanently successful. The symptoms returned, and the smooth, symmetrical, tympanitic enlargement of the abdomen convinced Dr. Fitz that the lesion was an idiopathic dilatation of the colon. On April 5, 1899, I opened the abdomen between the umbilicus and the pubes, and found a great dilatation of the sigmoid flexure. The dilated bowel filled the lower abdomen, and caused the enlargement observed by Dr. Fitz. It was not, however, such an excessive dilatation as I had already described in a case published in the *Transactions of the American Surgical Association*, 1892 — a tumor of the sigmoid flexure practically filling the whole abdominal cavity, crowding or compressing all other viscera against the abdominal parietes and itself rotated and obstructed. It was rather a conspicuous enlargement of the flexure, which, thickened, distended and bulging, formed within the abdominal wall a tympanitic tumor easy of inspection and of palpation. I removed this coil and sewed the lower extremity of the descending colon to the beginning of the rectum, making a straight, cylindrical passage where had been the tortuous and distended sigmoid coil.

The patient was immediately relieved of her symptoms and of her tumor. It was not many months, however, before she began again to complain of her pain and discomfort. The abdomen became more and more prominent, until she presented all the physical appearances of an excessively dilated coil.

I had this patient under frequent observation. She was able to perform light household duties. She was never free from abdominal discomfort and pain. The bowels were very hard to move. The abdomen presented a symmetrical enlargement — a rounded tumor, almost spherical, with its greatest prominence below the umbilicus. The tumor was tympanitic without tenderness — resistant, tense. It could not be felt bimanually. Examination always gave me the impression that if the abdominal muscles could be relaxed, the tumor would disappear. Indeed in the early history of this case the tumor would, under anesthesia, disappear. At the three last operations, however, the outline persisted under ether, though as a whole the abdomen was perhaps not so prominent. The great thickening and distention of the coil made it a real tumor — one that could be made to disappear only by emptying it or by removing it. In other words, it had assumed characteristics of a real physical entity, rather than of the disappearing phantom of its early history. How much effect the contractions of the abdominal muscles had on the outlines of the tumor, I cannot say, but I believe that they had much influence. The phantom is formed by a dilated intestine under a spasmodic abdominal wall. The spasm of the abdominal muscle is doubtless secondary to the intestinal lesion, and dependent upon it. It is involuntary and absolutely beyond the patient's control. When the intestinal dilatation is moderate and distributed throughout a considerable portion of the colon, relaxation of the muscular spasm is followed by a flattening out of the dilated bowel and disappearance of the tumor. When, however, the dilatation is excessive and limited to a single coil or small area like the sigmoid flexure, and especially if the gas does not escape from the dilated coil, relaxation of the muscular contraction produces no change in the contour of the tumor. I believe that the phantoms are early and moderate dilatations of the colon, and that

¹ Read at the Boston Society for Medical Improvement, November 12, 1900.

such disappearing tumors will sooner or later become real ones, removable only by excision.

Mary K.'s history bears out this belief. At the exploratory laparotomy of April 7, 1900, a large, dilated and thickened coil presented itself in the lower abdomen. Though this portion of the bowel had surprisingly few adhesions, it was deemed best to do nothing more than to separate them and make the coil perfectly free. The operation was a complete failure. Another attempt was made on June 27, 1900. Before attacking the tumor, I made a thorough survey of it. At the line of suture of the first resection — which, it will be remembered, made a straight passage from the descending colon to the rectum — a new coil had appeared, around the central portion of which could be seen the scar of the suture line. Not only had a dilatation begun here, but it had bulged and spread until a new sigmoid flexure had appeared, and one so large that it filled pelvis and whole lower abdomen.

This extraordinary sequence suggests more questions than answers. Why should the intestine become dilated again at the same point as before? For the same reason that it was dilated in the first place? It would seem only common sense to say that it was and for the very same reason. In sigmoid flexure dilatations, for instance, the obstruction is in the first instance dependent upon the shape and size of the coil, by which it becomes overdistended and sagging, perhaps kinking partially its outlet, obstructing its circulation — in a word, undergoing mechanical changes secondary to causes within itself. Such an explanation, though a matter of theory, seems one of common sense. Why then should a straight cylindrical coil, without lax and redundant walls, leading straight to an unobstructed rectum, dispossessed of mesentery and the power of accumulating feces — why should such a coil become distended to the extraordinary length of fifteen inches, and to a diameter sufficient to fill the lower abdomen, and that in this brief period of one year?

The explanation of the dilated and hypertrophied coil lies in the existence of some kind of a chronic intestinal obstruction, the nature of which we do not as yet understand. I have seen recently a sigmoid flexure leading down into the pelvis, dilated and thickened to an excessive degree. The patient had no symptoms referable to her large intestine — I do not know even that she was constipated. The condition of the sigmoid flexure and of the colon was not unlike that here described in the case of Mary K., except that it was less in degree. The abdomen was opened for the removal of the uterus from an exsanguinated patient. The pelvic portion of the sigmoid flexure was so large that it interfered much with the operation. I had been so much interested in dilated colons that I made a careful examination of this one. The bowel was much enlarged and its walls had the excessive muscular hypertrophy seen in chronic intestinal obstructions. The colon itself was elongated and tortuous. No obstruction was found in the pelvis. There was no opportunity to get a history bearing upon this case, but I believe it will appear that this patient had been habitually constipated and that there had been excessive gas formation. Though the sharp bend in the rectum presents ordinarily no obstruction, yet in certain cases it seems to me it must have some retarding effect upon the intestinal flow, especially

when there is also an enlarged and retroverted uterus. Once the sigmoid flexure becomes dilated it is easy to imagine those secondary changes dependent upon the sagging of an overloaded and heavy coil.

Once having failed in this case to remove the cause by extensive resections — whatever the cause may have been — is it justifiable again to remove the resulting dilated bowel? It was with extreme reluctance that the idea of resecting the presenting coil was considered. Dr. Williams suggested that we reduce the size of the coil by numerous transverse infoldings. This seemed a happy thought. Dr. Jones, Dr. Williams and myself each took a line of infolding, and in a very short time the convexity of the dilated coil was so reduced that its course was a moderate curve from the pelvic brim on the left to the rectum. This operation was, however, completely ineffectual. The tumor remained; the pain and the discomfort persisted; the disability and discouragement continued. We were, therefore, forced to another, and, I hope, final operation. The dilated bowel was again completely excised after its relations especially with the rectum and uterus had been accurately determined. The bend in the rectum was repeatedly examined for a possible obstruction at that level, but nothing abnormal was found. The uterus was large and heavy, pressing backward upon the rectum. This position of the fundus seemed a possible cause of obstruction, and it was therefore stitched to the abdominal wall. Besides the new coil, the whole large intestine was to a certain extent dilated. It crossed from right to left in large and loose folds. This enlargement did not seem to me pathological. Though it was suggested to make an anastomosis between the cecum and the descending colon, I did not see prospect of enough gain to justify the risks of this, in my experience, dangerous operation. The patient has made a steady but slow convalescence. The abdomen, though full, has lost entirely its tumor outlines.

What the outcome in this case will be can be only conjectured. The operation seems very severe for the lesion. Though in many cases palliation may suffice, occasionally the surgeon will be driven to heroic measures. My experience in a previous case of perfect recovery after resection made me perhaps too sanguine in the present one. The operations were not performed in the second case, however, until the patient had convinced everybody of the hopelessness of medical treatment.

February 11, 1901. Since leaving the Deaconess Hospital, this patient has been complaining constantly of severe abdominal pain. The distention of the abdomen has in a large measure recurred. The patient's general condition is good, but the local trouble is little, if at all, better than in the first place. The abdomen is full, firm and tympanitic. The enlargement seems caused by tense and distended intestinal coils. It seems hardly possible that the transverse and ascending colon can have become distended enough to cause her present condition, or that a third sigmoid flexure can have appeared.

SOCIETY FOR THE STUDY OF TUBERCULOSIS. — We learn from the *Philadelphia Medical Journal* that a society for the study of tuberculosis, which takes its name from Laeuner, the discoverer of auscultation, has been organized in connection with Johns Hopkins Hospital, Baltimore.

PLACENTA PREVIA CENTRALIS: REPORT OF A CASE.¹

BY JOHN W. DEWIS, M.D., BOSTON.

I WAS called about 5 A.M., October 26, 1900, to see Mrs. C., who was "flowing." The husband, who was the messenger, said his wife was bleeding "very much, very much," and pleaded that I come quickly. As he expressed it, the blood came "as though poured from a bucket." The place was only a little way from my office, and I was soon there. I found the woman almost *in extremis*, and immediately sent for Dr. Dearing and Dr. Kepler. Assistance from the family or friends could not be considered.

The patient was a well-developed, well-nourished Jewish woman—a regular Amazon in build—thirty-six years old. She had three children, all normal births, the youngest child being three years old. There had been no miscarriages, no irregularities of menstruation. She was supposed to be within a week or two of full term. There had been no hemorrhage throughout pregnancy, no untoward symptoms. This morning about 4 A.M., she awoke and found herself bleeding, but had no pain. The hemorrhage increased rapidly, but had ceased when I arrived, though there was evidence that she had lost a great deal of blood. The face was dusky, cold sweat stood on her brow, and the skin of limbs felt clammy. Pulse was 124, and very poor in quality. I listened for fetal heart, and thought I could hear it just below umbilicus. The patient had no heart lesions.

As soon as I could prepare, I made digital examination, and found os dilated to about the size of a fifty-cent piece, and filled with a bulging mass that felt like placental tissue. It was an extreme case, and, Cesarean section being considered impracticable, I concluded to dilate cervix and deliver as quickly as possible. While waiting for medical assistance, I prepared 2 quarts of normal salt solution, and gave about 6 ounces per rectum, then a hypodermic of strychnine sulphate, gr. $\frac{1}{15}$, combined with atropia sulphate, gr. $\frac{1}{30}$, followed by another of digitalis, gr. $\frac{1}{25}$, combined with cocaine muriate, gr. $\frac{1}{2}$. A few minutes later ether was administered by Dr. Kepler, and I turned and delivered a living child. The whole time occupied was about three-quarters of an hour from arrival at house. As hemorrhage had recommenced, I began to dilate cervix without waiting for anesthesia. The placenta seemed to cover the whole lower uterine segment. I went up with my right hand to left, between placenta and uterine wall, the border of placenta being about a finger's length up. I found feet near fundus—an O. D. A. or O. D. P.—and brought down right foot and a hand. During dilatation there was moderate hemorrhage, checked by advent of child's buttocks. In a few moments the head was delivered, and with it about two-thirds of placenta. A hemostat was placed on the cord, and the child, though much blanched, soon responded to external stimulation and artificial respiration. After remaining portion of placental tissue, which was on right side, and some membranes were removed from uterine cavity, I gave a hot douche of permanganate of potash, 1-3,000. The uterus contracted well, and there was no further hemorrhage.

The mother's condition now seemed better than before delivery; pulse about 130, but much improved in

quality, due probably to administration of ether. I again gave, per rectum, salt solution combined with whiskey, which was retained. There had been only primary anesthesia, and no vomiting followed. About half an hour after delivery, the patient was given, by mouth, a teaspoonful and a half of fluid extract of ergot, and a little later, a hypodermic of strychnine, gr. $\frac{1}{20}$. Salt solution by hypodermoclysis was not thought advisable, as patient was comfortable, and seemed to be doing well. I remained with patient about two and one-half hours, watching pulse, uterus, and general appearance. During this time, pulse increased to about 135, and at times grew very weak, though never intermittent. She was given frequent sips of whiskey with water and a pinch of salt added. There was some thirst. At 9 A.M. the salt solution was repeated, per rectum, and a solution of strychnine, gr. $\frac{1}{10}$, given by mouth. Patient felt comfortable. I decided, however, to try salt solution subcutaneously, and went to my office for tablets, leaving patient in care of two intelligent women. I had only reached the house when the husband was after me, saying wife was "taken bad." I hastened back and found her pulseless and gasping, and in a few moments she was dead.

I was told that I had only gone from house when patient began to complain of pain in chest and stomach, and "bad feeling"; then suddenly catching at her breast, with a cry, she sat up in bed, and fell back senseless. There was no post-partum hemorrhage. The uterus contracted and remained so, as in any favorable case. The napkin, examined after death, was only moderately soiled, and there were no clots in uterus. Autopsy was not permitted, but I believe the sudden death due to embolism. The child died on the fourth day, but with proper care might have lived.

The point that stands out most clearly in the history of this case is, that there had been no hemorrhage, no warning of danger throughout pregnancy, and yet this proved a complete "placenta previa." Cesarean section might be advocated in such cases, but I believe nothing could have been gained by the operation in this instance, where the pelvis was large, and the demand for immediate interference was so urgent that scarcely any of the ordinary preparations for laparotomy could have been made. In the majority of such emergencies, however, Cesarean section would seem the choice, and the time cannot be far distant when it will be considered necessary for the general practitioner, who does obstetrical work, to be competent to do this operation.

A CASE OF COMPLETE PLACENTA PREVIA.²

BY FREDERICK COGGESHALL, M.D., BOSTON.

On the night of November 18th, I was called some distance into the suburbs to see Mrs. S. The message simply said that she was in labor and having a hard time. I went expecting at the worst a forceps case, but took the precaution to take a nurse with me, as I knew nothing of the one I was told was on the case. I found a well-developed, well-nourished woman of thirty-three, who had been in labor with her sixth child for six hours, and had been flowing very freely from the beginning of the pains. At the onset of the labor

¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, December 26, 1900.

² Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, December 26, 1900.

she had sent for an irregular practitioner who was engaged for the case. He had, after watching her for a time, given a very unfavorable prognosis, packed the vagina tightly with gauze and administered hypodermically something, as I was told, to stop the pains. As the family had been alarmed he had been dismissed, and they called me in. On my arrival the patient was blanched, with a feeble, rippling pulse which could not be easily counted or even felt. The bedding and mattress were soaked with blood, which was continuing to trickle out through the gauze. No contraction of the uterus had occurred for the last half hour which was severe enough to cause pain. The patient was only partially conscious, having just recovered, I was told, from a fainting fit. Pupils widely dilated. She seemed to me to be *in extremis* from loss of blood and if I waited to send for assistance it would evidently be too late. I therefore went ahead as best I could with the help of the two nurses. Before stopping to examine her I started the subcutaneous injection of decinormal salt solution. In preparing this I did not stop to sterilize the water. The delay was out of the question, and I took my chances. I used Dr. C. G. Cunston's solution for preparing salt solution, which was administered under both breasts and underneath the loose skin of the back at the same time by means of a three-way tube of a pattern contrived for me by Dr. Wm. H. Grant for the rapid administration of salt solution. The foot of the bed was raised. At the same time a tenth of a grain of strychnine nitrate administered subcutaneously.

While the salt solution was being given I removed the packing and examined the patient. The os was dilated to something more than the size of a half dollar. The finger on being passed into the os did not encounter the membranes or the head, which could be felt externally well down to the pubis on the left, but came in contact with a soft, spongy, irregular surface completely covering the opening and through which the head could not be distinctly felt. This confirmed my first impression from the hemorrhage, that I had to deal with a case of placenta previa. By the time I had washed up and examined the greater part of the salt solution had got in and I decided to empty the uterus as quickly as possible. The pulse had now considerably improved, though it was yet extremely feeble, about 150. The patient was still but half conscious. The side of the bed was now raised and she was placed across it. As the only chance of stopping the hemorrhage seemed to be to get the child out at once, I did a rapid manual dilatation, tearing the cervix deeply in three directions; I then swept the hand rapidly around, detaching the placenta, and tried to push it to one side; as it would not be gotten out of the way, I seized it on the inner side near the cord and dragged it out, grasped the child by the feet and did as rapid a podalic version as possible, and extracted the child without much regard to anything but the saving of time. The perineum was a complete wreck from previous labors, which facilitated my operation considerably. Much to my surprise, the child was not quite dead on delivery, but it was as much blanched as the mother. I felt compelled to leave it to the care of the untrained nurse, while with the other I devoted myself to the mother, who had again become pulseless and was entirely unconscious. The salt solution was repeated with some more injections of strychnine, and an

enema of two ounces each of brandy and fluid extract of ergot with salt solution to make a quart was given.

As the patient had stopped breathing, although her heart could still be faintly heard, though not counted, artificial respiration, including the Laborde method, was applied. After a half hour's work her pulse began to be perceptible and she was evidently reviving. The uterus, which had received a very hot douche of 1-1,000 bichloride the instant it was empty and had then been packed with gauze on which I had emptied a two-ounce bottle of liquor ferri chloridi, had contracted down to extreme hardness almost at once, and the hemorrhage was all over within. I should say, two minutes after the child was out. The child, which had breathed well at first, had lived about half an hour, and was dead before I dared to turn to it. If I had had sufficient skilled assistance I believe it also might have been saved.

The mother remained in an extremely precarious condition for the next two days, but slowly recovered. Strange to say, there was no sepsis. The points at which the salt solution was injected were no sorer than is often the case after proper sterilization, which may be thought by some to be due to thorough local inunctions of Credé's ointment which were begun at once.

Medical Progress.

PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND F. J. COTTON, M.D., BOSTON.

(Concluded from No. 6, p. 142.)

ARDOMEX OBSTITUM.

HARRIS²⁹ reports a case of a six-months-old child with extreme contraction of the right rectus abdominis, resulting in extreme kyphosis. The muscle was extirpated and a complete cure ensued. The pathology was unknown; perhaps an intra-uterine myositis.

THE ANTERIOR SUPPORT OF THE FOOT.

Seitz,³⁰ after a thorough investigation, convinces himself of the existence of convex transverse metatarsal arch in 50% of all cases, the highest point being the head of the third metatarsal. The head of the first metatarsal bears more weight than that of the fifth. The tuberosity of the fifth metatarsal does not furnish a support for the weight of the body. The heads of the second and third metatarsal, contrary to a common opinion, do not furnish, as a rule, points of support for great weight, though they form segments in the arch. In 20% of the cases the head of the third metatarsal is found to have dropped, and in some cases the head of the second metatarsal also.

OBLIQUE OR UPRIGHT WRITING.

Schubert³¹ has investigated a number of children in the schools in Nuremberg, to determine the effect on the position of the children of the different styles of writing. He finds that the inclination of the head to the side, rather than the upright and proper position

²⁹ Zeitschr. f. klin. Chir., 1899, 8, 201.

³⁰ Zeitschr. f. orth. Chir., 1900, 14, viii, 8, 37.

³¹ Ref. in the Zeitschr. f. orth. Chir., 1900, 8, 152.

of the head, is more frequent in oblique than in the upright writing, the symmetrical position of the head being two and one-half times more frequent in the upright writing than in the oblique writing. In the position of the shoulders, only a third of the children held their shoulders in proper position in the oblique writing, while one-half held them properly in the upright writing. The position of the shoulders, however, was better in both groups than the position of the head. Obliquity of the head was not only more frequent, but was in a greater degree in the oblique writing than in the upright writing. The same is true of the forward bending. In upright writing only 11% of the children were nearsighted; in the writing 15% and in the changing position 12%.

CONGENITAL ELEPHANTIASIS.

Froelich⁸² reports a case of marked hypertrophy of the left leg, with a tumor of the dorsum of the foot and a second on the front of the lower leg. Elsewhere all the cellular tissue thickened and enlarged. A like condition on the other leg, but less marked. Deformities of the fingers and toes added to this. The tumor-like masses limited by deep constrictive bands. The author thinks the condition a lymphangiomatous one, due to the circular constrictions.

A like case of Reinbach's showed on microscopic examination a fibroid and lymphatic hypertrophy.

Jonas⁸³ reports 2 cases of hypertrophy of limb, and suggests a classification as needed; none suggested. The first case was a new-born infant, with hypertrophy of the left arm and a lymphangiomatous tumor of the left pectoral and axillary regions; the second a boy of three, with hypertrophy in volume and girths of both feet. No histological data.

Kirmisson⁸⁴ reports an interesting case of combination of congenital deformities of the supposed amniotic series. Amputation of one leg, a deep crease surrounding the other, syndactylism of the fingers of one hand, an annular constriction (slight) about one arm. A similar condition on one of the toes and a webbing between two other toes. He makes this case an argument to support his contention that syndactylism is of two classes: one where the condition is a persistence of the membrane which normally unites the fingers and toes in early uterine life, the other where (as here) the condition is evidently a definite pathological process, evidently primarily amniotic, where the adhesions are comparable to those resulting from burns.

FUNNEL CHEST.

Piqué and Colombaris⁸⁵ give most elaborate studies of a case of funnel chest, with a study of the cases recorded. Rarely rachitic, usually congenital, in its beginning. The writers accept the theory of its being a *sternal* deformity due to softness of the sternum (possibly a delay in ossification) and to the influence of atmospheric pressure. In one of the cases here recorded the radiographic image showed a marked displacement of the heart to the left, a fact noted in the only autopsy on record and in other clinical cases. A good bibliography accompanies the article.

FAT EMBOLISM AFTER ORTHOPEDIC OPERATIONS.

Paye⁸⁶ reports 3 cases, in all of which in addition to embolism of the vessels there was a persistent thymus and large lymphatic glands. The author thinks this important; is inclined to consider the deaths, in spite of fat demonstrated in the vessels, to belong in the class of "thymus death," the deaths charged to "constitutio lymphatica." He adds a not very practical warning to avoid cases of this sort in regard to proposed operations.

THE TREATMENT OF TABETIC ATAXIA BY MEANS OF MOVEMENT.

Fraenkel⁸⁷ writes of the satisfactory results shown by his experience of what he terms compensatory movement treatment. The method requires considerable skill in the devising and use of the proper exercises varying with each case, according to the pathological conditions of each patient. The result of the treatment is said by the writer to be extremely satisfactory in causing improvement.

Ahrens writes of the value of apparatus as an aid in the treatment of tabetic arthropathies, and the unsatisfactory result obtained from operation, such as excision or incision.

CONTRACTION AND ANCHYLOSIS OF THE KNEE JOINT.

Blencke,⁸⁸ after a careful consideration of the subject, reports in favor of Helferich curved incision for the correction of the deformity in bony ankylosis of the knee. In the place of the wedge-shaped resection Ollier practised supracondyloid osteotomy.

TRAUMATIC SEPARATION OF THE EPIPHYSIS.

Wolf⁸⁹ describes the frequency of this affection, which since the introduction of the x-ray is more easily recognized than before. The treatment should consist in an accurate reposition of the fragments, the use of traction properly applied and the avoidance of too long a fixation of the joint.

Hutchinson and Barnard⁹⁰ advocate in traumatic separation of the lower femoral epiphysis that strong traction, progressive flexion and manual replacement of the epiphysis be combined simultaneously for reduction. Reduction accomplished, flexion is maintained with the heel on the buttock. Radiographs of cases before and after reduction seem to show the efficiency of the method. On the other hand, the statistics (of compound cases) treated by various older methods imply much worse results than obtain in this country today under present methods and may perhaps be misleading.

A NEW MEDICAL JOURNAL. — According to the *Medical News*, it is stated that subscriptions to the stock of a new medical journal, to be owned entirely by members of the profession and edited by Dr. Geo. M. Gould, have been unexpectedly great and now ensure the founding of the journal. It will be known as *American Medicine*, and it is expected that the first number will appear during March.

⁸² Rev. d'orth., March 1, 1900, p. 77.

⁸³ Loc. cit., January, 1900, p. 61.

⁸⁴ Loc. cit., p. 67.

⁸⁵ Loc. cit., 1900, p. 157.

⁸⁶ Zeitschr. f. orth. Chir., 1899, Bd. vii, S. 338.

⁸⁷ Loc. cit., 1900, Bd. viii, H. 2.

⁸⁸ Loc. cit., S. 95.

⁸⁹ Deutsch. Zeitschr. f. Chir., 1900.

⁹⁰ Medical and Chirurgical Transactions of Royal Medical and Surgical Society of London, vol. lxxxii, 1899, p. 77.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

REGULAR meeting Wednesday, December 26, 1900.
DR. HIGGINS in the chair.

DR. E. S. BOLAND read a paper entitled

THE WOOLLEN YARN TRUSS IN INFANTILE INGUINAL HERNIA.¹

DR. WORCESTER: I have tried this truss and, although I never before understood how to apply it, I have had good results from its use. The rewinding of the skein to secure proper length and the tape fastenings evidently make it just right, easy of application and perfectly serviceable.

DR. COGGESHALL: I have never had but 1 case of the kind that I remember. My obstetrical practice is not very large, and I can only repeat what Dr. Worcester has said, that I tried this thing as I had seen it described and could not make it work. Obviously, as illustrated on that doll, I did not get it on right.

DR. CRAIG: I have used this truss on 2 cases, but I did not apply it as neatly as Dr. Boland has. In place of measuring it carefully as he suggests, which I can see is a much better way than that which I employed, I was very apt to measure off what I thought was right and carry it around the child, tying the end of the skein into the turn over the hip, which made it much more uncomfortable to the child than the tape would be. As to the results, 1 of the cases waited until I told them I was willing they should remove the truss and it was to all intents and purposes cured. The cases were seen while in general practice on the Cape and the second case was still wearing the truss when I left Provincetown. Aside from the difficulty of keeping it clean it is a most admirable means of retaining hernia. Unless the family surroundings are very good you will find it is apt to get soiled and become a nuisance in that way.

DR. HERBARD: Last spring I was interested in the worsted truss treatment and followed some cases that came into the Infants' Hospital Out-Patient. I was able to get about 17 end results. Of these 6 were cures and 11 failures. Of course 17 cases are not enough to draw definite conclusions from, but there is at least one rather instructive and suggestive point. Of the 6 cases cured there was but 1 over two years old, or about 16%, and of the 11 failures 5, or 45%, were over two years old, so that the older the child the less likely the chance of cure.

As to the frequency of hernia in children, Kocher in an article reports a series of 70 new-born children in which the processus vaginalis was not closed in 34 cases. In another series of 100 children during the first three months of life it was found open in 37 cases, and in a third series of 188 children up to nine years old it was open in 11 cases.

DR. HIGGINS: Some years ago when I was doing work at the Children's Hospital, where there is a very large orthopedic out-patient clinic, including a good many cases of hernia, this worsted truss method was in very common use, especially on the young children.

It was rarely applied to children over five years, and it was considered to be a very successful method. I know nothing about the statistics in regard to cure, but it was simply applied and kept on for a period of two years perhaps. If the mothers were careful and took good care of the children it usually resulted in cure; if not, and occasionally there was a case of large hernia where the truss could not control it, the children would be operated upon. Personally, when I was doing a little orthopedic practice at that time, I had 1 private case that came to me from New Hampshire. The patient wore a truss about a year and has been entirely well ever since.

DR. BOLAND: The truss does get wet and dirty, but the mother can have half a dozen and always have a clean, dry one. That is an objection, but it is an objection that holds good of any truss unless you have a covered steel spring with a hard-rubber pad and in young children under six months it is pretty hard to keep anything on. I think the truss has a limited range of usefulness among the younger children. My two failures were in children over two years old and in those where the activity brings more strain I think it will not do. In its own place I know it is of great help and it is a great comfort to the mothers. A skein of yarn costs twelve cents and will make four trusses.

DR. C. H. HARE reported a case of

CESAREAN SECTION FOR COMPLETE PLACENTA PREVIA.²

DR. FREDERICK COGGESHALL reported a case of

COMPLETE PLACENTA PREVIA.³

DR. WORCESTER: If I had heard from Dr. Hare that his case was successful I should not have come asking for the privilege of speaking upon the case, but I feel so keenly the danger of conservatism's triumph over the report of an unfavorable case that I want to say with all possible emphasis that I believe Dr. Hare did in this case exactly right. Of course he did what few surgeons now would do, but he did what I believe in a few years every surgeon will feel obliged to do. When the profession, after careful consideration, rises to a realization of the necessity of changing a time-honored treatment it means that the profession has appropriated truths recently discovered. There then follows a critical period when statistics are not trustworthy guides. Whether or no Cesarean section is the right treatment in cases of placenta previa is a question that does not yet depend upon statistics. And it may be that the operation for the next twenty times will be done only in such desperate cases that the mortality will be frightful. It may be that the men who undertake the operation will be as conscientious as was Dr. Hare that night when he thought of his duty to the mother and of his duty to the child rather than of the possible effect upon his statistics. In such cases the surgeon is justified in thinking of the effect upon the statistics only as regards the effect that statistics will have upon families who in the future shall be called to decide whether or no they will submit to radical surgical treatment. Never for any less worthy reason is the surgeon justified in declining to take the last chance, however radical be the step, even if the chance is one in a thousand.

In considering innovations we must never forget that

¹ See page 151 of the Journal.

² See page 157 of the Journal.

³ See page 152 of the Journal.

what is theoretically right is right until disproved, and that proving comes only in fair trial. It is easy to lose patients in ways to which the profession and the community have become accustomed, and it is hard to lose patients in unaccustomed ways, after unaccustomed treatment, and cowardly men are apt to be overinfluenced by such considerations. It needs the quiet bravery of conviction, it needs the absolute disregard of personal reputation in order to bring into common use any new form of treatment. For instance, when the immediate surgical treatment of appendicitis first recognized to be theoretically right, it was much easier to let the patient die of general peritonitis, or inflammation of the bowels, or stoppage, or whatever the thing was called for ages, than it was to operate in proper time, and I remember in the discussions that we used to have years ago over the right or the wrong, just this question often arose, whether it would not be well to shirk an operation in a desperate case in order that statistics might not suffer, and I doubt not that many a life was sacrificed then by the timidity of surgeons who, thinking of their reputation or of the effect upon statistics, were unwilling to do what they knew was right. It is easy enough to stifle one's surgical conscience by blaming the ignorant family and friends, who of course are always ready to mistake the masked cowardice of the surgeon for a real interest in his patient. And it is also easy for self-satisfied conservatives to damn with faint praise or withering silence their braver comrades.

These remarks may seem irrelevant, but after hearing this admirable report of Dr. Hare's I feel we should recognize and applaud the surgeon's fidelity and skill. The case should not be reported as a case of the death of the infant, for under proper subsequent care the infant would doubtless have survived. At any rate the child would not have had so large a chance of life or lived so long had it been delivered in any other way. Cesarean section always gives the child the greatest possible chance. Instead of precarious passage through the parturient canal, the Cesarean child is gently lifted up into this world. And as for the mother, when we balance against the danger in even fairly normal labor to which the woman is subjected nervously and physically and the injuries she is liable to suffer, with their long evil sequence of ill health—when we balance against these dangers the slight dangers of a Cesarean section it is not a wild belief that womankind would take it easier. And certainly in labors that present unusual difficulties just as soon as the advantages of this operation are pointed out to the laity, the laity will jump ahead of the profession in demanding it. That change has already come about in the treatment of appendicitis. The families of not over-intelligence demand operative treatment for appendicitis, and will now discharge a timid physician who hesitates to give that treatment, and will themselves send for a surgeon, or will themselves apply for admission to a hospital, when only a few years ago, as I have just said, a deal of persuasion was necessary to obtain the family's consent. The laity often advances faster than the medical profession in the adoption of an important method of treatment, and the profession, it seems to me, often underrates the good sense of the laity, the good sense of the common people, the good sense of ignorant people; and many times an entirely unnecessary compromise is brought about between the physician's conscience and

knowledge of what is right with what he wrongly supposes will be the natural objections on the part of the family to carrying out that absolutely right treatment. And the unnecessary compromise often results in disaster.

It seems to me a very auspicious thing at this last meeting in this old hall, and at this last meeting of the dying century, that we should have before us for consideration the report of this case, illustrating the application of advanced surgery in the treatment of a dilemma such as hitherto has frozen the courage out of obstetricians.

I congratulate Dr. Hare from the bottom of my heart. He did exactly the right thing, and he should have the applause of the whole profession. Had we known of this earlier how many mothers might have been saved!

DR. BOLAND: I have had very little experience with placenta previa—I case at term and 1 at six months. Both babies died and one of the women came near dying. One case I carried alone, and in the other I had another doctor help me. I am satisfied the chances of the baby are *nil* with a forcible delivery under these circumstances. It is usually premature if it comes, and if you wait till term and deliver rapidly its chances are not the best. In the future if I am unfortunate enough to get a case of that kind I shall call an operating gynecologist.

DR. COGGESHALL: I should like to say in regard to Dr. Hare's case that I should have done just what he did; the mother was so far gone she would probably have died anyhow, and the case proves nothing against the method. I must confess that the idea of Cesarean section did not strike me very favorably at first; this I fear was due to a Boston prejudice against anything that was new; but having thought it over, I feel that I should do that operation by preference wherever I had the facilities at hand, or time to obtain them. In my own case I did not entertain the idea because there was no time to send for proper assistance or instruments.

DR. DAVENPORT, of Providence: I have had very little experience with placenta previa. I have seen only 1 case and that in consultation. That was in the late stages and we turned and delivered. I have been very much interested in the treatment of these cases by Cesarean section and I am very sorry I did not hear Dr. Hare's paper.

DR. JOHN W. DOWIS read a paper on

PLACENTA PREVIA CENTRALIS: REPORT OF A CASE.⁴

DR. KEPLER: I hardly think I can add a single word to what has been said by Dr. Dowis. The doctor was kind enough to call me to help out, and it certainly was a frightful case. Everything had to be done with great rapidity. I felt at the time, and I feel now, that Dr. Dowis's work there was very rapid and the very best that could be done under the circumstances and that the patient owed her sudden taking off in nowise to anything that was done by the operator. As he says, the case shows evidences of embolism. I did not hear the other papers, but I would like to know if embolism is associated as a rule with placenta previa. We were taught in the medical school to look out for embolism, and just why we should have had embolism in this case with the

⁴ See page 157 of the Journal.

uterus contracted down hard and occurring several hours afterwards is a question I would like to have a little light on. Evidently that seems the reasonable cause for the very sudden death.

DR. HIGGINS: I should think Dr. Lewis's case was probably one of those cases of sudden death in or after delivery which we unfortunately see or hear about once in a while. I have been present or have had my hand in 2 cases, 1 of which died with the suddenness of Dr. Lewis's case, and which was thought to be due to the dislodgment of a thrombus in one of the uterine sinuses, and the patient died with equal suddenness, and nothing would revive her. The second case was due to the same cause, and occurred about four days after delivery. I saw the case in consultation six or eight hours after she was delivered. It had been a case of adherent placenta, normal labor. The doctor had attempted to remove the placenta and it separated, and I was asked to see the case and to remove the rest of the placenta, which I did, using my fingers as a curette, as we have been taught to. That patient died perfectly well three or four days; she had no temperature, but a little abdominal distention and discomfort, and I was asked to see the case again in consultation with the same doctor because the husband was worried about her. Her bowels had not moved at the time, but she had absolutely no temperature and no peritonitis, but a little distention. While we waited the nurse gave her an enema which brought away a large movement, and I left in a half-hour, the patient apparently being in excellent condition. I stopped to see a patient on the way home, and when I got there I had already been telephoned for in great haste, saying that the patient had died. I saw the doctor and the husband afterwards, and learned that she simply turned over in bed and died very suddenly. The physician had left soon after I had, and there was no reason to account for it. Possibly the high enema caused the dislodgment of a thrombus, although it caused no pain at the time and the results were good.

In regard to Dr. Hare's case, I think we all are very much indebted to him for publishing the case. I myself know of several cases of fatal results after Cesarean section which have never been published, not occurring in my own practice, however. We have been taught to advise against the indiscriminate performance of Cesarean section, although we have recognized for some time it was a proper operation to do in certain cases of placenta previa, and it is very unfortunate that in starting out to do the operation we should meet with a death at once. Of course that will cool our ardor to a certain extent, and, as Dr. Worcester said, physicians are very easily criticised for losing patients under some new form of treatment or when they are attempting any innovation. I think the mortality from Cesarean section is rather larger than we are led to expect from the published reports of series of cases. Of course we have seen some very favorable statistics, but those cases were done not exactly on selected cases, but under favorable circumstances and on good cases, and the mortality is much larger under general circumstances and the less discriminating operator than the ordinary 2% to 5% which we are accustomed to hear about. I think packing for placenta previa, if efficiently done, is a very good placebo. It, however, makes considerable difference which way the packing is done. I do

not think an efficient packing can be put in with a patient on her back. I think it must be in the Sims position with the perineum retracted, and I also think it makes considerable difference what material is used. Dry, sterilized gauze in my experience has been the most efficient packing. Wet gauze or a gauze containing glycerin acts very much like a wick, and will sometimes help to keep up the flow.

Since Dr. Donoghue reported his case two months ago I have seen 1 case of placenta previa. It was rather an interesting case, because we had just been discussing the subject, and I was at a loss to know whether to do a Cesarean section or not. I was asked to see the case about 6 o'clock one evening a month ago. She had been flowing a good deal all through the day. Pulse had gone to 120, and she was rather nervous and restless. I advised packing, and she was packed thoroughly and efficiently. That absolutely controlled the flow for the time being and I saw her again about five hours later. The packing was removed and it was only about half stained through. About half the gauze in the vagina was stained, and there was a moderate amount of dilatation, perhaps to the size of a ten-cent piece, so that packing had pretty well controlled the hemorrhage. However, she was repacked at the time, and about 4 o'clock in the morning that packing leaked very slightly and was changed again, and at 9 o'clock the packing was just beginning to leak the second time. The packing was entirely removed. There was dilatation of about 2 inches, and she was given a little ether and I delivered her with high forceps. It was a very easy case, and she made a good recovery and had practically no post-partum hemorrhage. The baby was premature, about seven months, and no fetal heart could be heard at any time, so that I think the baby was dead before we saw her.

In regard to the question of packing, I should like to say that I have never been able to see what the reason of it was, and should like to know whether it does any good, if the chairman can enlighten me. The difficulty, as I understand it, is with the hemorrhage you get when the placenta is detached. Now you simply postpone, it seems to me, the day of reckoning when you put in the packing; you may control the hemorrhage temporarily, but some time it must come, when the placenta is detached, and the placenta must be detached before the os can be dilated or the child can get out. I believe that the great mortality in this complication of labor is for the most part due to delay, and to failure to courageously face the difficulty. I did not mean to criticise the case the chairman reported, and the result justifies him, but most of the cases that have ended fatally of which I have been able to hear have been due to the doctors hesitating and sitting around waiting, like Micawber, "for something to turn up."

I have only treated 2 cases entirely on my own responsibility. In 1 case I was called early, the diagnosis was obvious at once and I emptied the uterus promptly. Both mother and child recovered without any difficulty, although the hemorrhage was for a short time appalling. The other case I have reported tonight. The 2 taken together seem to me to illustrate the different results of delay and prompt action. I feel that in another case wherever I dared to wait for proper instruments and assistance, I should do a Cesarean section.

Statistics as yet can have little value for us, and we must just judge of the two methods *a priori*: looked at from this point of view, Cesarean section presents the obvious advantage that the uterus is relieved of the child before the placenta is detached, and therefore the duration of serious hemorrhage is markedly diminished. My experience of Cesarean section for any purpose is very limited, but I doubt if the shock involved is any greater than that which accompanies operation by the old method.

DR. F. G. SMITH, of Somerville: This subject has interested me very much, as my first and only death in obstetric practice was due to placenta previa. This lady was eight months pregnant when I was called one noon and found that she had been flowing slightly. The mother of the lady was not at all alarmed; simply thought it was time I should be called and sent word. I made an examination, and found that the os had not dilated, and while I suspected placenta previa, I was not able to make a diagnosis. I had some gauze with me and packed the vagina, easily controlling the bleeding, and left the case, leaving word that I would call a little later. I had another call some distance away, and when I returned, about 3 o'clock in the afternoon, there was a message sent for me to call there immediately. When I reached the patient I found her *in extremis*. She had evidently lost a great amount of blood. Her pulse was hardly perceptible, her pupils were dilated, and she was almost wholly unconscious. I scrubbed up the best I could under the circumstances, not taking a great deal of time. Another physician had already been called and rendered valuable assistance. We gave a little ether. It was not necessary to give very much because of her condition. I removed the gauze packing, found the os had dilated, in which was a bulging placenta. I went in on the side, gradually separating it from the uterus, got hold of one of the feet and performed version. I think I was about three minutes in removing the contents of the uterus. She flowed dreadfully while I was doing this, but I got good contractions and gave normal salt solution by the rectum. I stayed there till about 8 o'clock in the evening. She seemed to be doing quite nicely, when suddenly the pulse stopped and she was dead. Whether this was a case of embolus, as Dr. Lewis suggests happened in his case, I do not know, but it occurred to me it might be that. She seemed to be doing quite well, but she died very suddenly.

DR. HIGGINS: In my statement I did not intend to suggest packing as a means of dilatation or delivery, only simply as a temporary expedient. I think the fatal result in a great majority of cases of placenta previa that are delivered by the natural passage is due to the additional shock of immediate delivery, and the additional hemorrhage which is going on during delivery, together with the post-partum hemorrhage. The hemorrhage usually would not be serious during delivery were it not for the previous hemorrhage. I think this packing is a good temporary expedient while you are getting ready to do Cesarean section or giving the woman subcutaneous salt infusions to get her in better shape for the time being. I think you can pack the vagina so tightly as to control all hemorrhage a short time. Of course that stains through and leaks after a while. In this case I saw recently I neglected to say the pulse in the first five hours came down from 120 to

about 80 after the packing, and she was in first-class shape to do anything at that time. This was not a case of complete placenta previa, although the hemorrhage led us to think at first it was. I have seen 6 cases altogether, most of them at the Lying-in Hospital. The second case I saw was one in which there was practically complete dilatation with complete placenta previa, and the hemorrhage had entirely stopped. The patient was under the charge of an externe in South Boston, and when I arrived there was no hemorrhage and dilatation was complete, and delivery was a very easy and simple thing. That is rather unusual, but still you might see it occasionally. The child in the case just spoken of was asphyxiated, as one would naturally expect. I think the fetal mortality is so large mainly because they are premature. I think it would be very interesting to compare the fetal mortality after placenta previa with the fetal mortality of ordinary premature infants, which is, as we all know, very large in itself.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

NINETY-FIFTH ANNUAL MEETING, HELD IN ALBANY,
JANUARY 29, 30 AND 31, 1901.

FIRST DAY.

DR. A. M. PHELPS, the president, delivered the

INAUGURAL ADDRESS.

He recommended that the way to securing membership in the society be made easier by having each county hereafter elect two delegates annually, each to serve for one year. He also thought it would be well to hold a semi-annual and exclusively scientific and social meeting in some other city than Albany.

REPORT OF THE COMMITTEE ON HYGIENE.

DR. HENRY R. HOPKINS, of Buffalo, in presenting the report of this committee, spoke of the preliminary steps that had been taken towards securing State control of pulmonary tuberculosis, and reforms in tenement houses. The committee thought it desirable that gonorrhea and syphilis should be included in the list of diseases to be reported to the health authorities.

REPORT OF COMMITTEE ON LEGISLATION.

DR. FRANK VAN FLEET, of New York, presented this report. It showed that out of the 268 medical bills presented to the last legislature, no bill had been allowed to become a law which was prejudicial to the society or to the medical profession.

DR. CHARLES A. L. REED, of Cincinnati, O., the president of the American Medical Association, being introduced to the society at this time, made a brief speech, the burden of which was that the trend of the present was towards unity and peace in the medical profession. He added significantly: "I am sure when you gather in our national council in St. Paul we shall be nearer an understanding on the unfortunate questions which have divided us for nearly two decades than we have been these many years."

THE PRIZE ESSAY.

The successful essayist this year was DR. LUCIEN HOWE, of Buffalo, the essay being entitled "On the

Management of the Interocular Base Line and the Size of the Meter Angle."

REPORT OF COMMITTEE ON STATE BOARD OF MEDICAL EXAMINERS.

DR. M. J. LEWIS stated in this report that out of the 792 candidates for license, 143, or 18.05%, had been rejected. The regents had granted licenses to 107 physicians during the year.

RECENT PROGRESS IN THE TREATMENT OF ACUTE Lobar PNEUMONIA.

DR. JAMES K. CROOK, of New York, read this paper. He said that no very striking innovations in our methods of treatment had been made recently, yet it was gratifying to note that while there were many minor differences of opinion, there was a commendable unanimity as to the underlying principles. In the present state of our knowledge not a single dose of medicine should be given simply because pneumonia was present; the indications should be watched for and met. The old-time poultice was being relegated to a well-deserved oblivion, and the use of ice bags and sponge baths was happily becoming almost universal. No more safe procedure than this would be found in the whole therapeutics of pneumonia. He favored the use of opiates, not as a routine measure, but carefully and discriminatingly to meet such definite indications as obstinate insomnia, intense nervous excitement or delirium. The same was true of alcohol. While it was usually indicated in chronic alcoholics and in old people, it was rarely required in others if the pulse rate kept below 110. Digitalis was losing favor, and caffeine was becoming more popular, while strychnine was generally admitted to be the most useful heart tonic in this disease. It should be noted that the specific plan of medication advocated by those who believe that pneumonia should be treated by combating the activity of the pneumococcus had not made much progress. There had been a surprising apathy among the French and Germans regarding the use of antipneumotoxin. Some progress had been made in our own country, but the chief obstacle was our inability to prepare an antitoxin of uniform and stable quality.

DR. ELSHA H. BRIDGES, of Ogdensburg, said that he could not accept the theory of the microbic origin of pneumonia. The one great essential in the treatment was securing to the patient an abundant supply of fresh air. Strychnine, morphine and alcohol were, in his opinion, the most useful remedies.

CONGENITAL DISLOCATION OF THE SHOULDER.

DR. DANIEL W. MARSTON, of New York, presented a communication on this subject. The majority of cases were dependent, he said, upon traumatism at birth, a fact that was emphasized in the frequent history of difficult labor. Our aim in treatment should be the reduction of the deformity and obtaining a useful joint. For patients under three years of age manual reduction was worthy of trial, but should this fail, operation should be resorted to.

THE RELATION OF APPENDICITIS TO DISEASES OF THE UTERINE APPENDAGES.

DR. A. L. BEAHAN, of Canandaigua, read a paper in which this relation was emphasized by the report of several cases. The association with menstruation of

fever, tenderness over the appendix, constipation, flatulence, nervous irritability and exhaustion pointed very strongly to an appendicitis.

SMALL HOSPITALS AND THEIR ADMINISTRATION.

DR. LOUIS NOTT LANSHART, of Hempstead, gave his personal views on this topic, of much interest to many practitioners in the smaller towns.

THE NECESSITY OF GREATER CONSERVATION IN THE USE OF VASODILATORS IN CERTAIN CASES OF CARDIOVASCULAR DISEASE.

DR. LOUIS FAUGÈRES BISHOP, of New York, was the author of this paper. He deplored the frequent routine use of the nitrites in doses not at all suited to the individual case, and insisted that in the successful use of these drugs each case must be a physiological study. If used in excess they cause dilatation of the heart and paralysis of inhibition.

WHAT IS RODENT ULCER?

DR. J. A. FORBYCE, of New York, with the aid of many fine photographs, pointed out clearly both the histological and the clinical features of rodent ulcer. He said that mistakes in diagnosis were not infrequent, and occurred for the most part in the late stages of this type of cutaneous cancer at a time when it was apt to lose its pearly-gray and thickened margin and appear only as an ulcer. While in the majority of cases it first appeared about the age of forty, it was by no means uncommon to see it much earlier. He had himself seen it as early as the twentieth year, and Hutchinson had seen it at the age of fourteen. Its first stage attracted little attention, and it was characterized by an excessively slow course and by very little new growth. The ulceration kept pace with or exceeded the newly formed tissue. Rodent ulcer when once well established exhibited a very strong tendency to recur after removal, and the lymph nodes did not always escape.

RECTOCOLONIC ENTEROLITHS AND CONCRETIONS.

DR. SAMUEL G. GANT, of New York, presented in this paper the results of a study of 53 cases. In 34 of these the stones had been situated in the rectum. They occurred more frequently in women and after the age of forty. Hair balls were also found, and oat stones in persons who had been in the habit of eating large quantities of oatmeal.

ESOPHORIA, OR LATENT SQUINT.

DR. FRANCIS VALK, of New York, contributed this paper. His views on the etiology of this condition were based on the muscular theory, associated with the fusion force of the eye. He believed that the straight muscles showed a certain power under stimulation of the fusion force, and that this power bore a certain relation to the action of the other muscles. The prism test he considered to be the only one that could be relied upon to indicate the true balance of power in these muscles, or the want of power, as an imbalance, as well as the probable muscles at fault. The histories of 16 cases were given briefly as examples of those showing latent convergent squint by the prism test. The operation employed consisted in a shortening of the external rectus by a "tuck" with a catgut suture, the latter being inserted while the muscle is held by the twin strabismus hooks de-

vised by himself. The reaction after the operation was very slight.

DEMONSTRATION OF THE OPHTHALMOPHACOMETER.

DR. LUCIEN HOWE, of Buffalo, demonstrated the action of this instrument, and presented simple formulae relating to its use. The object of the instrument was to demonstrate the images formed by reflections from the surfaces of the cornea and crystalline lens.

CAN INTERSTITIAL KERATITIS BE PREVENTED IN THE OFFSPRING OF SYPHILITIC PARENTS?

DR. PETER A. CALLAN, of New York, replied to this query by saying that physicians could delay, but could not wholly prevent, the outbreak of interstitial keratitis in a certain number of cases. According to experience, the offspring of syphilitics show the inherited taint in only a small percentage of cases over five years of age.

RELATIONS BETWEEN CERTAIN DISEASES OF THE SKIN AND THE MENSTRUAL FUNCTION.

DR. L. DUNCAN BULKLEY was the author of this paper. He said that he had records of 42 cases in which this relation had been very evident. Acne was the most frequent cutaneous manifestation in this class. In a series of 510 cases of acne nearly one-third had shown a relation between the acne and menstruation. In 79 the acne had been aggravated by the approach of menstruation, and in 14 it had been worse after the menstrual epoch. There was a particular relation between acne of the chin and the menstrual function.

DR. A. JACOBI said that he had seen vicarious menstruation from varicose ulcers as well as from the ear and nose.

HYSTERICAL ANESTHESIA AND ANALGESIA.

DR. B. C. LOVELAND, of Syracuse, reported this case, which was one of hysteria major.

OPERATIONS FOR DEFORMITIES FOLLOWING POTT'S FRACTURE.

DR. W. O. PLIMPTON, of New York, reported 6 cases in which he had obtained a uniformly good result from division of the bone at the point of original fracture.

DEEP BREATHING AS A CURATIVE AND PREVENTIVE MEASURE.

DR. JOHN H. PRYOR, of Buffalo, pointed out in this paper the many therapeutic advantages of deep breathing, or, in other words, of thorough oxygenation. The effect of lung gymnastics on old exudates naturally received a large share of attention.

BELLADONNA VERSUS SCOPOLIA.

DR. REYNOLD W. WILCOX, of New York, pointed out the nearly identical composition of these two drugs.

INDICATIONS AND LIMITATIONS OF THE VAGINAL ROUTE OF ATTACK IN PELVIC DISEASES IN WOMEN.

DR. J. RIDDLE GOFFE, of New York, gave in this paper the latest accepted views of operating surgeons on this very important topic.

DISINFECTION WITHIN AND WITHOUT THE BODY IN DIPHThERIA.¹

DR. M. A. VEEDER, of Lyons, called attention to the advantages of using local germicides, and the danger of disseminating the disease during examinations or attempts at local treatment unless certain precautions were observed.

AFTER-THOUGHTS ON DIPHThERIA.

DR. I. N. LOVE, of New York, spoke of the need for careful discrimination in drawing deductions concerning the results from the antitoxin treatment of diphtheria because of the progress that had been made in recent years in other methods of treatment. Much confusion had arisen from basing diagnosis and classification solely on the results of bacteriological examination.

THE TREATMENT OF PERSISTENT SUPRAPUBIC VESICAL FISTULA BY MEANS OF BOTTINI'S OPERATION.

DR. WILLY MEYER, of New York, reported cases illustrating this method of treatment.

THE PORRO-CESAREAN OPERATION.

DR. J. H. GLASS, of Utica, stated that the indications for this operation were: (1) Sepsis after protracted labor; (2) cancer; (3) large myomata; (4) atresia; (5) ovarian tumors; (6) hemorrhage, and (7) dystocia.

FATTY DEGENERATION OF THE HEART.

DR. THOMAS E. SATTERTHWAIT, of New York, read this paper, the object of which was to connect the three degrees of fatty degeneration, described by Bollinger in 1898, with three clinical stages. He was of the opinion that fatty degeneration of the heart is a common affection, attendant on and consecutive to various disorders. It was caused primarily by fevers, toxemias, disorders of nutrition and mechanical injuries. In the early stage the prognosis was best for complete recovery. Rest, tonics and nutrients were indicated in this stage. One should expect in the second or intermediate stage to so reduce the bulk of the fatty deposit that the muscular substance of the heart would recover enough of its normal tonicity to functionate physiologically. It was in this stage that carbonated baths and resistant exercises achieved their best results. In the final stage, when there was secondary implication of the viscera, the prognosis was necessarily unfavorable, though in rare instances the skilful use of modern therapeutic methods might result in recovery after attacks of ascites and cerebral effusion.

RECENT EXPERIENCES WITH ERYTHROMELALGIA.

DR. HENRY L. ELSNER, of Syracuse, in this paper spoke of combinations of erythromelalgia with Raynaud's disease and with syphilitic endarteritis obliterans, and stated his opinion that the disease depended more on arterial disease than on disorder of the nervous system.

RESULTS FOLLOWING THE CURE OF CHRONIC DEFECTS IN THE VESICAL FUNCTION.

DR. EUGENE FULLER, of New York, presented this paper. The object was to show that by appro-

¹ See page 153 of the Journal.

appropriate surgical measures it was possible in certain cases, in which the power of the bladder to empty itself had become impaired, to materially improve the condition. The most important of the factors leading to such crippling of the bladder were stricture, chronic contraction of the prostatic fibres around the vesical neck, senile prostatic hypertrophy, calculi and tumors. The direct causes for these conditions were vesical tetanus, stagnation of urine and urinary infection. Long continued vesical tetanus led to firm and unyielding bladder walls; stagnation caused stretching of those walls. The ureters and the pelvis of the kidneys also showed the effect of chronic vesical stagnation. Thus, the ureteral orifices became very patulous, and the natural ureteral resistance to a vesical reflux being removed, the way was open for the development of a hydronephrosis. When the latter became extensive, the kidney soon became involved in the pathological process. Vesical infection added the inflammatory element to these processes, and the extension of this inflammation into the pelvis of the kidney was especially dangerous. It was most important that not only the disturbing factor be removed, but that rest of the bladder should be ensured by artificial drainage until the resulting lesions of the urinary tract had had time for repair.

A SIMPLE AND ACCURATE METHOD OF SUBSTITUTE INFANT FEEDING.

DR. HENRY DWIGHT CHAPIN, of New York, was the author of this paper. He said that in preparing the substitute food there were three important factors, namely, (1) Selection of good cow's milk; (2) suitable modification of the milk, and (3) the choice of a diluent. The same milkman's supply of milk varied little from day to day in the richness of the cream. Dilution of cow's milk with wheat or barley gruel, in which the starch had been digested, broke up the curds and so greatly aided digestion. This gruel could be prepared by boiling a heaping tablespoonful of flour with a pint of water, cooling and adding an aqueous solution of diastase. From 9 to 16 ounces of the top milk should be dipped off into a pitcher. Food for an infant should be made up of from one-eighth to one-third of 9 ounces of top milk, or of one-eighth to one-third of 16 ounces of top milk, the remainder consisting of digested gruel. One part of sugar should be added to 20 or 25 parts of food. Rich milk would require to be diluted more than poor milk. Each additional ounce removed from the milk bottles reduces the fat in the top milk from $\frac{1}{2}\%$ to 1% , thus cutting down the fat in the food $\frac{1}{2}\%$ to $\frac{1}{4}\%$, depending on the dilution.

ECTOPIC PREGNANCY; PRIMARY RUPTURE THE OPPORTUNE TIME FOR MAKING DIAGNOSIS.

DR. GEORGE MCNAUGHTON, of Brooklyn, considered in this paper the main points in diagnosis.

LEPROSY IN THE HAWAIIAN ISLANDS.

DR. CHARLES E. DAVIS, of Albany, gave an interesting account of leprosy as found in these islands.

AN X-RAY STUDY OF THE CAUSES OF DISABILITY FOLLOWING FRACTURES INVOLVING THE ELBOW JOINT.

DR. SAMUEL LLOYD, of New York, presented this communication. He said that so far as his experience

had gone ankylosis at the elbow was true or bony. The function of the joint might be interfered with by the presence of callus, displaced bony fragments or by the head of the radius. If, under anesthesia, it were impossible to secure a satisfactory reduction of the displaced bones, the joint should be at once operated upon, just as one would do in a case of irreducible compound fracture. He favored putting up the arm in a flexed position, as that gave the most useful member in the event of ankylosis. Passive motion should be begun after three weeks.

DR. R. H. M. DAWBARN said that those who had not an x-ray apparatus at hand would derive much aid from the simple expedient of anesthetizing the patient and applying an Esmarch bandage. This, by markedly reducing the swelling, enabled the surgeon in most instances to arrive at a correct conclusion regarding the nature and extent of the injury.

(To be continued.)

Recent Literature.

Textbook of Histology, Including Microscopic Technique. By DR. PHILIP STÖHR, Professor of Anatomy at the University of Würzburg. Translated by DR. EMMA L. BILSTEIN. Edited by DR. ALFRED SCHAFER, Professor of Anatomy, University of Breslau. Pp. 432, with 301 text illustrations. Philadelphia: P. Blakiston's Son & Co. 1900.

Few textbooks on histology and microscopic anatomy have won such wide recognition in so short a time, as evidenced by the fact that it has passed through nine editions since 1887, and has been translated into Italian, French, Russian and English. The present volume represents the third American edition. When compared with the preceding American edition many points of superiority are noticeable. The portions dealing with technique have been carefully revised, a more precise terminology adopted and much new matter added. The more conservative may hesitate, however, to commend the phonetic spelling which the editor introduces, namely, "sulfuric," "sulfite," "pipet," "anilin," etc.

In the part on histology but few changes are apparent. The part on microscopic anatomy has not only been thoroughly revised but much additional matter has been incorporated, especially on the digestive organs. The author classifies these organs under I, Headgut, and II, Rumpgut; under the second division are the subdivisions: Foregut, Midgut and Hindgut. This classification is adopted without a word of explanation as to the meaning of these terms, and is therefore unintelligible to the student; not only is this true, but the classification is, in part, erroneous. Aside from this one objectionable feature there is nothing to detract from the excellence of this part of the book.

A distinctive feature of the American edition is a chapter by the editor on the uterus and placenta which is of great value to the medical student, and one which is not to be found in other textbooks. This and many other less important additions serve to bring together, in textbook form, the results of the latest researches in histology and microscopic anatomy.

One of the chief merits of the work, as stated in the editor's preface, is the brevity, precision and clearness of the descriptive text. The illustrations are for the most part original and possess a high degree of accuracy. Some, however, are copied from inaccurate originals. An example of such is Figure 287, in which the relation of the nerve endings to the auditory cells is incorrectly represented.

The translation is in general clear and concise; occasionally one finds a rendering which if given more freely would certainly be clearer. An instance in mind is the translation of the word *cellulifugalwärts* as "cellulifugalward."

The presswork is of the very highest grade. The illustrations are especially praiseworthy, while the typographical errors are few and of such a character that they are insignificant.

Orthopedic Surgery. By CHARLES BELL KEETLEY, F.R.C.S., Surgeon to the West London Hospital; Member of the British Orthopedic Society. London: Smith, Elder & Co. New York: C. P. Putnam & Sons.

This is a book of much interest to the orthopedic surgeon. The chapter on Coxa Vara is of value as the contribution of one of the early workers in the study of this lately found deformity. The book confines itself to that portion of orthopedic surgery exclusive of tubercular affections of the joint which in many places as deforming diseases ordinarily fall to the care of the orthopedic surgeon. The book is, therefore, of greater value to English than to American students, but it is of interest to all readers interested in the subject, as one of the best expositions of current English orthopedic surgery.

The chapter on Spastic Paraplegia advises myotomy and tenotomy and is, therefore, properly in advance of many neurological writers, but does not refer to tendon transference, which is now recommended by German surgeons. Trephining is mentioned as of possible use, but no cases are reported and the method remains as yet a suggestion.

The book is that of a student and of a man of ideas and experience, and is, therefore, a decided contribution to the art. The work is well but hardly handsomely illustrated, as is unfortunately the case with many English and American works on the subject.

In spelling the word "orthopaedic" the writer adopts English custom, although in the introductory lines of his work the word is correctly described as coming from the French *orthopédie*, derived from the Greek words *orthos* and *paidion*. Writers are justified in following sanctioned usage, but it is clear that reform is desirable in our cumbersome English spelling, and where authorities allow us, can we not be phonetic and also be right and simple?

The Use of the Röntgen Ray by the Medical Department of the United States Army in the War with Spain (1898). Prepared under the direction of SURGEON-GENERAL GEORGE M. STERNBERG, U. S. Army. By W. C. BORDEN, Captain and Assistant Surgeon, U. S. Army. Washington: Government Printing Office. 1900.

The title explains the general scope of this attractive volume of 98 pages with 38 full-page plates. A careful selection of cases has been made by the compiler; clinical histories are given in considerable de-

tail, and only those have been chosen which illustrate important points in relation to the use of the x-ray. The chief value of the work lies in the x-ray photographs, which were evidently taken with much care and skill, and have been most admirably reproduced by the heliotype process. They have in no case been retouched to add to their clearness, a method to which recourse has too often been made of late. The work in this book also demonstrates that x-ray reproductions to be of value must be reproduced by the best processes on special paper. The typography is excellent, and the x-ray plates are among the very best we have had an opportunity to see.

A Textbook of Practical Medicine. By JAMES W. ANDERS, M.D., Ph.D., LL.D., Professor of Practice of Medicine, Medico-Chirurgical College, Philadelphia. Fourth edition, thoroughly revised. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1900.

A yearly edition seems to be about the right standard unto which works on the practice of medicine should attain. This is the fourth edition of Dr. Anders's textbook. Advantage has been taken of the new edition for revision and rearrangement. He must be indeed a difficult practitioner or a difficult student of medicine who cannot find among all the works on theory or practice of medicine which have been placed on the market in recent years one or more which meet his requirements. It is evident that there are those who find their wants fulfilled by this textbook. It has many of the merits of its class and is not absolutely free from an occasional defect.

Saunders' Question Compend, No. 17. Essentials of Diagnosis, arranged in the form of Questions and Answers, prepared especially for Students of Medicine. By SOLOMON SOLIS-COHEN, M.D., and AUGUSTUS A. ESHNER, M.D. Illustrated. Second edition, revised and enlarged. Philadelphia: W. B. Saunders & Co. 1900.

This is the second edition of No. 17 of Saunders' Question Compend. There is evidently a large demand for such question compends. As we have more than once stated, we are not great advocates or admirers of these compressed self helps for "busy students and practitioners." This one is dedicated to the late Dr. Da Costa and is prepared by two of his former pupils, now professors in the Philadelphia Polyclinic. If one wants a compressed self-help question compend on the essentials of diagnosis this is a good one.

A Textbook of Pharmacology and Therapeutics, or the Action of Drugs in Health and Disease. For the Use of Students and Practitioners of Medicine. By ARTHUR R. CUSHNY, M.A., M.D. (Aberd.), Professor of Materia Medica and Therapeutics in the University of Michigan Medical Department, Ann Arbor. New (second) edition. In one octavo volume of 732 pages, with 47 engravings. Philadelphia and New York: Lea Brothers & Co. 1901.

There is not much to be said about the second edition of this work. It is but little more than a year since we welcomed the first edition, and sufficient time has not elapsed to require many changes. The book continues to represent modern medicine and today is the standard work in America on pharmacology and therapeutics.

THE BOSTON

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283 WASHINGTON STREET, BOSTON, MASS.**COMPULSORY DISINFECTION IN TYPHOID FEVER.**

THE discovery of the cause of an infectious disease should have as its principal result the prevention or limitation of that disease. This is the greatest benefit which such knowledge can bestow. In general our boards of health have been quick to take advantage of these advances in medical science. In typhoid fever, however, although our increased knowledge of the cause of the disease has led to much, it has led to less in the way of prophylaxis than should be the case.

Bacteriology has shown that the infectious material may be destroyed much more easily in some diseases than in others. For example, in diseases of which diphtheria is a type the infectious material is so disseminated from the patient that it is impossible to prevent persons and objects in close proximity from becoming infected. In such a disease isolation of the patient must be carried out, but if this is done thoroughly, there is little danger of the infection being carried to persons at a distance.

Typhoid fever is an illustration of a disease of a very different type. Here practically all the infectious material is in the urine and feces, which are received in a receptacle by the attendant. In that receptacle all the bacilli may be destroyed and almost all danger of infecting others easily removed by the addition of some suitable disinfectant. If this is not done, articles of food or the water supply may be infected, and the disease thus carried to persons at a distance. Nearly every case of typhoid fever that occurs has been infected from the excreta of a typhoid patient. To prevent typhoid, therefore, we have only to disinfect the excreta of every case.

These simple facts are understood by all practitioners. We mention them here only to emphasize their simplicity as well as their importance. It is hard to see how the control of any disease could be more completely in the hands of man. We should, therefore, expect that our boards of health would en-

deavor to insist that disinfection should be carried out in every case. In reality, however, we find that practically not much is done by health officials in this direction. Circulars have been issued, notably one by the Boston Board of Health, giving valuable instructions and inculcating good advice. A few physicians and most of the hospitals insist on disinfection, but this is not enough to have any appreciable effect in stamping out the disease. To this end, not merely must the gospel of disinfection be preached, but some means must be sought and, if possible, be found for enforcing its precepts.

As a result of our indifference to these precautions, typhoid, though most distinctly a preventable disease and though less prevalent than formerly, is constantly present in the community. It attacks chiefly those who are in the prime of life, and most needed for the support of the family. It takes away from the community and from public life many of those who can least be spared. Even in modern warfare it destroys more than the enemy's bullets.

The constant presence of typhoid in our midst is probably the cause of our comparative indifference to the disease. Cholera is spread in a similar way, and is probably not a more serious disease; yet the very name is sufficient to make the public shudder, and boards of health do their utmost to prevent it spreading from the cases that have occurred. What are the precautions which are taken in cholera? The same which should be taken in typhoid, a disease of similar origin and spread in a similar way, namely, a thorough disinfection of the excreta from the patient and of everything which may be contaminated by them. As a result of these measures, cholera is stamped out of every civilized community, and only occasionally gets a foothold through the neglect of proper precautions.

At the time of an epidemic of typhoid our health officials frequently display very great thoroughness and energy in tracing out the source of infection. The reports of these investigations, and of the following up of each clue, afford as interesting reading as a detective story. They fill us with admiration for the skill of the investigators, whose efforts, unfortunately, are seldom of more than a restricted benefit. On account of the long incubation period of typhoid the cutting off of the discovered source is merely locking one door of the barn after the horse is stolen. Direct this same energy toward securing disinfection in all cases and the disease will soon become extremely rare.

The remedy for this condition is to be found in legislation. The question of disinfection should no more be left to local boards of health in typhoid than it is in diphtheria and scarlet fever. There should be no local option in such matters. It is not sufficient that disinfection should be done in the city or town where we live. It is much more important that it should be done in the country places from which come our water and milk. Our Massachusetts law might be amended so as to require disinfection of the excreta in every case of typhoid

within the borders of the Commonwealth. The public statutes now require disinfection after diphtheria, smallpox, scarlet fever, or any other infectious or contagious disease dangerous to the public health. In compliance with this law our local boards of health carry out expensive formaldehyde disinfection of the infected rooms, although probably in those diseases the infection takes place in various ways. How much more important that disinfection should be done in typhoid, where every chance of infecting others may be removed by the destruction of all the bacilli!

The public statutes might require the local boards of health to send their agents or inspectors to every case of typhoid that is reported, to convince themselves that the dejecta are being properly disinfected. When necessary, disinfectants might be furnished free. If it is found that the directions of the board are not being complied with, they might have authority to remove the patient to a hospital where disinfection will be done.

The initiative for any steps toward securing disinfection in typhoid fever must come from the medical profession. The medical societies ought to take up this question. It should be agitated and brought before the legislature. Let us hope that very little of the twentieth century will have passed before measures will have been taken to stamp out the disease. May it no longer remain a reproach to our profession and to the intelligence of the age.

A PSYCHOPHYSICAL LABORATORY IN THE DEPARTMENT OF THE INTERIOR, WASHINGTON.

The question of the establishment of a psychophysical laboratory at Washington has been under discussion for a considerable time. A Senate amendment to the Sundry Civil Bill for such a laboratory has recently been introduced, which provides \$4,500 salary for the director and \$16,500 for the expenses incidental to the collection of data and for necessary printing. Regarding the aims of the laboratory, it is stated that it is not to be in competition with other psychophysical laboratories in our country. Its purpose is to gather sociological, pathological or abnormal data, as found especially in children and in criminal, pauper and defective classes, and in hospitals. Besides these data it is desired to gather more special data with laboratory instruments of precision and to make such experiments or measurements as are generally considered of value by psychophysicists and anthropologists. While the field is necessarily a very large one, the purpose is to study in those parts of it which seem at the time to be productive of the most practical results.

It is to be hoped that such a laboratory may be established, and if established may confine itself closely to the line of work outlined above. That such work is needed there can be no question, and that it is emi-

nently fitting that it should be supported and encouraged by the central government is equally evident. It is peculiarly true of investigations of the proposed character which this laboratory is to pursue that a very large number of data must be collected before conclusions of significance may be drawn. In the hands of a competent director it would no doubt be possible to bring about this result in a more complete way than has heretofore been done, and thereby provide knowledge of which we are certainly much in need. The loose, popular and often promiscuous talk of the last few years regarding degeneracy needs reconstruction and adjustment to the facts as soberly considered after years of patient investigation. If the suggested laboratory could, even in small measure, bring this about, its existence would be amply justified. In general, we are convinced that the intelligent collection of facts such as it is the design of this laboratory to accomplish in various lines of normal and abnormal anthropology is a work for which the time is ripe.

A PROPOSED MEMORIAL TO THE LATE DR. DA COSTA.

AN appeal is in circulation for funds for the establishment of a laboratory of clinical medicine in connection with the Hospital of the Jefferson Medical School in Philadelphia as a memorial to the late Dr. J. M. Da Costa. This appeal is the result of a resolution of the Board of Trustees of the Jefferson Medical School and Hospital to the following effect:

That for the purpose of commemorating the eminence of the late Professor J. M. Da Costa as a member of the faculty of this college, his notable career as a physician, and his distinguished services to humanity and to the advancement of medical science, a laboratory of clinical medicine, to be known as "The J. M. Da Costa Memorial Laboratory of Clinical Medicine," shall be established in connection with the Jefferson Hospital, and that the medical profession, the friends of Dr. Da Costa, and any others who may desire to contribute to the fund needed for the establishment of such laboratory, shall be given the opportunity of subscribing thereto.

It is proposed by those interested in this project to raise \$50,000 for building such a laboratory, and \$50,000 additional for its perpetual endowment. There is certainly no more worthy or fruitful purpose to which money could be devoted than this, if properly administered, and no representative of the medical profession in recent years more deserving of such a memorial than the late Dr. Da Costa. He was himself gentle, kindly, helpful, wise and learned, and a dispenser of all these eminently precious characteristics to others both in and outside of the profession of medicine through many years. He was known and appreciated both through his books and his personal teaching by great numbers of students and practitioners of medicine in many places. His skill, his judgment, his tact have profited many sick people whose diseases have thereby been healed, or whose burdens

have been rendered less hard to bear, and who cannot fail to hold the man and the physician in grateful remembrance.

This appeal reminds us that "he was for over thirty years a teacher of medicine, gave lustre to Philadelphia as a medical centre, and was known the world over as one of our ablest writers and most successful practitioners. It is fitting that a career so distinguished should be made memorable for all time by a laboratory in his chosen department. . . . For a generation Dr. Da Costa was the warm friend, the trusted adviser and in multitudes of cases the good angel at the bedside of the sick, often recalling to life and health our best-known citizens, or soothing their last hours. Many persons owe him a debt of gratitude which may well find expression in carrying on his work for the good of all future generations of poor and rich alike."

Those who make this appeal may justly remind the public that in Europe the sort of work which they propose to further is done in government laboratories for which large sums of money are appropriated. In our country "scientific medical progress is dependent upon the generous support of our enlightened and liberal fellow citizens."

MEDICAL NOTES.

"PLACE AUX DAMES." — The wrecking propensities of certain misguided women in the West have led in Chicago to a systematized attack on several drug stores. A daily contemporary remarks upon the event as follows: "According to a Chicago dispatch, half a dozen female followers of Dowie, the faith-cure healer, with the war cry that drugs are the agent of the devil, recently wrecked a number of drug stores on the west side of that city. Armed with pitchforks, umbrellas and canes, they succeeded in destroying property wherever they went. "Place aux dames" is a gallant motto, and a good one; but the place for these dames, apparently, is in the lunatic hospital. When lovely woman stoops to such folly as this, she will be likely to find that there comes a time when man's gallantry ceases to be a virtue."

PLAGUE IN INDIA. — According to the Bombay correspondent of the London *Daily Express*, plague prevails in every part of India, except the central provinces. There is said to be a weekly mortality of 2,500 in Bengal. In Bombay the deaths reach 94% of the cases. There is a lack of proper medical attendance.

A CASE OF SMALLPOX ON A CANADIAN PACIFIC TRAIN. — A man suffering from smallpox was recently found on a train of the Canadian Pacific Railroad. The car, which contained six other passengers, was detached from the train and placed in quarantine.

SMALLPOX AND PLAGUE AT MANILA. — Several cases of plague and smallpox have recently been discovered in Manila. The appearance of these diseases causes no alarm to the Health Board, as it is to a certain extent expected during the hot season.

SMALLPOX IN GLASGOW AND NORWICH. — There is a considerable epidemic of smallpox in Glasgow. On February 7th 33 new cases were reported. The disease has also appeared among the Thirteenth Hussars, stationed at Norwich.

PLAGUE IN CAPE TOWN. — It is reported that on February 8th 2 cases of bubonic plague had been officially diagnosed at Cape Town.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, February 13, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 111, scarlatina 42, measles 29, typhoid fever 1.

INSPECTION OF FOOD AND DRUGS. — The following, from the *Weekly Bulletin of the State Board of Health*, presents the results of the examinations of food and drugs by the State Board of Health in the month of January, 1901: Percentage of adulteration, 29.03. The actual ratio of adulteration is very much less than this, since it is only suspicious articles of food to which the attention of the board is directed. Certain staple products, such as sugar, flour, and the various other cereal products, are very rarely adulterated, and require but little inspection. The work of the board is therefore mainly devoted to the inspection of such articles as it has found, by several years of experience, to be especially liable to adulteration. The ratio of samples of milk found to be below the standard was 34.9%, as compared with 40.9% for the preceding month, while the percentage of other articles of food found to be adulterated was 12.2. Ten complaints were entered in the courts during the month for violation of the laws relative to the inspection of food and drugs. Four of these complaints were for violation of the statutes relative to the sale of milk. Fines were imposed amounting to \$110. The samples of drugs found to be adulterated were aqua destillata, acidum tannicum, calx chlorata, capsicum, extractum glycyrrhizae, glycerinum, sodii phosphas, spiritus frumenti and tinctura iodi.

CITY HOSPITAL, QUINCY, MASS. — The trustees' report of the Quincy, Mass., City Hospital shows that the number of patients admitted to the hospital during the year 1900 was 230. Of this number 187 had been discharged, 28 had died and 15 now remain. Two nurses had been graduated during the year, and there are now 6 in the training class. The treasurer's report showed a deficiency for the year of \$950. The total receipts for the year, including this amount, were \$11,838.48, and the expenditures \$11,780.76, leaving a balance of \$57.72. The total endowment fund January 1, 1901, was \$15,205.50. President William B. Rice offered to contribute half of the deficiency of last year provided the balance was raised in six days, and a committee was appointed to see if this could be accomplished.

NEWTON HOSPITAL. — According to the treasurer's report of the Newton, Mass., Hospital, nearly all of the institution's indebtedness has been met and there is on hand at present \$8,717. The earnings of the hospital for board, care and treatment of patients and earnings of the nurses outside during 1900 amounted to \$31,527. The current expenses were \$36,563.

ANNUAL MEETING OF ALUMNI ASSOCIATION OF BOSTON CITY HOSPITAL GRADUATES. — The Alumni Association of the Boston City Hospital Graduates held its annual meeting and dined at Young's Hotel, Wednesday, February 13th. The president, Dr. J. H. McCollom, was in the chair. Speeches were made by Drs. D. W. Cheever, J. G. Blake, Abner Post, George W. Gay, George B. Shattuck, J. L. Hildreth, H. W. Broughton, and Henry H. Sprague, Esq. Dr. W. E. Boardman was elected president, and Dr. W. A. Morris, vice president, for the ensuing year.

SMALLPOX IN NEW HAMPSHIRE. — In the town of Harrisville, N. H., with 750 inhabitants, 15 cases of smallpox have appeared. Strict quarantine has been instituted over infected houses, and an isolation hospital is being prepared. The situation is somewhat serious. One case has also been discovered in the town of Milford.

BILL TO ABOLISH COMPULSORY VACCINATION. — The Committee on Public Health of the Massachusetts Legislature has been giving hearings on a proposed bill to repeal the law for compulsory vaccination.

DELINQUENCY IN REPORTING DIPHTHERIA. — Two physicians of Everett, Mass., have recently been fined in the court for failing to report a case of diphtheria in that city.

NEW YORK.

TYPHOID FEVER IN EASTHAMPTON. — Prof. Olin H. Landreth, of the engineering school of Union College, recently visited Easthampton, Long Island, at the request of the State Board of Health, to investigate the causes of the prevalence of typhoid fever in the village. In his report he states that during and after the Spanish-American War there was constant intercourse between the people of Easthampton and the camp for returning troops which was established at Montauk Point, fifteen miles distant, where many working people were employed. The first marked results in the village were in the shape of numerous cases of tropical dysentery, during the autumn of 1898. One case of typhoid fever also occurred in August, 1898, the patient having been at the camp previously. During the following two years there were a considerable number of cases of typhoid, several of which occurred within 600 feet of the site of one of the hospitals where soldiers suffering from this disease were treated. The opinion is expressed that, whatever may have been the means by which the infection reached Easthampton, it became established there by soil implantation, and that it was disseminated either through the agency of percolation

into the ground water, from which all the patients took part at least of their supply, or through the air, by the medium of dust blown by the winds. In conclusion, Professor Landreth says that unless vigorous sanitary measures are promptly taken there is danger of the disease developing, from the existing centres, into an epidemic during the coming season. Easthampton has long been a favorite summer resort for residents of New York, and has greatly increased in popularity since the extension of the railroad to the village a few years ago.

BUILDING FUND OF MOUNT SINAI HOSPITAL. — At the annual meeting of the Mount Sinai Hospital, held January 26th, it was announced that the subscriptions to the building fund now amount to \$1,190,830, leaving only \$225,000 to be raised, and that work would be shortly commenced on the new buildings at Fifth Avenue and 100th Street. Among recent subscriptions are \$125,000 for the children's pavilion, \$75,000 for the dispensary building, \$50,000 for the pathological building, and \$20,000 for the equipment of the main operating room, all in memory of deceased relatives of the donors. Exclusive of gifts to the building fund, legacies and bequests to the amount of \$14,771 and donations of \$6,079 were received, and seven perpetual beds were dedicated during the year. The percentage of patients treated gratuitously was 80.60.

A BUST OF THE LATE HORACE GREEN, M.D. — At the meeting of February 7th, a bust of the late Dr. Horace Green, who died in 1866, was presented to the New York Academy of Medicine by members of his family. The presentation speech was made by Dr. D. B. St. John Roosa, who in the course of it took occasion to refer to the lack of recognition of the services of physicians to humanity in the Hall of Fame of the New York University. When, said he, the trustees were appointed to select names to be placed in the muster roll of men entitled to a niche in the Temple of Fame, not one member of the medical profession was considered worthy of a place either on that committee of 150 or in that hall.

PRESIDENT OF THE STATE LUNACY COMMISSION. — At a meeting of the Neurological Society held February 5th, resolutions were adopted in regard to the qualifications required for the position of president of the State Lunacy Commission. They disapprove of any amendment of the insanity laws doing away with the clause providing that such officer shall have had at least five years' actual experience in the care and treatment of the insane.

A HEAVY VERDICT FOR INJURIES. — On February 8th, a verdict for \$28,000, said to be the largest ever given in Kings County against a railway company for personal injuries, was awarded in the Supreme Court, Brooklyn, to the wife of Dr. John M. Fowdrey. The suit was brought against the Brooklyn Heights Railroad Company, in one of whose cars Mrs. Fowdrey was severely injured in a collision.

Miscellany.

REPORT ON CONDITIONS AT BELLEVUE HOSPITAL, NEW YORK.

A COMMITTEE of five of the Medical Board of Bellevue Hospital, appointed for the purpose, has just made to Commissioner of Charities Keller a full report on the condition and needs of the hospital. The committee consisted of Drs. George B. Fowler, W. M. Polk, J. W. Brannan, A. Alexander Smith and Alexander Lambert. During the year 1900 24,300 patients were admitted, of whom no less than 11,370 were ambulance cases. The other hospitals in the city delivered in their ambulances to Bellevue 6,754 patients, of whom 107 died within twenty-four hours. This class of cases naturally affects materially the death rate, but the report says: "We cannot escape this burden so long as they (the other hospitals) are authorized by law to impose it upon us." Then follows a tabulated statement of the latest reported annual death rate in St. Luke's, the German, Presbyterian, Roosevelt, Mt. Sinai and New York Hospitals, as compared with that at Bellevue. "It is seen that, combined," the report comments, "they provide for a total of about 21,998 patients annually, with an average mortality of 9.44%; whereas this hospital provides for about 24,300 patients annually, with a mortality of 7.08%." The reception accommodation is entirely inadequate for the present needs of the hospital, and a number of suggestions are made for its improvement. The insane pavilion is carefully considered and the recommendation made by the Committee of Inspection is renewed, namely, that the patients sent to the pavilion should be placed under the charge of a competent salaried physician. There should also be an assistant resident physician, so that there should always be a well qualified medical man in attendance. The nursing service of the male ward of the pavilion should be in the charge of a carefully selected supervising graduate nurse, assisted by trained attendants. In the opinion of the committee, male pupil nurses are not fitted for the care of the insane.

Wards 32 and 34, known as the alcoholic wards, are the only ones in the hospital in which certain forms of epilepsy, hysteria, and even surgical mania, can be treated, and are greatly overcrowded, and the committee recommends that the members of the visiting staff exercise closer supervision of these wards than heretofore; also that the house physician and senior be assigned to duty in these wards, rather than a junior, as has sometimes been the case. While several of the pavilions standing on the grounds are commended, those recently completed, such as the ones for erysipelas and tuberculosis, are criticised on account of serious errors in design and construction. While the building now used for lying-in cases can only be condemned in every particular, plans are in preparation, it is stated, for converting the building on the hospital grounds formerly used as a medical college into a suitable place for such cases. As to the dispensary department the report says: "At the present time there is no direct supervision of any kind. Those left in charge are unfit to be in such a position, and there is a general laxity of discipline and observance of all rules that makes it a jumble of good and bad service. It can best be described as being in a state of vicious decay, and only the most radical meas-

ures can make it anything but a discredit to the institution."

Some fault is found with the feeding of the patients in the wards, particularly in the stages of convalescence, and it is suggested that a special committee be appointed with a view to placing the dietary as nearly as possible upon the same plane as was adopted in 1890. Outside the insane and alcoholic pavilions, where, as mentioned, pupil nurses are not approved of, the nursing service is regarded as satisfactory. In order to facilitate the work of the male nurses it is suggested that an assistant superintendent should be provided for each medical and surgical division. The report concludes in the following language: "We are of opinion that the rules and regulations of the hospital are correct upon the whole, that the various divisions and subdivisions of the force which is concerned in its conduct are, as far as circumstances permitted, organized upon correct lines. A division of authority has, however, existed, which has been responsible for the defective execution of the laws under which the hospital was supposed to live. This, as was stated to the commission some time ago, can be obviated by a head which places itself in contact with these various subdivisions and exercises immediate and vigorous control on all. This, we are glad to say, the commission has accomplished by installing Dr. Stewart. But permanent improvement is rendered difficult, and some of us believe impossible, in the face of the inefficiency of the paid employees, as a class, and the wretched accommodations furnished so large a portion of the staff, doctors and employees alike. Correct this and raise the per capita allowance of this hospital to a figure approximating that which obtains in like institutions in this city, and the crying evils will be permanently eradicated. Otherwise the outcome of this effort at improvement will end as the many which have preceded it. Decent service requires fair pay and decent accommodations. To which end we earnestly recommend that the main hospital building be replaced at once by a modern and more commodious structure, and the per capita allowance for conducting it increased to a figure approximating that under which other hospitals live."

WHAT IS BRANDY?

In a case recently tried in Dublin before the Lord Chief Justice and a special jury in which the merits of cognac was under discussion, one of the witnesses is reported to have said that such a thing as cognac made from cognac grapes exclusively did not exist on the market. Two prominent firms, makers of brandy, have protested in a letter to the *Medical Press* that the statements made were false, and also incidentally that Cognac is a town, and not a vineyard. Commenting on the general question the *Medical Press* says:

"We recently discussed the question, 'What is Whiskey?' and events have occurred in the law courts during the past few days which render it necessary in the public interest to do the same for brandy. According to Dr. Murray, of dictionary fame, the original form of the word 'brandy-wine' is a Dutch word, *branderijijn*—'burnt' wine,—in familiar use abbreviated as brandy as early as 1657, but the fuller form was retained in official use down to the end of the seventeenth century. 'This brande-

wine is the *eau de vie de vin* of the French, the liquid which was the subject of Brande's papers (1811 to 1813) in the *Philosophical Transactions*, and the name brandy is properly restricted to the liquid distilled from the fermented juice of the grape. The well-known smell and flavor of brandy are due to the presence of ethers and aldehydes developed during the process of the maturing of the spirit; of these the most important is *eanthibic ether*, which was discovered by Liebig and Pelvuzé in 1836. They found that the body in question can be obtained in wine lees, and they showed that it is the ethyl ether of *eanthibic acid*. Unfortunately this ether can be obtained from castor oil and other substances, so that its presence in no way proves that the liquid containing it is brandy. When the *phylloxera oïdium*, and mildew, whose ravages in 1875 reduced the area under vineyards from six millions and a half of acres to less than three millions, the supply of grapes in the country round Cognac, in Charente, in the west of France, became insufficient to meet the demand for brandy; even the Armagnac district failed to meet the demand, and potato spirit, beetroot spirit, and grain spirit flavored with *eanthibic ether*, colored with ergot and generally sophisticated, came to replace the true brandy in the British market. This substitute possessing none of the medicinal properties of cognac brandy, is capable of doing serious injury to any patient to whom it may unwittingly be given. We see no reason why the imports of brandy should not be submitted to examination from time to time, and the so-called 'trade' brandy destroyed at the port of entry. Until this is done the physician can protect his patient in no other way than by prescribing the liquor bottled by houses of repute in the trade, and, happily, there are several firms whose brands are trustworthy, and whose brandies can be prescribed with the confidence begotten of years that the patient will get true brande-wine — the liquor distilled from the fermented juice of the grape."

MEDICAL GENERALS.

APPROPOS the nomination of General Wood to be a brigadier general in the regular army, it is an interesting fact that he is not the first surgeon who has made a high military reputation on being transferred from the staff to the line. General Samuel W. Crawford at the outbreak of the Civil War was a captain and assistant surgeon stationed at Fort Sumter. As one of Major Anderson's officers he took more than a surgeon's share in the defence of the fort, actually commanding one of the batteries that responded to the Confederate fire.

Transferred to the line of the regular army, he accepted a brigadier's commission in the volunteers and subsequently rose to the command of a division, serving with distinguished credit at Gettysburg and in Grant's Virginia campaign. After the war, in which he won brevet-general rank in the regular army, he long commanded a regiment stationed in the South, actively engaged in the enforcement of the reconstruction laws. General Crawford was generally esteemed a most capable officer, though he did not escape the prejudice line officers have against officers who came into the line from a staff corps, as the Medical Department is. Sheridan at one time protested against

Crawford's selection for a high command on the ground that he had been a "pill-roller," but had to admit that Crawford was at least an exception.

At no time was General Crawford likely to succeed to the command of the army, and therefore he did not challenge line sentiment to the extent General Wood challenges it. In the natural order of promotions and retirements, Brigadier-General Wood, if confirmed as such, will become Lieutenant-General Wood in 1909, and will not attain retiring age until 1924. It is the prospect of the army being commanded for fifteen years by a lieutenant general who began his military career as a surgeon that ruffles every feather in every chapeau of the army. — *Boston Transcript*.

Obituary.

ARCHIBALD HAMILTON JACOB, M.D.

IN the death on January 9th in Dublin, Ireland, of Archibald Hamilton Jacob, B.A., M.D., T.C.D., F.R.C.S.I., medical journalism loses a man of conspicuous prominence. He had for many years been connected, as editor, with the *Medical Press and Circular*, a periodical which has taken rank with the best of the English medical journals. He received his degree in medicine in 1862, and was at the time of his death sixty-three years old. His main professional interest apart from journalism was ophthalmology; he had for many years occupied the chair of ophthalmology in the Royal College of Surgeons, Ireland, and also held various hospital positions. The work for which he will be best known, however, was his able and dignified editorship of the *Medical Press*. To this he devoted much of his time. As a conversationalist he was brilliant, and as a man, both in his professional and private life, he filled a large place in the regard of his professional brethren.

Correspondence.

X-LIGHT KILLS.

MR. EDITOR:—In the *Electrical Review* for January 5, 1898, I stated that the so-called x-ray burn could be produced by electricity when no x-light was present. Here I show that when electricity is excluded, death can be produced by x-light without burning. A strong male guinea pig was placed in a grounded Faraday chamber and exposed to x-light for two hours a day, the source of light being outside. He died on the eleventh day. The experiment was repeated, with death on the eighth day. No burns in either case. There were many details connected with these experiments which are not given, for I remember how many hours of sunlight I have lost through being obliged to read long papers. I try to get this note printed in a medical instead of a physical journal, where the others of the series have appeared, for several reasons: (1) Because the experiments separated the effects of electricity from those of x-light and showed clearly what a powerful agent x-light was. (2) To call attention to need of using this power in new growths in the interior of the body. (3) To give an opportunity to repeat three precautions I have advised: (a) the physician in using the fluoroscope should wear glasses of the most non-radiable material that is transparent; (b) the x-light tube should be in a non-radiable box from which no x-light can escape except the smallest cone of rays which will cover the area to be examined, treated or photographed; (c) the patient should be covered with a non-radiable material, exposing only the necessary area.

Very truly yours,
WILLIAM ROLLINS.

METEOROLOGICAL RECORD

For the week ending February 2d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter.		Ther- mometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'thr. •		Rainfall in inches.
	Daily mean.	Maximum.	Daily mean.	Minimum.	8.00 A. M.	5.00 P. M.	8.00 A. M.	5.00 P. M.	8.00 A. M.	5.00 P. M.	8.00 A. M.	5.00 P. M.	
S., 27	29.15	27	33	21	72	54	63	N.W.	W.	14	10	O.	—
M., 28	29.06	28	30	22	68	63	58	N.W.	W.	12	10	O.	—
Tu., 29	29.64	28	30	22	68	63	58	N.W.	W.	12	10	O.	—
W., 30	29.96	23	29	17	68	47	78	S.E.	E.	3	12	O.	.01
Th., 31	29.96	26	29	23	93	82	88	N.	N.W.	17	17	N.	.13
F., 1	29.89	22	32	17	67	61	64	W.	W.	12	9	N.	.01
S., 2	30.20	22	32	16	68	40	52	W.	W.	8	12	C.	—

• O., cloud; C., clear; F., fair; G., fog; H., heavy; S., smoky; R., rain; T., threatening; N., snow. † Ind. cases time of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 2, 1901.

CITIES	Estimated popu- lation.	Percentage of deaths from						
		Reported deaths in each.	Deaths under five years.	Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,292	1332	352	24.15	—	1.05	1.12	3.00
Chicago	1,698,575	—	—	—	—	—	—	—
Philadelphia	1,293,037	552	103	18.46	17.37	1.08	1.63	1.81
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,357	262	—	21.39	23.68	—	1.91	1.91
Cleveland	381,008	—	—	—	—	—	—	—
Buffalo	325,502	—	—	—	—	—	—	—
Cincinnati	325,502	—	—	—	—	—	—	—
Pittsburg	321,616	113	12	21.24	19.47	—	5.31	1.65
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	65	23	25.56	24.64	—	—	—
Boston	569,892	243	58	21.26	19.77	3.70	2.47	5.76
Worcester	118,421	15	24	14.80	24.00	—	—	—
Fall River	104,633	29	9	26.70	17.25	—	—	—
Lowell	94,869	30	11	29.97	19.98	—	3.33	3.33
Cambridge	91,896	41	10	21.96	14.61	—	7.32	7.32
Lynn	68,513	23	6	21.75	30.45	4.35	—	4.35
Lawrence	62,554	21	4	14.28	11.28	—	—	—
New Bedford	62,442	34	15	14.85	35.64	—	—	2.97
Springfield	62,069	32	9	21.84	11.81	—	3.12	—
Somerville	61,643	18	8	33.30	11.10	5.55	—	5.55
Holyoke	45,712	23	13	26.10	21.75	4.35	—	—
Brockton	40,063	10	1	20.00	60.00	—	—	—
Haverhill	37,175	9	2	—	11.11	—	—	—
Salem	35,626	18	1	11.10	—	5.55	5.55	—
Chelsea	34,072	11	1	9.09	—	—	9.09	—
Malden	33,044	9	4	22.22	22.22	—	—	11.11
Newton	33,587	9	4	22.22	—	—	—	11.11
Pittsburg	31,551	10	—	10.00	50.00	—	—	—
Danvers	31,036	—	—	—	—	—	—	—
Glooucester	26,121	7	2	28.58	—	—	—	—
Everett	24,336	5	2	60.00	30.00	—	—	—
North Adams	24,200	—	—	—	—	—	—	—
Quincy	23,899	7	3	28.58	11.29	—	—	14.29
Waltham	23,481	8	—	12.50	25.00	—	—	—
Pittsfield	21,766	—	—	—	—	—	—	—
Brockton	19,925	—	—	—	—	—	—	—
Chicopee	19,167	12	3	18.67	16.67	—	—	22.22
Melrose	18,244	9	3	22.22	22.22	—	—	—
Newburyport	14,178	7	1	28.58	—	—	—	—
Melrose	12,962	7	—	—	28.58	—	—	—

Deaths reported 3,032; under five years of age 765; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumptions) 765; consumption 387; acute lung diseases 331; diphtheria and croup 91; diarrheal diseases 69; influenza 56; typhoid fever 45; scarlet fever 33; whooping cough 19; cerebrospinal meningitis 9; measles 4.

From whooping cough New York 8, Pittsburg 3, Philadelphia and Somerville 2 each, Baltimore, Worcester, Lowell, and Cambridge 1 each. From cerebrospinal meningitis Worcester 4, Gloucester 2, Boston, Lynn and Everett 1 each. From scarlet fever New York 11, Boston 9, Philadelphia 6, Lynn, Somerville, Salem and Holyoke 1 each. From measles New York 2, Phila-

delphia and Boston 1 each. From typhoid fever New York 15, Philadelphia 9, Pittsburg and Boston 6 each, Baltimore 5, Lowell, Springfield, Salem and Chelsea 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,780,000, for the week ending January 19th, the death rate was 19.1. Deaths reported 4,320; acute diseases of the respiratory organs (London) 422; whooping cough 99; diphtheria 95; measles 79; fever 38; diarrheal 36; scarlet fever 27.

The death rates ranged from 13.9 in Croydon to 24.8 in Sunderland; Birmingham 21.8, Bradford 19.6, Brighton 19.6, Bristol 19.0, Cardiff 14.2, Derby 16.7, Halifax 15.1, Hull 21.2, Leeds 21.3, Liverpool 23.4, London 18.7, Manchester 20.4, Newcastle-on-Tyne 18.0, Norwich 18.8, Nottingham 18.9, Plymouth 22.1, Portsmouth 16.0, Sheffield 20.3, Swansea 23.3, West Ham 14.9.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 9, 1901.

J. A. GUTHRIE, passed assistant surgeon, detached from the "Franklin" and to the "New York," February 18th.

A. M. D. MCCORMICK, surgeon, detached from the Naval Hospital, Norfolk, February 2d, and to the Naval Academy.

R. SPEAR, passed assistant surgeon, detached from the "Buffalo" and to the "Isle de Luzon," on arrival of former at Cavite.

W. B. GROVE, assistant surgeon, detached from the "Vermont" and to the Naval Hospital, New York.

W. H. BUCHER, assistant surgeon, detached from the Naval Hospital, New York, and to duty at the Naval Hospital, Norfolk, Va.

M. V. STONE, assistant surgeon, detached from the "Isle de Luzon" and ordered to the "Buffalo."

E. Z. DERR, medical inspector, ordered to the Naval Academy, February 14th.

W. R. D. BOSE, surgeon, detached from the Naval Academy, February 13th, and ordered to the "Wisconsin."

D. M. BERTOLTELLI, medical inspector, ordered to the "New York," February 16th.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEBRUARY 7, 1901.

BAILHACHE, PRESTON H., surgeon. Relieved from duty as chairman of the board for the physical examination of Second Assistant Engineer R. F. HALPIN, Revenue Cutter Service, February 4, 1901.

VAUGHAN, G. T., surgeon. Detailed as chairman of the board for the physical examination of Second Assistant Engineer R. F. HALPIN, Revenue Cutter Service. February 4, 1901.

CORFUT, G. M., assistant surgeon. Bureau order of January 26th, directing Assistant Surgeon Corfut to proceed to Cleveland, O., for temporary duty, revoked. February 2, 1901.

FRANCIS, EDWARD, assistant surgeon. To proceed to Cleveland, O., and assume temporary command of the service during the absence on leave of Surgeon PETTUS. February 2, 1901.

BALLARD, J. C., acting assistant surgeon. Granted leave of absence for five days from February 7th. February 4, 1901.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the society will be held in Sprague Hall, Medical Library Building, 8 The Fenway, on Monday, February 18th, at 8.15 P. M.

Paper: Dr. Abner Post will present the subject of "Accidental Inoculations of Syphilis." The paper will be illustrated by many lantern slides.

ARTHUR K. STONE, M.D., Secretary, 657 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will hold a regular meeting Wednesday, February 20, 1901, in Sprague Hall, Boston Medical Library Building, 8 The Fenway, at 8 P. M.

At 8 o'clock: Dr. C. F. Withington, "Experience with the Widal Reaction in Typhoid."

At 8.15 o'clock: Dr. Charles Harrington: "Dissemination of Typhoid through Oyster Infestation."

At 8.30 o'clock: Dr. Calvin Page, "A New Method for the Early Diagnosis of Typhoid." Discussion by Drs. G. B. Shattuck, H. F. Vickery and R. C. Cabot.

HENRY E. HEWES, M.D., Secretary.

RECENT DEATH.

HENRY C. HILL, M.D., of Lockport, N. Y., died on February 8th, from Bright's disease, at the age of sixty-nine. He was a native of Vermont and served as assistant surgeon of the 128th Regiment, New York Volunteers, in the Civil War.

Original Articles.

U. S. ARMY PATHOLOGICAL LABORATORIES IN THE PHILIPPINE ISLANDS.¹

A DESCRIPTION OF THE WORK OF THE ARMY PATHOLOGICAL LABORATORIES AND GENERAL REMARKS ON THE INVESTIGATION OF THE DISEASES OF THE PHILIPPINES.

BY JOSEPH J. CURRY, M.D.,

Acting Assistant Surgeon, U. S. Army; Member of the Board of Army Officers Appointed to Investigate the Diseases of the Philippines.

PATHOLOGICAL LABORATORIES.

THERE were in and near Manila, at the time of my arrival in November, 1899, including the one on the hospital ship *Missouri*, three pathological laboratories. One at the First Reserve Hospital, one on the hospital ship *Relief* and, as mentioned above, one on the hospital ship *Missouri*. The two latter were necessarily small, but were well equipped.

Laboratories on hospital ships.—The laboratory on the hospital ship *Missouri* was located a little forward of midships on the main deck. It was well lighted by four ports, and for night work electric lights on heavy portable stands furnished excellent illumination. The laboratory was furnished with all necessary bacteriological and chemical apparatus, including a thermostat regulated as well as heated by electricity. During the entire voyage from New York to Manila, *via* Suez, the readings of the thermometer in the chamber of the thermostat were noted four times a day. During this voyage we passed from 40° parallel of latitude in the Atlantic to the 2° parallel in the Singapore Straits, and at no time was there a variation of more than ½° C. in the thermostat chamber. The electric heater and regulator was made by the American Electric Heating Company of New York, and was designed by that company. It stood the test of varying temperatures perfectly, and is the ideal method of operating a thermostat on shipboard. In addition to ensuring constant, even temperature it has the advantage of absence of any danger from fire.

As to the advantages of laboratories on hospital ships, in the first place, in smooth water and at anchor, it is possible to do practically the same work as in a laboratory on land. In addition to the value of the laboratory for the purpose of establishing diagnoses in cases on shipboard, the hospital ship, moving as it does to the various ports in the islands, can render the service of a portable laboratory to the cities and the towns the ship reaches. In the case of obscure fevers in other ports than Manila the laboratory of the hospital ship *Relief* has done valuable service. On a trip of the *Relief* to the southern Philippines in March and April, 1900, while Dr. E. R. Hodge, U. S. Army, was in charge of the ship's laboratory, he was enabled by means of it to render valuable service to the medical officers at a number of posts, in performing Widal's test and making examinations of the blood for malaria, etc. In the event of an epidemic in any port distant from Manila the hospital ship laboratory would be invaluable.

In the tropics laboratories are even more of a necessity than in the temperate zones.

In a fairly rough sea all examinations, save those with fluid cultures, were made with little trouble. The microscope and electric light stands were kept from slipping about by means of clamps fastened to the working table.

Laboratories in Manila, P. I.—In the earlier days of our occupation of Manila there was little opportunity to establish a laboratory, but at the First Reserve Hospital, soon after its establishment in August, 1898, a small laboratory in charge of Assistant Surgeon McVey, U. S. Army, did valuable work. Unfortunately Assistant Surgeon McVey contracted typhoid fever during his work and died. Assistant Surgeon R. P. Strong continued the work begun by Dr. McVey, and shortly afterwards Professors Flexner and Barker, of Johns Hopkins University, established their headquarters in this laboratory, bringing with them from Hong Kong a full laboratory equipment. The investigations of Professors Flexner and Barker in the laboratory of the First Reserve Hospital stimulated pathological work in Manila.

Additional laboratory apparatus was then obtained from the United States, and when I arrived there December 25, 1899, I found practically all the apparatus necessary for investigation work. At that time there was no other pathological laboratory in the islands. The Manila Board of Health had a building in the walled city which was set apart for a laboratory, but had not yet received a bacteriological equipment. Later, in February, 1900, some bacteriological apparatus was obtained by the Board of Health from the laboratory of the First Reserve Hospital and from the medical purveyor. In May, the Board of Health received from Japan apparatus selected by Assistant Surgeon Calvert during his visit to that country, so that on June 15, 1900, the time of my leaving the Philippines, there were two thoroughly equipped army pathological laboratories in Manila.

The valuable work performed by these laboratories has fully justified the liberality of the surgeon general toward them in the matter of supplies and of equipment. In addition to routine clinical and bacteriological examinations made to establish diagnoses in the cases at the military hospitals, there was conducted, first at the First Reserve Hospital, and later at the Health Board Laboratory, the work on the bubonic plague. At both laboratories investigation work was carried on in other diseases also. Owing to the great amount of routine work there was little time for research work, but still in spite of this, and of a trying climate, considerable was accomplished in this department.

First Reserve Hospital Laboratory.—Here in addition to the routine work of the hospital many blood examinations (including Widal's test for typhoid) were made for other hospitals in Manila. All the dead were brought to the First Reserve Hospital Mortuary, and many autopsies were performed here. There were obtained from these autopsies many specimens of value for the Army Medical Museum. These were turned over to Dr. E. R. Hodge, U. S. Army, who will prepare them and will attend to their shipment to the Army Medical Museum, Washington, D. C.

In the study of the diseases of the islands these laboratory records will be invaluable. It would be of

¹ Extract from a report to the Surgeon General of the Army on the Diseases of the Philippines.

great advantage if an expert stenographer was attached to the laboratory staff. The climate of the tropics will not permit of the close application to indoor work that is possible in the United States, and the actual time the observer can devote to laboratory work is necessarily shortened. The writing of records takes fully as much time as to do the work and is especially exhausting. The assistance of a stenographer would make it possible for the investigators to devote their entire time to their actual work, and important records now lost would be saved.

For about six weeks from the first of January to the middle of February, 1900, it was necessary to conduct the bacteriological work on bubonic plague at the First Reserve Hospital Laboratory, for the reason that it was the only place at the time equipped for such work. The work on the bubonic plague was abandoned in this laboratory just as soon as the Board of Health established its laboratory.

THE DISEASES OF THE PHILIPPINE ISLANDS.

General remarks.—The Board of Medical Officers to investigate the diseases of the islands followed the recommendations of the surgeon general, and pursued their investigations individually.

Assistant Surgeon Strong had already begun work on dysentery, so this subject was assigned to him. As the work on bubonic plague was under the supervision of the Board of Health, and as Assistant Surgeon W. J. Calvert had performed the greater part of the investigation work, the plague was assigned to him. The study of the fevers of the Philippine Islands was allotted, as special work, to me. Owing to the illness of Assistant Surgeon Strong from December 25, 1899, to February 10, 1900, I was obliged to give nearly all this time to routine laboratory work of the First Reserve Hospital, and had little time to devote to special work. During my service at the First Reserve Hospital, however, I made many visits to the wards, and with the assistance of Dr. E. R. Hodge and Hospital Steward Musgrave, U. S. Army, made many blood examinations. Nearly two months more were taken away from special work by my temporary detail on the Board of Health. Here I unfortunately obtained an infected hand and arm which became troublesome. This was followed later by malarial fever, which finally obliged me to return to the United States. All this interfered with special work, to my great regret.

There were many fevers met with which were not typical in their course. Of these fevers some were of a long duration, but more of from a few days' to a week's duration. These were reported by medical officers under the terms of malarial, dengue, febricula, etc. Many of the short fevers were uninfluenced by quinine administered in large doses. These fevers generally ran their course without regard to treatment, and nothing satisfactory could be learned from the history of their cases. There were a number of long-continued fevers, in which blood examinations were negative. Repeated examinations for the malarial parasites, and Widal's test for typhoid, were negative. Some of these long-continued fevers proved to be Malta fever. It is to be regretted that these obscure fevers could not have been studied more thoroughly. The subject of the fevers of the Philippines is a promising one. The field here is a rich one, and only needs careful, systematic making of

blood examinations, combined with clinical observations, to shed more light on many of these now obscure fevers. Further on in this report I will speak more of the atypical fevers.

Bacteriological investigation in the tropics is rendered difficult by the frequency with which cultures become contaminated by air organisms and on account of the rapid putrefactive process in cadavers. Even after the exercise of the greatest care, cultures are frequently contaminated by rapidly growing extraneous organisms. This is especially true of plate cultures. It is a trying condition and adds greatly to the difficulties of the work. It is necessary to make several cultures in the tropics where one usually suffices in the United States.

The bacterial flora of the tropics is apparently as rich and varied as its botanical flora. Many organisms were met with in the course of our work that were unknown to us. Lack of time prevented a careful study of many of these organisms. One fact that struck us forcibly was the frequency of the occurrence of bacilli in the cultures from various local and general infections.

For routine work it was found that agar-agar plate cultures were the most satisfactory. Solidified blood serum slants and agar slants were also used to a limited extent. Gelatine could not be used much on account of the heat.

It was difficult at times, owing to the destruction of so many cattle by rinderpest, which prevailed in the vicinity of Manila, to obtain cow's milk, so that caribou milk had to be used. This was not found to be so satisfactory as cow's milk. Culture media so frequently became contaminated that it was with difficulty that a constant stock of fresh media was kept on hand.

The country is a rich one and not unhealthy for a tropical climate. The diseases of the tropics until very recently have received little scientific study. Heretofore it has been thought generally that the tropics, *per se*, were incompatible with the white man. This is not true. When the same modern sanitary conditions existing in the United States are put in operation in the Philippines, that country will be as habitable as our Southern States.

The records of the First Reserve Hospital from the time of its establishment in August, 1898, to June 1, 1900, show a total of 21,955 admissions from all causes, including wounds and injuries. There were 1,874 admissions on account of wounds and injuries, which leaves 20,081 cases treated in the medical wards of this hospital. The First Reserve Hospital was the first of the army general hospitals established in the Philippines. It was established immediately upon the occupation of Manila and was the main receiving hospital in the islands up to June, 1900. The records of this hospital were remarkably well kept and are very complete. The First Reserve Hospital received most of the sick that came to Manila, not only from stations in Luzon, but also from the southern islands via the hospital ship *Relief* and army transports.

The records of this hospital form a fairly accurate medical history of our army in the Philippines. The records of the First Reserve Hospital are especially valuable because of the fact that the diagnoses have been confirmed in so many cases by laboratory examinations. In addition to the numerous examinations of the blood, and of pathological material, there were performed autopsies on most of the cases which died

from March, 1899, to June, 1900. There were 255 post-mortems made during this time, including 98 on dysentery, 40 on typhoid fever, and 9 on the malarial fevers.

DYSENTERIC DISEASES OF THE PHILIPPINE ISLANDS, WITH SPECIAL REFERENCE TO THE AMEBA COLI AS A CAUSATIVE AGENT IN TROPICAL DYSENTERY.¹

BY JOSEPH J. CURRY, M.D.,

Acting Assistant Surgeon, U. S. Army; Member of the Board of Army Officers Appointed to Investigate the Diseases of the Philippines.

INTESTINAL DISEASES.

Of the 20,081 medical cases treated (August, 1898, to June, 1900) in the First Reserve (Military) Hospital, Manila, P. I., there were 1,999 cases admitted for dysentery, and 2,186 cases for diarrhea, a total of 4,185, or nearly 21% of the total cases. The majority of these cases of diarrhea were probably dysentery. Of the cases which came to the hospital with the diagnosis of diarrhea and died, the post-mortem in most instances showed them to be dysentery. Some of the cases diagnosed as diarrhea proved to be typhoid fever. There were a number of patients who had a moderate diarrhea and who under treatment soon improved and returned to duty. It is safe to say that one-half of these 2,186 cases diagnosed diarrhea were properly dysentery. This would give a total of about 3,000 cases of dysentery, or about 15% of the admissions.

Of other diseases involving the intestinal tract 653 were typhoid fever and 478 may be included under the term "other gastro-intestinal diseases." These latter were for the greater part temporary disturbances of the gastro-intestinal tract, common in the tropics among new arrivals, and mainly the result of injudicious eating and drinking.

Dysentery.—Dysentery is responsible for the highest mortality among our troops on service in the East, but even this statement does not give any adequate idea of the gravity of this disease. In most other diseases there is a limited course, a period of convalescence and the soldier is fit for his usual duty. With dysentery this is not true. For one man who returns to duty and remains well, there are many who return to be sent back to the hospital again and again. Dysentery in the islands is responsible for more permanent disabilities than all the rest of the diseases combined. A complete permanent recovery in the islands is the exception to the rule.

It is difficult to say how many of the cases diagnosed diarrhea should be called dysentery, therefore the mortality percentage cannot be given with accuracy. Then, too, many cases of dysentery were transferred to other hospitals and to the hospital ships, and some died on the transport hospitals en route to the United States. There were 132 deaths from dysentery at the First Reserve Hospital up to June 1, 1900. Ninety-eight of these cases of dysentery came to post-mortem. Of these 66 were found to be amebic dysentery, 20 acute dysentery, and 12 subacute dysentery.

Source of infection.—In the great majority of cases among our troops (in practically all the cases I investigated) there was a history of drinking polluted or uncertain water. The almost universal history ob-

tained was that while in the more permanent camps and drinking boiled water the men were free from any serious disturbance of the bowels, but during a march when no boiled water was to be had, the men drank from any stream or pool and diarrhea began.

COINCIDENT INFECTIONS.

Malarial fever and dysentery.—The most frequent complication of dysentery in the Philippine Islands is malaria. Malarial attacks are common in the course of chronic dysentery and subacute dysentery. A malarial spleen and active malarial parasites were found in 4 out of 66 cases of chronic amebic dysentery which came to autopsy, and once in 12 cases of subacute (non-amebic) dysentery. In 157 cases of chronic and subacute dysentery among soldiers sick in the First Reserve Hospital, Manila, in which blood examinations were made, the malarial parasites were found in 36, or in nearly 23%. In 1 case of acute dysentery, also, early in the disease, the estivo-autumnal malarial parasites were found.

Typhoid fever and dysentery.—Typhoid fever and amebic dysentery combined occurred twice in the 66 cases. In both cases at autopsy typical lesions of acute typhoid fever were found in the ileum, and there were characteristic ulcers of amebic dysentery in the colon. Microscopic examination of the contents of large intestines in both cases showed the presence of active ameba, and from the cultures from the spleen and mesenteric glands in both cases the typhoid bacillus was obtained. Widal's test was positive also in each case. One of these cases also had pulmonary tuberculosis. In 1 of these cases perforation of a typhoid ulcer of the ileum was the immediate cause of death. In a third case there were recent healed typhoid ulcers in the ileum and amebic dysentery.

Pneumonia and dysentery.—Acute lobar pneumonia occurred once in this series of 66 cases of amebic dysentery.

Pulmonary tuberculosis.—There were 2 cases of active and quite extensive pulmonary tuberculosis found in the series of 66 amebic cases. One case was that of a triple infection (amebic dysentery, typhoid fever—acute stage—and pulmonary tuberculosis). In this latter case, which came to autopsy, active amebae were found in contents of the large intestine and in the scrapings from the typical amebic ulcers of colon. Typhoid bacilli were obtained in cultures from the spleen, and mesenteric glands and cover-slip examinations of caseous contents of lung cavities showed the presence of numerous tubercle bacilli.

Amebic dysentery.—The amebic type occurred in a little over 66% of the cases of dysentery which came to autopsy. Amebic dysentery is the most common type of dysentery found all over the islands. It is responsible for many more deaths than all the other types combined. Its complications and sequelae are frequent, and it is the most stubborn type in yielding to treatment. It is not my purpose in this report to discuss the etiology of dysenteric diseases of the Philippines. Assistant Surgeon Strong, U. S. Army, will discuss this in his special report, upon which he is now at work. I cannot, however, refrain from expressing my opinion that the ameba coli is a very important etiological factor in the causation of one type of tropical dysentery. In these 66 cases of amebic dysentery there occurred abscess of the liver in 11, or 16½%, and in 15, or nearly 25% of these 66 cases, there

¹ Extract from a report to the Surgeon General of the Army on the Diseases of the Philippines.

was a general peritonitis, due to perforation of ulcer of the colon in 11, and to rupture of liver abscess in 4. In addition to these 15 a general peritonitis occurred once without any perforation of bowel, the infection in this latter case travelling through the thin base of an ulcer in the cecum. (In the 32 cases of non-amebic dysentery there was no case of abscess of the liver, no perforation of the intestine and but 1 of general peritonitis). In all these cases of abscess of the liver active amebæ were demonstrated in both the abscess contents and in the contents of large intestine. Cultures from the liver abscesses were sterile.

The ameba coli: its relation to tropical dysentery.—Whether the ameba coli is primary or secondary, we have the strongest evidence that it is certainly a very important etiological factor.

There is a disposition recently on the part of many investigators to regard the presence of the ameba coli in the intestine in cases of dysentery as secondary and of itself not an important etiological factor. Several observers have found amebæ, not to be differentiated from the one known as the ameba dysenteriae, in the stools of those not suffering from dysentery. In other words, they report finding these amebæ in the normal intestines. This is regarded by them as strong evidence against the amebæ as an etiological factor. They believe that the primary trouble in dysentery is started by bacteria and the amebæ then invade the damaged tissue.

It appears that this theory of the secondary and comparatively unimportant part played by the ameba coli in the causation of tropical dysentery rests mainly on the fact that this same organism occurs in the healthy intestine and may exist there some time without causing dysentery. The finding of the ameba in healthy intestines is no more weighty an argument against it as an etiological factor in tropical dysentery than the finding of Klebs-Löffler bacillus in healthy throats is against the Klebs-Löffler bacillus being the causative agent of diphtheria, or the finding of the pneumococcus in the mouths of healthy individuals is against the pneumococcus as the causative agent of acute lobar pneumonia.

It is a well recognized fact that the Klebs-Löffler bacillus often exists in the upper air passages of individuals and they have not diphtheria. It is well known also that the pneumococcus occurs frequently in the mouths of healthy persons. Still the Klebs-Löffler bacillus is accepted by the entire world as the causative agent of diphtheria, and the pneumococcus generally accepted as the causative agent of acute lobar pneumonia.

The fact of the amebæ occurring so frequently in the liver abscesses contents found in the course of tropical dysentery; the absence of bacteria from these abscesses generally; the rarity of abscesses of the liver in the course of dysenteries other than those in which amebæ are present, and the general constant characteristic pathological picture at post-mortem, all weigh strongly in favor of the ameba coli as the principal causative agent in *our type* of tropical dysentery. I speak of *our type* of tropical dysentery because I believe there exist in the tropics, as elsewhere, several varieties of dysentery.

Acute "epidemic" dysentery.—In several of the cases of acute dysentery which came to autopsy during my service at the First Reserve Hospital Laboratory, a bacillus apparently identical with that described

by Shiga and by Flexner was found in the cultures. Comparing the cultures obtained from these cases with a culture of Shiga's bacillus dysenteriae, sent me from Japan by Professor Kitasato, they were apparently identical. I received in March, 1900, from Professor Kitasato, 300 cubic centimetres of anti-dysenteric serum prepared at the Tokio Institute for Infectious Diseases. I am unable to give any opinion as to its efficiency in cases of acute epidemic dysentery, but from Drs. W. J. Calvert and E. R. Hodge, U. S. Army, who have visited the Tokio Institute, I learn that this serum has given remarkably good results. Dr. Hodge, who spent a month October last in Japan, and visited the Tokio Institute for Infectious Diseases, writes me that the results in acute epidemic dysentery with this serum are second only to the results obtained with diphtheric antitoxin.

We have observed two distinct types of dysentery in the Philippines, one amebic dysentery and the other an acute dysentery, in a number of cases of which the bacillus dysenteriae of Shiga occurred. In addition to these two types, we have met cases of sub-acute and chronic dysentery in which neither the ameba coli nor the bacillus dysenteriae were found.

UTERINE FIBROIDS.

BY HOMER GAGE, A.M., M.D., WORCESTER, MASS.,
Surgeon to Worcester City, Memorial and St. Vincent's Hospitals.

THE frequency with which fibromyomata occur in the uterus has always made them a subject of great interest as well as great importance. Fortunately they are often unassociated with any serious discomfort, and remain undetected during the lifetime of their possessor. How often this is true will be appreciated when we consider that from the study of a very large number of autopsies Boyle concludes that they are present in 20% of all women over thirty-five years old, while in women of fifty Kolb estimates their occurrence at 40%. On the other hand, Faulstich examined the records of 2,230 gynecological cases at the Edinburgh Royal Infirmary, and found that in only 8% was fibromyoma the assigned cause of their condition. At the Memorial Hospital for women and children in this city, out of 1,724 gynecological cases 131, or 7.6%, were due to the presence of fibroid. A somewhat larger percentage might be found in other localities and in the private records of specialists to whom were referred only the severer cases, but the apparent discrepancy in these figures, it will, I think, be generally admitted, is to be explained by the very large number of cases in which the growths never attain any considerable size or give rise to any special discomfort. The mere presence of such a tumor accidentally discovered need not, therefore, be the occasion of any alarm, nor should it be made the excuse for surgical interference. On the other hand, fibromyomata may undergo degenerative changes that imperil the life of the individual or give rise to symptoms that place her in a condition of chronic invalidism. The discrimination between those cases which can safely be left alone and those which ought to be surgically treated constitutes a problem of the greatest interest and importance, while it is almost equally important and difficult to make a choice among the various measures proposed for their relief.

With regard to those fibroids which give rise to severe and exhausting hemorrhages (and this includes nearly all of the submucous as well as many of the interstitial forms), there is little opportunity for any difference of opinion. Some active interference is almost always necessary—always if it cannot be readily controlled and progressively diminished by the use of ergot, hydrastis, and similar uterine hemostatics. Interference is equally demanded in the rapidly growing forms. Rapidity of growth suggests at once the possibility of cystic or other degeneration, is apt to interfere with the natural duties and activities of the patient, and very likely to cause early impairment of her general health. It is true that this growth may diminish or even stop naturally at any time, but in view of the uncertainty of any such fortunate occurrence and the certainty of being able to deal more easily and more safely with a smaller than with a larger tumor, I think it unwise to postpone operation. Persistent pain, interference by reason of its size with the functions of bladder or rectum, and ureteral obstruction, are less common, but equally positive indications for surgical intervention. I believe the moral effect of the knowledge of the existence of such a tumor on the part of the patient is oftentimes a very important factor in determining the necessity of operation. Upon some temperaments the knowledge of its existence, provided it were otherwise harmless, would have little influence, but upon others it alone would be sufficient to cause a state of permanent invalidism. I am well aware that this is an indication which may easily be made the excuse for operating in every case, but although liable to abuse, I am convinced that at the hands of a careful, conscientious operator it is a factor always worthy of consideration. Menstrual irregularities and dysmenorrhea, and the multitude of reflex disturbances that are sometimes rightly and perhaps as often wrongly attributed to the presence of fibroids, constitute problems the correct interpretation of which must always be among the most puzzling and most difficult duties of the physician. They are often the principal symptoms for which the patient seeks relief. When they are the only ones, unless their connection with the growth seems very clear, all reasonable means should be exhausted before advising its removal.

It has always been the custom to consider the age of the patient as an important factor in determining the necessity of operation, and it is perhaps as true now as ever that the younger the patient, other things being equal, the stronger the indication for surgical interference. On the theory that the growth of fibroids ceased with the menopause, it has been commonly held that if a patient has approached somewhere near the time when the menopause should be expected, she should be made as comfortable as possible by palliative measures or by simple surgical expedients, and thus tided along until nature shall have effected the cure. Further investigations, however, show that this is by no means always true, that fibroids continue their growth independently of the menopause. Kattmann, in a study of 400 cases, found that in nearly 25% neither climacteric nor menopause had any hindering influence on their growth. This is especially true of those which have undergone cystic degeneration. Another factor of almost equal importance in this connection is the effect of fibroids to delay and prolong the menopause, an effect

particularly trying to the patience as well as to the strength of the patient. In view of these possibilities, I have felt that age should be given a place of very minor consideration in determining the question of operation, and have preferred to decide that question upon the evidence derived from its history and symptoms in the way I have already referred to, and without any special reference to the patient's age—the age of the tumor, its activity and its influence seem to me very much more important than the age of its possessor.

In a very hurried and general sort of way, I have rehearsed the chief factors upon which I should decide for or against operation in any given case as it presented itself to me. When surgical interference has been deemed necessary, one is brought face to face with the problem of choosing which of several methods is best adapted to each individual case. It would be difficult here, as in most surgical problems, to lay down hard and fast rules for our guidance. I do not intend to try to do that, but I thought it would be interesting, if not profitable, to take up my own experience with the different methods of operating, their results, and some of the impressions that experience has made upon me. I find that I have dealt with uterine fibroids by dilatation and curettement, by removing submucous forms piecemeal through the dilated cervix by tubo-ovariotomy, by hysteromyomectomy (vaginal and abdominal), and by myomectomy. In all there are 50 cases, with 3 deaths. The ideal operation would be one that was at once safe and free from permanent mutilation. Dilatation and curettement answers both these requirements, and is the simplest of the various surgical procedures which we have to consider. It is undertaken only when hemorrhage becomes a factor so important as to demand relief, and yet not sufficiently severe to require more radical interference. I have resorted to it in 5 cases. In 1, a woman forty-three years old, whose periods of flowing were longer than the intervals, a very small fibroid was found at the fundus and scraped away. There has been a very decided improvement in the matter of hemorrhage, but smaller interstitial nodules have since enlarged so much as to almost fill the pelvis, and give rise to pressure symptoms causing great annoyance. I think it not improbable that further interference will be necessary, unless the menopause, which ought to come soon, shall arrest their growth. In a second case in addition to curetting, I steamed the uterine cavity according to the method of Johnson, of Boston, two periods of forty seconds each, but though there were no subsequent hemorrhages, the brown, watery discharge which had existed for several months continued as before.

Microscopical examination of the scrapings in this case, by Dr. Baker, led to a suspicion of their malignant origin, and the uterus was subsequently removed through the vagina. Its section disclosed a fibroid of the interstitial variety situated in the fundus about as large as a robin's egg. The degenerative changes in the endometrium were of the chronic inflammatory type, not malignant. The patient made a prompt recovery, but remains in a state of extreme mental depression, which has existed ever since the uterine discharge first appeared. In this case all the symptoms, discharge, hemorrhage and mental depression, had come on years subsequent to the menopause. A third case returned to the hospital with request for removal of

the tumor. The symptoms seemed hardly to justify so radical a measure, and her request was denied by my colleague who saw her at that time, and she has since been lost sight of. The other 2 cases were relieved of their symptoms, but their subsequent history after two or three months is unknown.

One of the cases in which I removed a submucous fibroid through the cervix had been previously curetted with little or no benefit. As a means of gaining time—as in waiting for the menopause, or in preparing the patient for a more serious operation—curettement undoubtedly has its advantages, but the results are often unsatisfactory, and are usually followed by a recurrence of the symptoms. It seems to me to be indicated chiefly in young women, when it is our duty to make every effort to preserve the uterus and appendages. The hemorrhage may be due to a small submucous fibroid, which may be removed or its subsequent delivery *per vaginam* favored by the curette. But its field of usefulness is, it seems to me, pretty limited, and likely to grow smaller. Closely allied to this is the operation for the removal of those fibroids which project into the uterus by dragging them down through the dilated cervix and cutting them away piece by piece. I have had 13 of these cases, and while there has been no death, I have had serious septic complications in several of them. Besides general sepsis, I have had in 3 cases a greater or less degree of phlebitis affecting the femoral vein. Some of these cases come to us already septic from the sloughing of the superficial portions of the tumor, others become septic through the sloughing of the shreds of tissue which it is almost impossible to avoid leaving behind in the uterus. Occasionally, as in 2 of my cases, the removal of the submucous tumor is but a partial relief owing to the presence and subsequent growth of other nodules. In spite of its imperfections, however, this will always be the option of election in the great majority of these cases. They are the tumors that give rise to the most severe hemorrhages, and often to the most severe pain. The operation does not mutilate, and in the majority of cases gives permanent relief. Care must be taken to avoid cutting through the uterine wall, and it may be necessary to secure additional room by splitting the cervix on each side; otherwise the technique is simple, though the time necessarily consumed is apt to be very exhausting both to patient and to operator.

To prevent hemorrhage, and produce an atrophy of the fibroids as well as of the uterus, Tait in 1892 proposed to secure an artificial menopause by the removal of the tubes and ovaries. The safety and simplicity of the operation at once made it very attractive, so attractive that it was soon resorted to by all sorts of operators for all sorts of conditions. The reaction caused by its abuse, and the improvement in the technique of the more radical operations, have since pushed this into the background. I have performed it 3 times for the relief of fibromyomata. First in 1892, upon a Swedish woman forty years old, who complained of pain, irregular and profuse menstruation, dyspnea on exertion, nausea and headache. The blood count showed a profound anemia, and there was a systolic murmur at the apex of the heart. Surgically she made an excellent recovery, but ten days after the operation began to show signs of mental derangement, and a month later was committed to the Worcester Lunatic Hospital. Fourteen months later she

was sent back to Sweden by the State authorities, and at that time was reported by the hospital physician to be "much improved and in a fair way to recover." Fortunately such an outcome is not common after removal of the uterus or its appendages, perhaps not more common than at the natural menopause, but common enough to be a wholesome check on its too universal adoption.

My second operation was in 1893, upon a nurse thirty-three years old, who, though dependent upon her own work for a livelihood, had been obliged to give up nursing on account of severe pain and hemorrhage at the menstrual periods. Her recovery was in every way satisfactory. She has been well, strong, and abundantly able to practise her profession ever since.

The third case was in 1899. The patient was forty years old, and had had a submucous fibroid removed seven years before at the Memorial Hospital. Since then she had been delivered of a living child, but for two years had been subject to severe and exhausting hemorrhages, until she was unable to leave her house or attend to her household duties, and was much of the time confined to her bed. The tumor seemed to be interstitial, and to occupy the fundus of the uterus. She was so extremely anemic, and so very weak, that I did not dare attempt hysterectomy. I was able to remove the tubes and ovaries easily and rapidly, without any loss of blood and without shock. The result was exceedingly satisfactory. She began to gain at once and gained rapidly in flesh and strength. In a few weeks her health was restored, and she has remained well.

The mortality from this operation in Tait's hands was, for the first 272 cases, $1\frac{1}{2}\%$. I think, however, that the mortality today ought not to be more than 1 or 2% at the most. Forty-one out of 50 of his cases that were followed up for six years were in perfect health, and in 14 of them the tumor had entirely disappeared. The occasional persistence of menstruation after the operation, and the knowledge that after all the cause of the trouble has been left behind, with the wonderful improvement in the technique and consequent safety of hysteromyomectomy, have had a tendency to cause tubo-ovariotomy to be wholly overlooked. In just such cases as the last one which I have recited, I believe it possesses very great advantages over the major operation. It can be done more rapidly, with less hemorrhage and less shock. Whenever these factors are of especial importance, and the appendages can be readily isolated, their removal alone is surely worth considering.

I have removed the uterus twice by the vaginal route when it has contained fibromyomata. In 1 case, which has already been mentioned, the operation followed an unsuccessful curettement, and it was undertaken in the expectation of finding adenocarcinoma of the body of the uterus. The fibroid was unexpected. The other case was undertaken for a supposed carcinomatous degeneration of the cervix in September last; three pedunculated, subperitoneal fibroids as large as walnuts were found attached about the fundus. She made a good recovery. Neither of these operations was undertaken primarily for the relief of the fibroids, and as the vaginal route has never been a favorite with me, I should never choose it for that purpose. It is applicable only for the removal of small tumors, and to my mind is not

as exact nor as satisfactory as the operation from above.

I have performed abdominal hysteromyomectomy 25 times, with 3 deaths; 2 of these were the fault of the technique of the operation. The first was that of a woman thirty-five years old, who died of septic peritonitis on the fifth day after the removal for a six-pound tumor. The operation was uncomplicated, and as no autopsy was permitted, I am wholly at loss to account for the fatal result. It could occur, however, only as the result of some error in my aseptic technique. The second occurred in the case of a woman fifty-three years old after the removal of a tumor about as large as a grape fruit; death resulted from general sepsis, which had its origin in an abscess of the abdominal wall. There was no peritoneal or intra-abdominal infection, but the pus burrowed in every direction in a fat abdominal wall, and resisted all the attempts which were made to control it. The occurrence of the abscess was in itself evidence of infection, and whether attributable to unclean suture material or not, was wholly preventable. I have always felt, too, that a better appreciation of the possible dangers would have prompted freer openings at the first discovery of the trouble, and perhaps averted the fatal result. In any event, I think the accident very unlikely to be repeated. The third death followed an operation done a week ago today, in which I removed an ovarian cyst of very large dimensions, completely filling the abdominal cavity, and at the same time a fibromyoma as large as a baseball. The patient was a feeble-minded woman of forty-six years, who was very anemic, but seemed otherwise in very fair condition. She had no vomiting, no pain, no tenderness, and no distention, but failed steadily, both mentally and physically, and died on the fourth day. No autopsy could be obtained. I have since learned that for years she had been unable to pass urine voluntarily, and had been dependent wholly upon a catheter, and that the condition of mind was not natural, but had been gradually coming on for several weeks. The urine was of very low specific gravity, but contained no albumin. I have no doubt that she died from the effect of chronic changes in the kidneys, and that she really was an unsuitable case for operation.

Homans places the mortality after hysteromyomectomy at from 3% to 10%. Doyen collected 147 cases, with a mortality of 4½%. Grieg Smith had 41 consecutively successful cases, and many American operators have reported an equally low percentage of fatal results. These, compared with the mortality of 30% in 539 German cases operated on prior to 1890, show how much has been accomplished by improved technique in depriving the operation of its dangers, and widening the field within which it may be safely advised. From my own experience, I think I approach the operation today with as little fear as five years ago I felt about the simple removal of uterine appendages. It is true that adhesions or other serious complications may be encountered most unexpectedly, but their very presence means a serious condition without operation, and is therefore, relatively considered, no objection. My own method of procedure is to cut the broad ligaments between two clamps down to the attachment of the round ligament, divide the peritoneum over the uterus from side to side at this level and strip it

back, keeping close to the uterus until I can feel the uterine arteries between the peritoneal folds, secure these with silk ligatures, and then amputate the cervix. I cauterize the divided uterine canal, secure the ovarian arteries and then the vessels of the round ligament, and finally unite the anterior and posterior layers of the peritoneum by continuous suture from one side of the pelvis to the other. The most important steps are, I think, the absolute control of all hemorrhages about the stump so that there shall be no accumulation of clotted blood in the space between the stump of the cervix and its new peritoneal covering, and the treatment of the uterine canal. During the past year I have tried whenever possible to leave at least one ovary, on the theory that it diminishes the shock of the abruptly induced menopause, but I must confess that I have failed to observe any noticeable difference in the results.

Its progressively diminishing mortality and its completeness make this operation almost ideal in its results when performed for the relief of symptoms definitely due to the presence of a fibroid tumor. It would be ideal if it were not for the fact that it unsexes the patient, and produces a condition which, though compatible with health, is contrary to the provisions of nature. This objection is of especial force in the case of young women under thirty years of age, and has been very strongly set forth in a recent article by Dr. Richardson, of Boston. Fibromyomata are, like lipomata, encapsulated tumors showing no tendency to recur, and the ideal way to deal with them would be by enucleation, just as one deals with the fatty tumors on the surface of the body. In this way their attendant symptoms would be relieved, and at the same time the functions of the uterus and its appendages fully restored. The operation of myomectomy has been generally and successfully employed in pedunculated fibroids, when the pedicle has been small. Should we not extend it still further to those sessile and interstitial tumors which are capable of enucleation? On this subject, in his last edition, Grieg Smith says that "Schroeder identified himself with the practice of enucleation of fibroids, and obtained fair results, but other surgeons have not been prone to follow his example. Theoretically it is admissible, but practically its mortality is high."

The only danger beyond that incurred in any intrapelvic operations is from hemorrhage, and the supposed difficulty of controlling the bleeding from the torn uterine muscle—simply a matter of technique; and every year is bringing additional testimony to the unsoundness of this objection. Kelly, of Johns Hopkins, has done much to extend the field of this operation, removing successfully in one case nine and in another twelve small uterine fibroids by enucleation. He says that "no more important advances can be made by the gynecologist in the immediate future than by extending the indications for myomectomy and narrowing the field of hysteromyomectomy." It is contraindicated in extreme anemia, when it is desirable to avoid a protracted operation, in the presence of extensive pelvic inflammation, and when the uterus is larger than a six months' pregnancy. Kelly says further that "with these few plain limitations, myomectomy within the proper age limit must always be the operation of election, and if hysteromyomectomy is performed, definite reasons must be given for selecting the radical instead of the conservative plan of treat-

ment." As it is applicable only to the smaller growths, it must be undertaken early, and there should be no delay, especially in the case of young women, after it has been made perfectly clear that the fibroid is steadily increasing in size.

I have performed myomectomy now only 6 times, but with most gratifying results. I have thus far selected only the most favorable cases for its trial, but there has been no difficulty at all in controlling the hemorrhage. This is a pretty small experience, but it has been sufficient to convince me that the method is applicable to many cases in which, a few years ago, I should not have thought it possible, and has given me confidence to believe that a steady improvement in technique will still further widen the field for its practice, and will give us, at least in a very large number of cases, a safe, non-mutilating method of dealing with uterine fibroids.

DYSBASIA INTERMITTENS ANGIOSCLEROTICA (INTERMITTENT LAMENESS OF VASCULAR ORIGIN).

BY JAMES J. PUTNAM, M.D., BOSTON.

AMONG the diseases which count as very rare, and so beyond the need of notice, largely, perhaps, because they are unfamiliar, the one which is indicated by the above title deserves a prominent place, and the careful attention of the general practitioner.

First described by Charcot, in 1854, on the basis of a case seen by him while acting as assistant to Bazan, and again, with greater fullness, in subsequent papers, this affection has been the subject of several clinical investigations in Germany, especially by Goldflam and by Erb,¹ but no case has, to my knowledge, been reported in this country.

The symptom complex is fairly simple and uniform, and the description given by Charcot holds today. In brief, the subjects of this disorder, who are usually persons past middle life, are seized, after walking a short distance, occupying perhaps five to ten minutes of time, with a helpless, cramp-like feeling in the legs, so severe as to render further progress impossible, though after a few moments' rest they can do their short stint again. It is not the severity of the pain so much as an actual incapacity for motion, an inhibition, accompanied sometimes with abnormal sensations in the feet, that hampers them.

So long as the patient is at rest and during the first few moments of exertion, everything seems to be in perfect order, but a careful physical examination almost always reveals, it is said, one or more of several co-ordinated signs, all of which point eventually to the same condition — a limitation of the arterial supply to the muscles. Thus one or more pedal arteries and even the popliteals may be found to be without pulsation, and as a consequence of this the foot may be cool and slightly pale, or red, or blue, according to circumstances. It is usually assumed that an arteriosclerosis, due to age, diabetes, gout or syphilis, or in part to alcohol or tobacco, is the fundamental lesion, but as the symptoms sometimes occur even when the arteries are apparently pervious (Erb) it has seemed necessary to invoke also the concurrence of arterial spasm of vasomotor origin, as an occasional or a partial cause of the ischemia. Prolonged and frequent exposure to

wet and cold may tend strongly to induce a reflex habit of this sort.

In Charcot's first case a tumor was found compressing the artery in the popliteal space.

Even the larger arteries of the limb may be involved, and the disease may be identical with one from which horses suffer and which has been traced to changes in the abdominal aorta. The arms are never affected.

The characteristic intermittence during rest and recurrence during exertion is probably due to the fact that when the muscles are in use either an unusual supply of blood is needed or a vascular cramp is induced. Such is the *theory* of the pathology.

The disorder is chronic, and though of varying intensity does not tend spontaneously towards recovery. Occasionally, however, considerable improvement may be induced by measures tending to promote the circulation and to check the formation of a morbid habit. The chief means hitherto used with success are potassium iodide, moderate warmth, prolonged galvanism with the feet resting in tubs of warm water, cardiac tonics, and studious avoidance of exciting causes. Analogous measures which might be found useful are massage under the surface of warm water, as suggested by Jacobi for arteriosclerosis in general; local salt and carbonic acid baths, and Baumann's thyroiodin, which has recently been found of service in other forms of sclerosis of the arteries and for rheumatic and gouty joints.

The suggestion of this arterial condition as a cause calls to mind other nutritional and painful affections of the feet associated with abnormal conditions of the circulation, such as Mitchell's erythromelalgia and kindred disorders, perforating ulcer and gangrene. In Erb's exhaustive paper these and other points are amply discussed.

Why it is that one person has one of these affections, a second person another, is as obscure as is the nature of the curious predispositions that underlie all the neuroses and yet keep them so distinct and make them run so true.

The case that I have to report bears out, in the main, the accuracy of the classical descriptions.

The patient, whom the courtesy of Dr. C. B. Porter enabled me to examine and to treat, is an active and able business man, a gentleman of seventy, with a remarkably good record for soundness of constitution, temperance of habits, and freedom from disease and exposure. He is without signs of nephritis, or diabetes, or cardiac or arterial disease, unless it be that an attack of sudden giddiness in which he was once precipitated forcibly and suddenly from his chair to the floor was due to a cerebral lesion of arterial origin. This is a possible explanation, especially since no aural disorder could be discovered to account for the seizure and since the acute attack was followed by prolonged dizziness, accentuated by movements of the head.

The symptoms of chief interest in the present connection first showed themselves two months before my examination, in the form of an intense sense of muscular fatigue in the legs, amounting almost to pain, which recurred every time the patient walked more than one-eighth of a mile, but quickly passed away with repose. Since then this condition has remained substantially unchanged. The pain is usually felt first in the calf, generally that of the left leg before that of

¹ Deutsch. Zeitschr. f. Nervenkrankh., vol. xii.

the right, and then spreads upwards, omitting the knees and centering in the neighborhood of the hips. He then feels, although a man of great resolution, as if he must stop, and that if he went on his joints would grow rigid and he could not move. After a rest, or on waking in the morning, he feels perfectly fresh and "as well as ever in his life." Mental work causes no fatigue and he is singularly free from neurosthenic symptoms of all sorts.

On examination the patient was found in good general nutrition and with an appearance of vigorous health. The heart was normal in size and action and there was no unusual accentuation of the second aortic sound. Nothing abnormal was found in the abdomen by palpation. The calf of the left leg was slightly cooler than the right and perhaps a little less firm. The left knee-jerk was slightly less marked than the right. The toes of the left foot could not be flexed dorsad quite so far as those of the right, though in other respects their movements were perfectly normal. The movements at both ankles and knees were normal and equal. The galvanic irritability of the left peroneal nerve was slightly less than that of the right, but there was no certain difference as regards faradic irritability. An examination of the urine had already been made by Dr. Percy Musgrave at Dr. Porter's request and had shown absolutely normal conditions. Only two of the four pedal arteries could be felt to beat and one of these was scarcely recognizable.

The treatment indicated in the earlier part of the paper was at once instituted, and was carried out with thoroughness for many months. First, galvanism was carried through the length of the limb, with the foot resting in a tub of warm water. Then faradism was used in a similar manner, the indications laid down by Erb being followed so far as possible. Finally, a deep vessel was obtained so that the legs could be immersed up to the knees in water, and this was charged with solutions of artificial Naunheim salts of increasing strengths, the temperature of the water being at the same time lowered, day by day, or week by week. Good cutaneous reactions were secured, but the most that can be said for the success of the treatment is that the patient grew no worse during the time of its use.

Finally, after the bath treatment had been abandoned, the patient undertook to give himself morning and night a kneading of the calves, and, apparently through the influence of this treatment, he began soon to improve. Possibly the influence of the summer weather had also something to do with the favorable change, since it occurred in August, but up to that time warmth had not seemed to have any marked effect. The kneading has been persisted in ever since and the improvement has been progressive, so that at the present time the patient can walk one or even two miles without any considerable difficulty.

With regard to the pathology of the disease, I confess to feeling a little doubt as to whether the generalization of Erb and Charcot is wholly satisfactory. A careful examination of the patient's arterial circulation in the feet made before the treatment was begun showed that one of the posterior tibial arteries could be felt distinctly, the other very faintly, while the dorsal arteries could not be recognized. The same conditions obtain since the improvement, with no recognizable difference.

Erb examined the feet of a large number of pa-

tients not subjects of this disease, with reference to the circulation, and gives in his paper a table of the results obtained. Sometimes all four arteries could be felt to beat, sometimes three, two, only one or none, and although the inference which he draws is on the whole favorable to the pathological diagnosis which he is inclined to maintain, still it cannot be said that it is as yet established on a firm footing. The theory is an interesting one, but while the disease is clinically well marked, it must be admitted that our means of recognizing the underlying cause are still insufficient. A vascular spasm is perhaps the best explanation.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

REGULAR meeting, December 14, 1900, the president, DR. C. B. PORTER, in the chair.

DR. FREDERICK C. SHATTUCK reported a case of

RUPTURE OF THE RIGHT ILIAC ARTERY.

CASE I. Patient, male, seventy-two years of age, born in Arlington, living in Boston, a druggist by occupation, entered the Massachusetts General Hospital December 10, 1900. His family history and habits are unimportant. His previous history without bearing on his present illness. There is no history of syphilis or of alcoholic excess.

Present illness.—Three weeks ago the patient had an attack of pain which he attributed to indigestion. Three days later he complained of a sharp pain in the abdomen accompanied by a good deal of gas in the intestines. He attributed this discomfort to constipation. Bowels were freely moved by drugs with some relief. The next day the pain was situated in the right iliac region, and he was not relieved by medicines prescribed by his physician. For a few days after this he was fairly comfortable. Eight days ago sudden increase in pain in the right iliac region referred somewhat to the right hip and flank. He had no vomiting; slight nausea, with some distention. No chills, fever or sweating. His bowels moved three days before entrance, with some pain, and this pain has persisted more or less to the present time.

Physical examination.—A well-developed man, of fair nourishment. Thoracic examination practically negative. He had a pulse of high tension, with a tortuous and thickened radial artery. His abdomen distended, symmetrical and tympanitic, the right half more resistant than the left, feeling like a bowel filled with gas. In the right iliac fossa there is an indistinct sausage-like mass where there is moderate tenderness; also slight tenderness between the right crest of the ileum and the costal margin. The rectal examination shows an enlarged prostate. No mass could be felt. Patient had a moderate secondary anemia. His pulse was 96, his temperature 99.4°, his respiration 24 at entrance. His urine was 1.023, with the slightest possible trace of albumin; no sugar. Sediment consisted of an occasional hyaline and fine granular cast. At 8.50 p. m., twenty-four hours after entrance, the patient was reported as pulseless, with marked pallor, restless, and covered with cold sweat. His respira-

tion was labored. He was actively stimulated without any reaction, and died within a half hour.

DR. WRIGHT: At the autopsy on this case a very extensive hemorrhage was found, not only in the retroperitoneal tissues of the right iliac fossa, but extending upward in these tissues as far as the upper pole of the right kidney and downward somewhat below the brim of the pelvis. The extravasated blood was large in amount, and had markedly elevated the peritoneum of the right iliac fossa, and also the cecum and ascending colon. Dissection showed very marked arteriosclerotic changes in the abdominal aorta and in the iliac arteries. In the wall of the right common iliac artery an irregular opening, about 5 or 6 millimetres in diameter, with ragged edges, was found. This opening in the wall of the vessel communicated with an irregular cavity immediately outside of the vessel which was perhaps 3 centimetres in greatest diameter. This cavity was lined with an indefinite layer of grayish to reddish tissue, resembling in appearance the substance of a gray-red thrombus. The surface of the lining of this cavity was irregular and somewhat trabeculated. External to the lining of this cavity the hemorrhagic infiltration of the tissue began. The tissues immediately surrounding the ruptured iliac artery were more resistant to the touch than normal, and there was evidence of an increase in the connective tissue of the region.

DR. PUTNAM: I remember a case which Dr. Fitz will recall, a patient I sent to the hospital many years ago who proved to have a dissecting aneurism—exactly what history I do not remember, but in such position as to press upon the anterior crural nerve roots and give rise to intense pain and hyperesthesia of that region. This pulsating mass was felt, and it was thought to be either aneurism or new growth. It proved to be a dissecting aneurism, as I suppose this substantially is.

DR. SHATTUCK: I wish to emphasize the fact that rupture had evidently taken place some weeks ago here, but the growth had been slight until the last, as it were. No pulsation could be felt over this lump.

DR. VICKERY: I saw the case on the day it ended. I had not followed it at all.

DR. SHATTUCK presented a case of

LEAD ENCEPHALOPATHY.

CASE II. Male, forty-four years of age, married, born in Ireland, living in Cambridge, a painter by occupation. His family history and his habits are unimportant. The important fact in his previous history is that since the age of twelve he has had to do with lead, either as a plumber or a painter. Latterly he has been putting ships, using two-thirds white lead and one-third putty. At twenty-five he had lead colic in Glasgow, and in the United States in 1886 another attack. Off and on during all of these years he has had occasional paroxysmal attacks of pain situated in the epigastrium.

Present illness.—Since June he has not been well. He has had more or less resistant constipation, pain in the abdomen of colicky character, relieved by pressure. He has felt rather weak and sometimes staggers in walking; has fallen. He stopped work five weeks ago, as his employers forbade him going on the painter's stage, because of the danger of falling. Has never fallen from the stage, although he has had frequent fits. These attacks in general started fifteen

years ago, had a few fits ten years ago, again nine years and five years ago. For the past three years they have increased in frequency, averaging one per week. For the past five weeks he has had three or four attacks a day. They occur most often while he is in bed. He has never injured himself in one of these attacks. At times they represent petit mal, at others grand mal. In the attack he loses consciousness, froths at the mouth and has involuntary micturition.

Physical examination.—He has a suggestion of a lead line. He has no cardiac hypertrophy, no increased tension of pulse. His aortic second sound is accentuated, his reflexes are present, he has no paralysis of any type, his pain and muscle senses and co-ordination are all right. He has a slight hoarseness, a fine tremor, a moderate secondary anemia. Dr. Cheney reports the fundus normal. Dr. Walton reports all symptoms probably due to lead poisoning. His urine is 1.020, acid, slightest trace of albumin, no sugar, and contains a few hyaline casts. Dr. Wood reports much lead present in 2,000 cubic centimetres of urine.

He has had two kinds of fits—little fits like petit mal. He has had these while on the staging painting. He has also had attacks of grand mal with a cry, with general convulsion followed by unconsciousness. Five weeks ago his employers refused to let him go on the staging any more. I have not observed one of the attacks myself. I saw him once when a little contraction went over the mouth, a sort of flicker, but it did not amount to anything. It seems to be very clear that we have to do here with one of those rather unusual cases of lead encephalopathy, that these convulsive attacks are directly traceable to lead. A rather interesting feature of the case is that he never has had any paralysis. The symptoms have been colic and these convulsive attacks, which, coming on in a man of his age without syphilis, it seems reasonable to attribute to lead. He looks perfectly well. He had an attack of grand mal about an hour ago. The left ventricle is not hypertrophied; there is no arteriosclerosis, and he has not contracted kidney. The fundus of the eye is negative. There is a considerable amount of lead in the urine. He had been taking iodide of potash for some weeks before he came in. We have had two analyses of the urine by Dr. Wood and both showed lead after the administration of the iodide. He has no distinct blue line on the gums.

DR. WALTON: I had the good fortune to see one of these attacks, a typical epileptiform attack, that is, brief duration, a little drooling, unconsciousness, twisting to the left; on coming out he acted rather queerly, as if he did not know where he was or what he was doing. I speak of that because he has some features that resemble hysteria, as cases of lead encephalopathies are apt to do.

DR. F. C. SHATTUCK presented a case of

OSTEO-ARTHRITIS.

CASE III. Patient, age thirty-three, male, single, a roofer, born in Nova Scotia, living in Boston. His family history is unimportant. His habits are good with the exception of a slight tendency to alcoholic excess.

Previous history.—He had the ordinary children's diseases and fifteen years ago had an attack of acute articular rheumatism. Fourteen years ago he had typhoid fever. Ten years ago he had an attack of

gonorrhea, followed in six weeks by rheumatism less severe than his previous attack, lasting longer, but not preventing him from working. Nine years ago a second attack of gonorrhea, followed two months later by return of rheumatic symptoms. From 1890 to 1897 he was able to work, but noticed some stiffness in his back, especially early in the morning. People remarked that he did not bend his back. By November and December of 1897 he could not sneeze or expand his chest without pain; therefore, caught breath and smothered sneeze. In 1899 he was sent to Mexico for lung trouble, where he was said to have muscular rheumatism. Under bath treatment for pains in his chest he gained 8 pounds in three months.

Since November 15th to January 15th he has lost 20 pounds. His physical examination shows a poorly-nourished man, with a paralytic thorax, atrophic pectoralis and shoulder muscles, with complete ankylosis of the spine from the cervical through the lumbar region. Limitation of movement of shoulders from atrophy of muscles rather than from articular change. His chest expansion in the nipple line is 1 inch. He has no anesthesia or paresthesia. He has a moderate secondary anemia and his urine is that of an active hyperemia. No evidence of tuberculosis has ever been obtained. Since his entrance to the hospital he has shown improvement, characterized by greater freedom of movement of his arm and an increase in weight of 10 pounds.

An interesting question is how much his attacks of gonorrhea have to do with the condition. Dr. Goldthwait thinks they play a subordinate part. He has very little power in his deltoids. He cannot put his arms to his head in the manner usual to the normal man. The supraspinatus and infraspinatus are very much atrophied.

DR. JAMES J. PUTNAM demonstrated, from Dr. Shattuck's service, a case of

FRIEDREICH'S ATAXIA.

The patient, a boy of eleven years, had been well up to the age of five, when his present illness first showed itself, except that he had had an attack of scarlet fever. It is also noteworthy, as among possible exciting causes, that he had a severe fall about a month before his ataxia was first noticed, in which he injured the back of his head, at a point still marked by a scar. The case is a highly characteristic one in all respects. The motions of the legs in walking show the curious mixture of choreiform jerkiness, ataxic uncertainty and cerebellar reel, and muscular feebleness, which is so characteristic, and the motions of the hands suggest those of disseminated sclerosis. Nystagmus and tremor of the head are present and the speech shows faint traces of delayed and imperfect enunciation. The knee jerks are absent, while the Babinski reflex is present in a typical form. Sensory disorders are lacking. Even the characteristic extension of the great toe, seen as a part of the deformation of the foot which ends as talipes equinovarus, is present in so far as that when an attempt is made to extend all the toes it is the great toe alone that responds. Scoliosis is not present. No other cases have been noted in the family, but there are only two other children, still young.

Dr. Putnam demonstrated also some sections from a case of this disease of which the record was published by Dr. Everett Smith in 1885, and which he had stud-

ied and described for Dr. Smith's paper. They are of some interest as representing the first pathological study of this disease made in this country.

It is truly extraordinary to consider how many forms of ataxia, clinically so distinct, are due to lesions so like in position, and on the whole, in character, within the central nervous system, at least so far as the spinal cord is concerned, and the truth is that what we see is only a gross representation of the changes which actually occur. The essential tendency of the disease is not represented at all by the anatomical conditions and it may be that the subtle disorders of function which are really characteristic are still beyond our ken. Yet the symptom complex of the disease must have its physiological correlate.

I would like to call your attention to the way in which this boy walks with the legs wide apart and yet with a reel. Also, his legs twitch and his hands twitch almost in a way to suggest chorea or, again, so as to suggest disseminated sclerosis, and yet he does not have either one. His gait is wholly different from that of a locomotor ataxic patient, and his nystagmus does not belong to the symptomatology of tabes; yet in some respects the lesions recall those of that disease and some of the signs are similar. The only indication of any nutritional trouble with the foot, such as is common in Friedreich's disease, is this: When he tries to extend the toes he is able to extend the great toe and not the others. It is said that in the families in which this trouble has been prevalent the first sign sometimes noticed is that the great toe is kept extended. He has slight indication of equinus, also, in that the dorsal flexion of the foot is poor; otherwise the feet seem to be in good condition. Mentally he is in perfectly normal condition, intelligent and keen, and would be filling a first-rate place in the world if he could get about a little better. He is eleven years old and has had this trouble six years, the only obvious exciting causes being a fall and the scarlet fever. The knee jerks are absent on both sides. He has a slight Babinski reflex tendency of the toes, which goes with this affection of the lateral tracts.

DR. J. C. WARREN reported a case of

SPLENECTOMY.

CASE I. The case I have to report upon this evening is that of a patient, whom I saw with Dr. Torrey, of Beverly, a year ago, with an enlarged spleen. I shall not go into the details of his case, as I expect to report it later in full. His illness has existed for the last two years, the symptoms being attacks of vomiting, profuse diarrhea and occasional chills. During the past year the tumor has increased considerably in size, and he has lost weight and his condition is not so good. He is incapacitated from doing his work. The blood examination showed white corpuscles, 2,200; red corpuscles, 5,200,000; hemoglobin, 65%. The diagnosis was a slight degree of splenic anemia. The spleen was removed through a long incision along the outer border of the left rectus muscle, the opening being further enlarged by a shorter incision at right angles to it. After dividing the adhesions to the omentum, the tumor was seized by the right hand introduced between it and the diaphragm and turned over, thus exposing the vessels at the hilus. These being clamped, the tumor was removed. The patient made a slow recovery and later developed a pyrexia of several weeks' standing, which is now disappearing.

Dr. Torrey reports that he is doing well. An examination of the blood recently made by Dr. Lord shows a gradual return towards the normal. (Specimen and photograph of abdominal incision shown.)

DR. W. F. WHITNEY'S REPORT.

The spleen was in general of normal shape, but was deeply lobulated along the anterior surface, the lobules measuring 2 or 3 centimetres in depth. It was greatly enlarged, measuring, after removal, 21 centimetres in length by 16 in breadth, and 8 centimetres in thickness. The blood vessels at the hilus were increased in size. The consistency was moderately firm, the color, on section, of a uniform dark red. The trabeculae were easily recognized and follicles occasionally to be distinguished.

Microscopic examination with low power showed that the trabeculae were thickened, and the follicles were present, but were small and irregular in shape and diminished in number. The spleen pulp was striking on account of the small number of nuclei which were stained. On examination with a high power, it was found that the reticulum was very much thickened, leaving very small spaces between, in which was only an occasional spleen cell, leucocyte and a few blood corpuscles. The greater number of the nuclei seemed to belong to the reticulum and its lining. The blood vessels showed but little change.

The essential pathological feature lies in the thickening of the reticulum, decrease of the pulp cells, and small size and irregularity of the follicle.

DR. RICHARD CABOT: I should like to ask Dr. Warren what the diagnosis is.

DR. WARREN: Splenic anemia. I presume the etiology of these different forms of enlarged spleen is imperfectly understood. I have not gone into the subject sufficiently yet, and I look to the medical men for a diagnosis rather than to put one forward myself, but that was the diagnosis that was proposed at the time, and it seemed as fairly to meet this case as any other.

DR. RICHARD CABOT: I think the description of the spleen corresponds very closely with what Dr. Osler has described in connection with what he calls splenic anemia. Symptoms of enlarged spleen plus anemia without known cause seem to make up that disease. So far as I know, no good work has yet been done toward putting this disease on a substantial pathological basis.

DR. WARREN, in reply to a question, said that the patient lived in Beverly, was born in Scotland, and that there was nothing to show malarial taint in the case.

Dr. Warren presented 2 cases of operation for

LOOSE SEMILUNAR CARTILAGES.

CASE II. This patient was operated upon about two months ago for attacks of synovitis. The patient had been operated upon by Dr. Harrington in 1896, for a loose piece of cartilage which was removed at that time with great relief. On opening the joint by a vertical incision outside the patella no abnormality was observed in the outer semilunar cartilage, but as it appeared to be more movable than normal and it was in this region that the patient had complained of pain, the cartilage was excised. He now shows you a somewhat unduly movable joint, but he is much relieved by the operation.

CASE III. In this case, operated upon two weeks ago, the patient complained of pain at the back of the joint on the inside, with swelling of joint and frequent disability. A vertical incision exposed the inner cartilage, which was removed entire, showing at its posterior horn a movable flap of cartilage about the size of the little finger nail. The patient has made a rapid recovery, although the knee is still somewhat stiff. The deeper portions of the wound were united by a mattress wire suture, the skin by a buried wire suture and the wound was dressed with silver foil.

PLASTIC OPERATION FOR RODENT ULCER.

CASE IV. Dr. Warren showed a patient, sixty-eight years of age, who had suffered from rodent ulcer for eighteen years. The right side of his face was replaced by cicatricial and epithelial tissue so blended as to make any palliative operation out of the question. The right orbit was invaded by the malignant growth. The operation consisted in an excision of the right half of the face, including the contents of the orbit. The eyebrow and a portion of the upper lip were allowed to remain. The space thus denuded was covered by a flap taken from the bald space on his head. This flap reached to the median line of his nose. During convalescence the patient had an attack of erysipelas. He has now been well a year and has no recurrence.

Dr. Warren showed the case to illustrate how this form of cancer remained localized for great lengths of time, and he also called attention to the necessity of performing a major operation in many of these cases and the hope that it held out for a permanent cure, even in cases which physicians were inclined to regard as too far advanced for further treatment.

(To be continued.)

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

IMPETIGO, CLINICALLY AND BACTERIOLOGICALLY.

SABOURAUD'S¹ studies are comprised in several papers or divisions. In the first paper he discusses the clinical aspect of the question, pointing out that the clinical varieties of impetigo have not been kept apart by those who have studied the bacteriology. He divides the subject into the impetigo contagiosa of Tilbury Fox, and the follicular impetigo of Boeckhart. The impetigo contagiosa of Tilbury Fox begins as an erythematous patch which rapidly becomes a vesicle containing clear fluid. The fluid may or may not become purulent, and a crust is formed quickly, which may increase by the formation of new vesicles about the periphery. The impetigo of Boeckhart, on the other hand, is characterized by rounded pustules filled with yellow pus with a hair in the centre. The affection is apt to appear very suddenly and to recur, and to leave behind it furuncles and follicular lesions. Boeckhart's impetigo may be and frequently is added to the impetigo contagiosa of Tilbury Fox as a complication. The circular and gyrate impetigos of the face are allied to the impetigo contagiosa of Tilbury Fox,

¹ Ann. de derm. et de syph., January, March, April, 1900.

as is ethyma also. The question is raised whether a variety of lesions of follicular position, pustular, traumatic and so-called professional forms of dermatitis of the extremities, as well as forms of eczema and lichenification that follow or complicate Bockhart's impetigo, are not due to the same cause.

In his second paper Sabouraud discusses the bacteriology of these forms. He thinks that the chief fault of investigators has been to study the lesions at too late a stage, when there has been a secondary infection, and the second fault that of using solid culture media for the impetigo contagiosa of Tilbury Fox. Liquid media should be used, as the streptococcus is very hard to recognize when associated with other microbes in solid media. His method is to take a drop of serum from beneath the crust by means of a pipette, and to add to this a liquid medium, ascitic serum and bouillon. By this means he has cultivated the streptococcus, and maintains that this organism is present alone, in the early stages of the affection, and that the staphylococci do not make their appearance until the purulent stage is reached. As long as the culture of the streptococcus remains pure, the vesicle of impetigo contagiosa is transparent. In the case of ethyma, there is the same streptococcus and this term designates the same affection as impetigo contagiosa of Tilbury Fox, when seated upon the surface of the body and taking on an ulcerated form. Impetigo contagiosa of Tilbury Fox is readily invaded by staphylococci and then passes into the stage of suppuration.

Sabouraud declares further that whenever an active effusion of serum quickly solidifying into bright yellow crusts appears in any cutaneous affection whatsoever, there is an infection with the streptococcus, — an impetigo contagiosa complicating a seborrheic eczema, a dyshidrosis, a prurigo of Hebra, — in short, any skin affection.

Sabouraud then takes up the second form of impetigo, the follicular impetigo of Bockhart. This is seen in either a discrete or confluent form, chiefly in the regions where hairs are present, as on the scalp of the infant or the moustache and beard of man. The lesions may be large and small on the same subject. They may appear without known exciting cause, or secondarily to a traumatism or a pre-existent microbial infection. Often they are due to a chemical agent, such as turpentine: and the pustular eruptions from medicaments, such as mercurial ointment and croton oil, oil of cade, etc., are included by Sabouraud in this class. All of these impetiginous eruptions he regards as caused by the staphylococcus aureus, the creator of this whole group of affections, of which the type is the impetigo of Bockhart. He goes even further and declares that the acne pilaris of the adult and acne necrotica are impetigos of Bockhart added to a seborrheic infection, as well as the septic inflammatory affections about the nails. When the two forms of impetigo are allied and become chronic they give rise to the appearances usually designated as chronic eczema.

PROTOZOIC DERMATITIS.

Montgomery,² of San Francisco, contributes a new case of this interesting affection. The patient, a man of twenty-one, entered the hospital in San Francisco suffering apparently from pulmonary consumption.

² British Journal of Dermatology, October, 1900.

He was born in Germany of German parents and came to San Francisco when three years of age, and had remained in this country ever since. For the past two years he had been a telegraph operator and in this capacity had worked in various places along the railway in California. About seven or eight months previous to entering the hospital he had developed a cough. The skin lesions were just beginning to develop when he entered the hospital, the first one to show itself being over the right eye. The cough was growing steadily worse, he had night sweats, and had lost considerable weight. He presented the general aspect of a consumptive. Examination of the chest showed sharp vesicular breathing at the left apex, and bronchial breathing and crepitant râles at right apex, but no tubercle bacilli could be found in the sputum, which was considerable in amount. A month after entering the hospital, the signs in the lungs had increased, the spleen was enlarged, and one of the cervical lymphatic glands was enlarged. The skin lesions, which were situated on the head and extremities, began as dark rounded nodules, with suppuration at their summits, which soon became ulcerated. Some of these nodules were quite large, projecting well out from the skin, and were constricted at their base, resembling somewhat the fungous tumors of mycosis fungoides and iodide and bromide poisoning.

One of the nodules was cut out and showed a granulation tissue with giant cells, and numerous small abscesses scattered through it. A micro-organism similar to that found by Rixford and Gilchrist was found in the granulation tissue and in the giant cells, but was very rarely present in the abscesses. It commonly possessed a clear double-contoured capsule, which enclosed a sphere of protoplasm having a dark periphery and a lighter centre. In another form the capsule enclosed large numbers of spherules due undoubtedly to spore formation. In some cases the capsule was broken and the spores could be seen escaping from it. Inoculation of a rabbit proved negative. A mould was cultivated on glycerin agar, but was not further studied.

The patient died two months after his admission to the hospital, and at the autopsy several large abscesses were found, over the frontal bone and above the clavicle. The latter was found to communicate with the right pleural cavity and with a large abscess occupying the upper part of the right lung. There were several other abscesses in the lung, and an immense abscess of the liver. In all of these abscesses the protozoic organisms found in the skin were present.

Wernicke, of Buenos Ayres, reported the first case of this disease in 1890, and was followed by Rixford with 2 cases, with pathological examination by Gilchrist, in 1895. In all these cases fungoid lesions were present on the skin, which contained these protozoic bodies. The next case was in 1897 by Posadas, of Buenos Ayres. In 1900 Ophüls and Moffitt published a case where the fungous tumors of the skin were not present, but the abscess formation was the same, and from this they cultivated a fungus which caused the disease when inoculated into guinea pigs.

Five of the reported cases have been in men. Three of the cases were Portuguese from the Azores, and four of them had lived in California for a longer or shorter time, so that Montgomery regards California as the habitat of the parasite. Montgomery's case

had lived for a long time in the San Joaquin Valley in California, where Rixford's cases had also lived, while Ophuls and Moditt's case had lived in a valley running parallel. A fact of possible importance in Montgomery's case was that the patient had frequently used, while on the railroad, "ear waste" as a bedding, and when he first began to cough was living in Los Baños, near which there is a spring feared by sheep-herders, on account of its alleged property of causing the ewes to drop their lambs. All of the reported cases of this affection have steadily progressed to a fatal termination.

(To be continued.)

Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

NINETY-FIFTH ANNUAL MEETING, HELD IN ALBANY, JANUARY 29, 30 AND 31, 1901.

(Concluded from No. 7, p. 166.)

THE TONOMETER AND ITS VALUE IN DETERMINING ARTERIAL TENSION.

DR. HENRY L. K. SHAW, of Albany, exhibited and described this instrument.

PLEUROPERICARDIAL AND DIAPHRAGMATIC ADHESIONS.

DR. D. H. GOODWILLIE, of New York, called attention in this paper to the important part played by interperal pathological conditions. If they were not recognized early and appropriate treatment instituted, the pleura would become thickened, and permanent adhesions would form between the pericardium, diaphragm and pleura. The latter were difficult of recognition and serious in their results. The author entered a strong plea for more scientific and systematic training of physicians in auscultation, particularly in the matter of a good working knowledge of the laws of acoustics as applied to the human chest. The position that he took concerning pleuropericardial adhesions had been sustained both by clinical and post-mortem experience, and the same conditions had been found by him in cattle while engaged with a committee of the United States Government in investigating bovine pleuropneumonia. The speaker exhibited beautifully made wax models illustrative of these lesions.

DIFFERENTIAL DIAGNOSIS IN DISEASES OF THE SPINAL CORD.

DR. EDWARD D. FISHER, of New York, discussed this subject. He said that the anterior horns control the nutrition and action of the muscular system, and that any destruction of this region must lead to paralysis and wasting of the muscles affected. As the lateral tracts were essentially motor, disease of those tracts causes only paralysis without wasting. He proposed to classify the diseases under discussion as follows: (1) Diseases of the anterior horns, as poliomyelitis, acute and chronic, progressive muscular atrophy, and hemorrhages into the cord substance, all of which were specially characterized by paralysis with muscular atrophy; (2) diseases of the lateral or crossed pyramidal tracts, as seen in lateral sclerosis

following myelitis, injuries, etc., in which there is paralysis without atrophy; (3) diseases of the posterior columns or tracts which, being only sensory in function, give sensory disturbance without paralysis or atrophy, as in tabes.

PUS IN THE PERITONEAL CAVITY.

DR. ROBERT T. MORRIS, of New York, the author of this paper, endeavored to show how much power the peritoneal cavity has in dealing with pus by a process of leucocytosis.

THE INDICATIONS FOR AND LIMITATIONS OF SPINAL COCAINIZATION IN SURGERY.

DR. GEORGE R. FOWLER, of Brooklyn, had prepared a paper on this subject, but, owing to the lateness of the hour, contented himself with presenting a few of the main points.

MASTURBATIONAL NEUROSES.

DR. WILLIAM C. KRAUSS, of Buffalo, gave very briefly his experience with this class of cases.

SECOND DAY.

DR. JOHN H. DOUGHTY, of Matteawan, presented a paper on

APPENDICITIS.

but for lack of time was prevented from reaching the main conclusions.

TENDINITIS AND TENOSYNOVITIS PROLIFERA CALCAREA.

DR. CARL BECK, of New York, reported this case, and presented skiagraphs.

THE TREATMENT OF PUERPERAL FEVER.

DR. HERMAN J. BOLDT, of New York, read this paper. Under the term "puerperal fever" he included acute bacteriemia, chronic bacteriemia, sapremia and local septic infection. Acute bacteriemia he defined to be a blood disease caused by parasitic micro-organisms invading the circulatory system from some primary seat of infection. Chronic bacteriemia was likewise an invasion of the streptococcus pyogenes, but disseminated from an infected thrombus. Sapremia was the result of the absorption of decomposition products in the genital tract—toxins and saprophytes. Acute bacteriemia, he said, was the most serious, causing a mortality of nearly 98%. The prognosis depended upon our ability to remove the putrefactive factors soon after the onset of fever, and before other infection had taken place. In the treatment of puerperal fever one must first enjoin perfect rest, and search for the seat of infection. If the latter were then found to be located about the vagina or vulva, the part should be wiped with absorbent cotton moistened with some antiseptic solution that is not caustic, and then dusted with aristol or some similar antiseptic powder. Where the seat of infection was covered with a grayish-white membrane the case was more serious than where there was simply a free pus formation. If no infection could be found about the entrance to the genital tract, the vaginal mucous membrane and the vaginal portion of the cervix should be minutely inspected, care being taken not to reopen small wounds. If the examination were still negative, and the patient's condition were good, the phy-

sician should wait and watch, remembering that the retained placental tissue was often soon expelled spontaneously. If, however, her condition were not good, the interior of the uterus should be examined under strict antiseptic precautions. He was strongly opposed to the use of the curette in cases of septic endometritis. An intra-uterine douche should be given both before and after the intra-uterine manipulation, and ordinarily it was better not to repeat this douche. The exception to this rule was found in those cases in which the temperature remained high and there was a free purulent discharge from the uterus. He had seen no benefit from the insertion of gauze in the uterus for the sole purpose of securing drainage. If the infection were localized in the pelvic cellular tissue or the pelvic peritoneum, the ice-coil and injections of Credé's ointment of metallic silver would be found beneficial. He had not found treatment with antistreptococcus serum of any value.

THE EARLY DIAGNOSIS OF INSANITY.

DR. CARLOS F. MACDONALD read this paper, pointing out the special importance of this subject to the family physician. He said there was no disease which was so likely to be mismanaged in its initial stage as insanity. The symptoms might be summarized as a prolonged departure from the methods of thinking, feeling and acting which were usual to the individual when in mental health. The person must be compared with his own normal mental status. Prominent prodromata of mental disease were morbid emotional manifestations and alterations in the mental characteristics of the individual, and they should always be looked upon as danger signals. Insanity was rarely due to a single predisposing or exciting cause. Many cases of acute insanity could be averted if the prodromata were promptly recognized and treated. Doubtless many minds of the highest order had been irreparably damaged for want of appropriate treatment in the initial stage.

THE RÔLE OF THE INFECTIONS IN WOMEN.

DR. CHARLES A. L. REED, of Cincinnati, O., read a paper with this title, in which he insisted that the essential antecedent condition of an inflammation of any part of the genital tract was an infection. The infection was controlled by the following laws: (1) The epithelial surface of the genital tract when intact is a sufficient barrier to the entrance of micro-organisms; (2) the normal cervix and its secretions are an efficient barrier against the invasion of the uterus by pathogenic bacteria capable of maintaining a habitat in the vagina; (3) the vagina possesses a certain degree of self-disinfection; (4) certain pathogenic bacteria, such as the gonococcus and the Klebs-Löffler bacillus, find here favorable conditions for their growth; (5) pathogenic bacteria, innocuously present in the genital tract, may become virulent when introduced into the underlying structures by an abrasion of the epithelium; (6) pathogenic bacteria when introduced into previously normal tissue immediately set up inflammation; (7) pathogenic bacteria, if not overcome by the leucocytes, may enter the lymphatics, giving rise to metastases and septicemia.

THE PRESIDENT'S ADDRESS. — HERNIA.

DR. A. M. PHELPS, of New York, presented this address, which was a historical sketch of the methods

of treating hernia from the Christian era down to the beginning of the twentieth century. His own operation for the radical cure of inguinal hernia had been first published in 1894. The following are claimed to be the points of originality in this operation: (1) The reproduction of large masses of inflammatory material to restore the abdominal parietes, and the introduction of a fine silver-wire filigree throughout the entire inguinal canal, over the transversalis fascia, thus adding to the strength of the weakened abdominal parietes and preventing the new material from stretching; (2) cutting off the hernial sac and, as in any abdominal operation, stitching up the peritoneum and transversalis fascia with a continuous suture of fine silver wire; (3) the use of fine silver wire in a continuous suture.

A HAIR CAST OF THE STOMACH; ITS SUCCESSFUL REMOVAL BY LAPAROTOMY.

DR. NATHAN JACOBSON, of Syracuse, reported this case. The patient was a girl of eleven years, who had presented certain gastric symptoms and finally a nodulated tumor, the lower border of which was on a line with the umbilicus. On abdominal section it had been found that the tumor was within the stomach, and on incising this organ, a kidney-shaped tumor weighing 15 ounces, and presenting a perfect cast of the stomach when in a state of contraction, had been removed. This tumor was found to be composed of hair. The girl admitted after the operation that she had been in the habit for many years of biting off the ends of her hair and swallowing the fragments. All her symptoms had been completely relieved by the operation.

SURGERY OF THE SPLEEN.

DR. J. COLLINS WARREN, of Boston, presented an exhaustive paper on this subject, and reported 4 cases. He gave a long list of diseased conditions for which splenectomy is indicated and stated that with the exception of such grave constitutional disorders as splenic anemia and leukemia and amyloid degeneration the operation of splenectomy could not be said to be contraindicated.

DR. ALEXANDER VAN DER VEER, of Albany, gave some of his experience in the surgery of the spleen, and expressed the wish that it might not be his lot to meet with many cases in this category.

DR. ROBERT T. MORRIS, of New York, called attention to the chief dangers of operations upon the spleen, that is, hemorrhage and shock, and described the best methods of avoiding or minimizing them.

INGUINAL HERNIA.

DR. MELVILLE RICKETTS, of Cincinnati, O., presented in this paper a statistical study of the various methods of so-called radical cure of hernia, and extolled the wire mattress suture used by Phelps.

DR. JOHN A. WYETH, of New York, said that he considered as essential features of a method for the radical cure of inguinal hernia the entire obliteration of the sac and securing the proliferation of newly formed and fibrillated connective tissue. This fibrillation could hardly be secured under six weeks; hence he insisted that the patient should remain quietly on the back for this length of time. The obliteration of the sac he thought was best secured by a modification of Macewen's method.

GASTROJEJUNOSTOMY IN GASTRECTASIS.

DR. A. H. CORDIER, of Kansas City, described this operation, and pointed out its value as a drainage measure.

TOXIN OF THE COLON BACILLUS.

DR. VICTOR C. VAUGHN, of Ann Arbor, Mich., discussed this subject. He said that our present knowledge was lacking in proof that any ptomaine was sufficiently powerful to produce the characteristic symptoms of the disease which had been caused by the germs which produced the ptomaine. Some disease germs, and notably the colon bacillus, had cell walls which were well-nigh impermeable. As a consequence, prolonged exposure to high temperature was not sufficient to set free the toxin contained within the cell wall. By a process of artificial digestion he had finally succeeded in extracting the toxin and exhibited some of it.

THE SO-CALLED TRAUMATIC NEUROSIS.

DR. HAROLD N. MOYER, of Chicago, endeavored in this communication to combat the notion that there is any such thing as a traumatic neurosis, and insisted that such a vague nomenclature was harmful.

THIRD DAY.

The following officers were elected: President, Dr. Henry L. Elsner, Syracuse; Vice President, Dr. Louis N. Lanehart, Hempstead; Secretary, Dr. F. C. Curtis, Albany; Treasurer, Dr. O. D. Ball, Albany.

Recent Literature.

Psychopathia Sexualis, with Especial Reference to Antipathic Sexual Instinct. A Medico-Forensic Study. By R. VON KRAFFT-EBING. The only authorized English translation of the tenth German edition. Pp. xv, 585. Chicago: W. T. Keener & Co. 1900.

If we mistake not, a translation of one of the previous editions of this work was published a few years ago. The present translation is well done and the book itself is extremely well brought out. The original is too well known to require any extended discussion here. It is probably the most complete and scientific study of the aberrations of the sexual instinct that has yet appeared and is based upon the extensive clinical experience of one of the leading alienists of Austria. We miss in this last edition some of the curious letters from patients, giving detailed explanations of their perverse feeling in the true neurasthenic style, flavored with the true German *Schwirrmerei* and well stocked with familiar quotations, even though they did detract a little from the scientific value of the work, by causing us to suspect that the explanations were imagined after the fact and were not true depictions of the original state of the patient's mind. Krafft-Ebing's work will doubtless remain the standard authority upon this subject for many years to come, and it merits the careful study of all physicians who have to do with the degenerate, whether these persons be classed as neurotic, insane or criminal. The study of the abnormalities of that mighty instinct

which is the basis upon which social advancement is developed, disgusting as those abnormalities sometimes are, is of profound importance in the consideration of many of the problems which physicians who have much to do with the degenerate so often have to meet; and to ignore such study savors more of Pharisaism than of virtue. Nevertheless, the number of cases of sexual perversion actually met with in practice is hardly large enough to create a legitimate demand for ten editions in Germany, or perhaps for a second edition in this country, even though the publishers sanctimoniously announce that it is to be sold only to the medical and legal professions. Valuable as the work is for the true student, we fear that the wide demand for it comes from the sexual neurasthenics and the collectors of pornographic literature. This seems the more probable when we remember how rarely, in the last twenty-five years, any publisher has been willing to take the risk of publishing a translation of any one of the great modern treatises on the whole broad subject of mental disease. If the demand for translations of such works is not great enough in this country to warrant their publication, is it likely that the legitimate demand for a monograph on one limited portion of the subject would be so great as to warrant two editions?

A Manual of Personal Hygiene. Edited by WALTER L. PYLE, A.M., M.D., Assistant Surgeon to Wills Eye Hospital, Philadelphia, etc. Contributors: J. W. COCKREY, M.D., GEORGE HOWARD FOX, M.D., E. FLETCHER INGALLS, M.D., WALTER L. PYLE, M.D., B. ALEXANDER RANDALL, M.D., G. N. STEWART, M.D. (Edin.), CHARLES G. STOCKTON, M.D. Illustrated. Pp. 344. Philadelphia: W. B. Saunders & Co. 1900.

The professed object of this book is to set forth the best means of developing and maintaining physical and mental vigor. To accomplish this end seven men, chosen for their special knowledge, have written on the following topics: Hygiene of the digestive apparatus; of the skin and its appendages; of the vocal and respiratory apparatus; of the ear; of the eye; of the brain and nervous system, and physical exercise. The work has been excellently done; there is no undue repetition and the writers have succeeded unusually well in presenting facts of practical significance based on sound knowledge. The apportionment of space to the various articles is perhaps open to criticism; for example, the eye has 101 pages, the nervous system 39 and physical exercise 22. Important as the eye and its care may be, it is certainly unjust to other subjects to give it nearly a third of the entire book. It should be made more concise in future editions and various tests for defective vision might with much propriety be altogether omitted. One of the best sections of the book is Dr. Courtney's discussion of the hygiene of the nervous system. It is to be regretted that he was not allowed space more in accordance with the importance of his subject. In spite of this limitation he has presented a series of very practical facts in a highly succinct and lucid manner and in so entertaining a form that few will take up his chapter without reading it through to the end. We do not recall a better brief discussion of the vital questions underlying the health and disease of the nervous system. The title of this section is, however, somewhat unfortunate in its wording. Why is not "Hygiene

of the Nervous System" alone sufficient? The addition of the word "brain" appears unnecessary. The book, in general, is undoubtedly a successful venture and should find a wide circle of readers among those for whom it is primarily intended. It is sufficiently well bound and printed and has a considerable number of illustrations which are of value. An excellent table of contents and an index make ready reference possible.

Rudiments of Modern Medical Electricity. Arranged in the Form of Questions and Answers Prepared Especially for Students of Medicine. By S. H. MORRELL, M.D. Pp. 165, with 37 illustrations. New York: Edward R. Pelton. 1900.

The rudiments of modern medical electricity as laid down by the author in this volume do not require the number of pages he employs. They could be summed up in seven words: "Consult my larger work on the subject." The present catechism is made up of questions and answers of a very indefinite sort from which the beginner could learn nothing about the use of electricity. An example may suffice:

"Name an important class of pains that are often best and most curatively treated with selected electric current actions?

"Headaches.

"If the headache is a symptom of any disease that is amenable to treatment by any form of electric current, will the prognosis be a radical cure?

"Yes, if correct methods are employed.

"If the headache is caused by some disease that electricity does not affect, may it abate or remove this symptom without reference to the etiology?

"Yes."

When we add that the writer expresses a firm faith that electricity is a marvellous therapeutic agent in the treatment of bronchitis, Bright's disease, tuberculosis, diabetes and the majority of ills that flesh is heir to, and that he gravely informs us that the Edison street current exceeds the medical unit of the constant galvanic current ten thousand times, we think it needless to waste more time upon a book so wholly worthless.

Introduction to the Study of Medicine. By G. H. ROGER, Professor Extraordinary in the Faculty of Medicine of Paris. Authorized translation by M. S. GABRIEL, M.D., with additions by the author. New York: D. Appleton & Co. 1901.

This book is a reproduction of the course of lectures delivered by the author in 1897-1898 at the University of Paris. The author's object in his teaching and in these pages was to lessen as much as possible the difficulties met with in the study of the medical sciences. This course of lectures was established by the Paris Faculty of Medicine with the view of relieving beginners of much useless embarrassment. The author has had a wide experience both with experimental pathology and with clinical medicine. The translator states that "to read this masterful résumé is to undertake a fascinating journey into those regions of medicine where the most important developments have recently been realized."

The volume, which is an octavo of 545 pages, divided into 24 chapters, with a good general index, will be found a valuable one by the practitioner as well as by the student. The arrangement of the subjects is a judicious one and the author's style is agreeable. The translation seems to be well done.

The make-up of the book reflects the usual good work of its publishers.

The Tale of a Field Hospital. By FREDERICK TREVES. With 14 illustrations from original photographs. London, Paris, New York and Melbourne: Cassell and Company, Ltd. 1900.

This small volume of 109 pages is a record of some of the incidents during three months with the Lady-smith Relief Column in South Africa. Mr. Treves was with a field hospital during this time and had ample opportunity for observation, the results of which he has set down in this series of short sketches. The incidents are told in a delightfully entertaining manner and the author has succeeded in presenting to his readers a graphic description of the events behind the fighting line and in the hospital. As might be expected, the pictures are gruesome and often unromantic, savoring little of the glory of war, but as Mr. Treves says: "The account, such as it is, is true." We are duly impressed with the excellent style of the author and the charm of this entire collection of realistic sketches. The book is beautifully bound in flexible covers and equally well printed on exceptionally good paper. The illustrations are reproductions of photographs and add to the general interest of the text.

The Medical Examination for Life Insurance and its Associated Clinical Methods. With chapters on the Insurance of Substandard Lives and Accident Insurance. By CHARLES LYMAN GREENE, M.D., Clinical Professor of Medicine and Physical Diagnosis in the University of Minnesota. With 99 illustrations. Philadelphia: P. Blakiston's Son & Co. 1900.

This book aims (1) to explain the duties of the physician to himself and his insurance company, and (2) to supply necessary information as to how the examination for life insurance should be made from a medical point of view. The numerous minor questions likely to arise, and possibly to prove sources of misunderstanding or friction between the home office and examiner, or disturb his relations with the agent or the applicant, have not been overlooked. Occupation, heredity, conspiracies to defraud have each a separate chapter devoted to them.

An octavo of 426 pages, with index, this book will be found useful by those dealing with or expecting to deal with the medical aspect of life insurance, and some of its chapters will prove interesting to the general medical reader.

Cancer of the Uterus. Its Pathology, Symptomatology, Diagnosis and Treatment; also the Pathology of Diseases of the Endometrium. By THOMAS STEPHEN CULLEN, M.B. (Toronto). Associate Professor of Gynecology in the Johns Hopkins University. With 11 lithographic plates and over 300 colored and black illustrations in the text. By MAX BRODEL and HERMANN BECKER. New York: D. Appleton & Co. 1900.

This beautifully printed and illustrated monograph forms a volume of nearly 700 large pages. It covers the whole subject of malignant disease of the uterus in the most thorough manner, both from the pathological, diagnostic and operative points of view.

The illustrations are as beautiful and as thoroughly practical as any that we have seen. A work of this class is an addition of real value to medical literature.

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SOME CURIOSITIES OF LEGISLATIVE LITERATURE.

A COLLATION of the bills presented to almost any of our State legislatures for proposed legislation in almost any given field would probably reward the collector in one way or another for his trouble—especially should he possess a humorous sense of the possible tendencies of the human mind in a free, independent and enlightened democratic social organization.

This is perhaps as well illustrated by the suggestions for legislative enactment in regard to matters pertaining directly or indirectly to the public health as by any other. At least this is a favorite field for the well-meaning enthusiast, the chronic agitator, the self-seeker under the guise of devotion to the public weal.

It has been our habit to take some note from year to year of bills of this class as presented to the Massachusetts Legislature. The product of this year merits at least passing attention.

We find a bill entitled, "An Act to Establish a Reformatory and Protect the Public Health of the People." It consists of the following sections:

1. A part of the city shall be fenced off for the inmates of houses of prostitution and all other persons of like character for reformation.
2. That a hospital shall be established for their treatment by reputable physicians.
3. That an undenominational church shall be established for their reformation.
4. That they shall wear an insignia, which shall not be concealed, indicating that reformation is not complete until one year has elapsed from the time of the commencing to reform to its completion, when it may be laid aside and the person is permitted to depart.
5. The persons shall pay a suitable sum for rental, clothes, maintenance and the real estate used for this purpose, and these persons shall pay double the assessed value to the State monthly.

An accompanying bill entitled, "An Act to Protect Indigent Women and those Wronged from Great Injury and Suffering," proposes that

1. An undenominational hospital shall be established for treatment.
2. Any person requesting, advertising, aiding or abetting the crime of malpractice or criminal abortion with criminal intent shall be punished as the principal in a fatal case of malpractice or criminal abortion.
5. The poor married woman and the one wronged may be received and allowed to depart with their secrets kept inviolate.

There is a bill designed "to Prevent Premature Entombment, Burial or Cremation," which provides as follows:

1. That no person shall place the body of any human being in a coffin, casket, or other receptacle by which air or light is excluded, or by which free movement is prevented, or bury or cremate such body except after certificate of death as hereinafter provided.
2. Whenever any person in any city or town apparently deceases, the board of health of said city or town or the selectmen of such town, if no board of health exists, shall within six hours of such event being known be informed of such apparent death by any person or persons having the body in charge.
3. As soon as is possible after such information the board of health, or said selectmen of such city or town in which such apparent death occurred, shall cause an examination of such body to be made to determine whether death is real or only apparent, and certification of the fact of death shall be not made until the following facts are established by actual tests, wherever possible, namely: (1) Heart signs entirely absent, the test being by the stethoscope; (2) respiratory sounds entirely absent; (3) temperature of the mouth same as that of surrounding air; (4) a bright needle plunged into the body of the biceps muscle, left there, shows no sign of oxidation; (5) intermittent shocks of electricity at different tensions passed by needles into various muscles and groups of muscles give no indication whatever of irritability; (6) fillet test applied to veins of the arm causes no filling of veins on distal side of fillet; (7) opening of vein shows the blood to have undergone coagulation; (8) subcutaneous injection of ammonia causes a dirty brown stain indicative of dissolution; (9) careful movements of the lower jaw and of lower extremities and of occipitofrontalis indicate the presence of rigor mortis; (10) scarlet line (diaphanous test) is absent; (11) decomposition has set in.

And provided, further, that, if there is an absence of any of the signs of death except decomposition, all known means of resuscitation shall be tried while such proofs are absent.

4. The test provided for in Section 3 shall be made by not less than two doctors of medicine in person, who shall have lawfully received the degree of M.D., one of whom may be a member of the board of health.

5. No provision of this act shall be construed to prevent any means being used by any person to restore life to the supposed dead body.

6. Every city and town shall provide suitable rooms for the carrying out of the provisions of this act, wherein tests may be made. Said rooms shall contain conveniences for resuscitation of bodies and for funeral services; provided, however, that the provisions of this act shall preferably be carried out in the domicile of the supposed deceased, his relatives and friends; but in no case shall any provision of this act be omitted. The expense of said rooms shall be included in the annual expenses of the town and provided

for in the annual appropriation of money for town purposes.

7. The fee for the services provided for in Section 3 shall be fair and reasonable and shall be fixed by the board of health and be at the expense of the town.

9. All laws or parts of laws inconsistent with this act are hereby repealed in so far as they apply to this act, but no farther.

10. Copies of this act shall be conspicuously posted in all cities and towns of this Commonwealth by their respective boards of health.

11. This act shall take effect on its passage.

There is a bill "relative to Compulsory Vaccination" which provides that

Boards of health and other town, city or State officials shall not have the power to compel any man or woman to be vaccinated against his or her consent; neither shall any official have the legal right to order any child to be vaccinated against the will of the child's parent or guardian.

The abuse of the limitations of the existing law in this State already robs the community of some of its good fruits. It is now provided that

No child who has not been duly vaccinated shall be admitted to or connected with a public school, except upon presentation of a certificate signed by a regular practising physician that such child is an unfit subject for vaccination.

It is generally understood that, under this last clause, some individuals licensed to practise do not hesitate to freely furnish such certificates even without seeing the children to whose unfitness they certify, and others regard them as legitimate merchandise to be kept for sale.

A bill "relative to the Vaccination of Children Attending the Public Schools," has been presented to this legislature having for its object the more satisfactory co-operation of school committees and boards of health in this matter.

A bill "to Regulate Vivisection" contains the following sections:

1. It shall be unlawful for any person to perform upon any human patient in a hospital or elsewhere, without the consent of the said patient, a painful or dangerous experiment, except with a view to save the life of the patient, or to inoculate any such patient with disease, for the purpose of experiment, or to administer to such patient a poisonous or dangerous drug for the purpose of experiment.

2. It shall be unlawful for any person not being a doctor of medicine legally qualified to practise as such in this Commonwealth to perform any kind of vivisection or medical or surgical experiment involving pain or discomfort upon any dumb animal.

3. It shall be unlawful to perform upon any dumb animal a painful experiment unless such animal is rendered insensible to pain during the time of the performance of the experiment; but this section shall not be taken to prevent the performance upon a dumb animal of an experiment which produces discomfort as distinguished from actual pain.

4. It shall be unlawful, for the purposes of experiment, to deprive any dumb animal of food for more than twenty-four hours, or of water for more than ten hours.

5. A commissioner of vivisection, nominated by the Massachusetts Society for the Prevention of Cruelty to Animals, and acceptable to the governor, shall annually

be appointed by the governor to see that the provisions of this act are enforced. His term of office shall be one year, and he shall serve without compensation.

The said commissioner shall have access at all times to all places where vivisection or animal experimentation is practised or intended to be practised, or where animals are kept which are intended to be used or have been used for vivisection or experimentation; and he shall be permitted freely to inspect such premises and all parts thereof.

7. Whoever violates any provision of this act by performing unlawful vivisection or experimentation, or by preventing or hindering such access and opportunity to inspect as are provided for in Section 6 hereof, shall forfeit a sum not less than \$100 nor more than \$500 for each offence.

A bill "relative to the State Board of Health" provides that this

board shall have power to make regulations forbidding spitting in public places, including railroad stations and steam and street cars.

There is a somewhat elaborate bill with seven sections designed to provide that

Ice intended for food or drink purposes shall not be composed of water of lower standard of purity than that required for domestic purposes by the State Board of Health.

A bill "for the Establishment of Hospitals for Persons having Smallpox or other Diseases Dangerous to the Public Health in Cities and certain Towns" provides that

1. Cities, and all towns of 5,000 population and over, shall establish within their limits, and be constantly provided with one or more isolation hospitals for the reception of persons having smallpox or other diseases dangerous to the public health. Such hospitals shall be subject to the orders and regulations of the boards of health of such cities and the selectmen of such towns.

2. Whenever the officer of a city or town shall refuse or neglect to carry into effect the provisions of Section 1 of this act, after having requested so to do by the State Board of Health, such city or town shall be liable to forfeit a sum not exceeding \$500 for each such refusal or neglect.

Still another bill "relative to the Erection and Maintenance of Pest Houses or Contagious Hospitals by Cities and Towns" makes provision that

No pest house, or contagious hospital, shall be erected or maintained by a city or town within 2,000 feet of the boundary line of any other city or town, without first obtaining the consent of the community affected thereby, and when such permits are granted it shall not exceed a period of five years at any one time, and these permits shall be given only in the following manner, namely, by the consent of the board of health, with the approval of a majority of the members of the board of aldermen of cities, or a majority of the members of the board of selectmen of towns.

An attempt to secure the "Regulation and Control of the Sale and Dispensation of Alcoholic Liquors and certain Poisonous Drugs" sets forth that

1. All alcoholic liquors shall be inspected by skilful persons duly sworn, to their purity, and the poisonous drugs shall be of the "United States Dispensatory" standard.

2. All bottles, glasses and quantities sold or dispensed shall be stamped pure, with the names of the owner and the one who sells alcoholics and poisons, with their sworn affidavit to its standard purity, as described in the "United States Dispensary."

3. Twice the present price shall be charged for alcoholics, and of the price printed or written on the stamps, two-tenths shall be paid to the United States and three-tenths to the State, five-tenths to the dealer.

4. The right of sale and dispensation of alcoholics shall be obtained by the one who sells, by a petition for and against, signed by a majority of persons residing or doing a legitimate business for three months on the street, within 250 yards of the place of sale and dispensation, and obtained without fraud.

5. Alcoholic liquors shall not be sold within 100 yards of a railroad depot.

7. All may petition against the sale of alcoholic liquors within 250 yards of the place of sale and dispensation, the signers to be eighteen years of age or older, and resident or doing business on said street. The majority of persons shall close or keep open the saloon with sale or dispensation of alcoholic liquors.

A solemn and important looking bill "relative to the Manufacture and Sale of Textile Fabrics and Papers Containing Arsenic," accompanying a petition for an amendment of the existing law, seems to reduce itself to a permit for the manufacture of fly paper.

A bill "to Prevent Substitutions in the Sale of Drugs, Medicines and Articles of Food and Drink," provides that

1. It shall be unlawful for any one, by himself, his agents or servants, in the sale of any article of food or drink, or any drug or medicinal or proprietary preparation, to substitute for or give or deliver for and instead of any such article, drug or preparation bought or called for under any trade or other identifying or distinguishing designation, any article other than the one so bought or called for and designated, without informing the purchaser of such substitution.

The object of this seems to be to control the dispensing by apothecaries or others of "just as good" things.

The bill in support of a petition for authority to grant two degrees — Bachelor of Optics, and Doctor of Physiological Optics — we have already referred to elsewhere.¹

A few other bills belonging to the class we have selected for notice, especially several relating to the adulteration, substitution or counterfeiting of articles of food or drink, we have passed over. Some of those here cited are grotesque, some are whimsical, some are impractical, some are calculated — perhaps in a modified form — to be of service to our citizens. But the last is not the most numerous division of the four.

A SCHOOL OF TROPICAL MEDICINE IN THE PHILIPPINES.

Whether or not the American occupation of the Philippines is to be regarded as a process of beneficent assimilation for the natives at large, it is at least clear

that the introduction of modern methods of treating disease is destined to be an unqualified good. Naturally, work in this line has hardly begun, and yet already there is a vigorous demand for more trained men in the medical department of the army of occupation. The usefulness of a physician in this work on tropical disease evidently depends, in great measure, on his preliminary training. Although he may still retain the title of "surgeon," he is very far from that in reality; the demand now is for men whose chief interest lies in that laborious field of study included under the general head of "etiology." Such men must be specially trained in the methods of scientific research, and above all must have a knowledge of bacteriology in the broad sense, or as Dr. Patrick Manson has recently put it, "the student of medicine must be a naturalist before he can hope to become a scientific epidemiologist or pathologist or a capable practitioner. The necessity for this in all departments of medicine is yearly becoming more apparent, but especially so in that section of medicine which relates to tropical disease." How such a consummation is to be attained or approached is the practical question. England and Germany have attempted to solve it by establishing schools, the main function of which shall be the instruction of students and physicians in the subject of tropical disease. These so-called schools of tropical medicine have been carried on with much enthusiasm and with undoubted success, as shown by the increasing number of students, and their eagerness to make practical use of the knowledge they have gained.

The attempt to give such instruction at established medical schools, as a regular part of the curriculum, is not likely to lead to notable results, because the subject has already become too large for cursory treatment, and because the average medical student neither desires nor needs to have knowledge of that character. Special schools are demanded, and, no doubt, will continue to be more and more needed as time goes on. So far as possible it also seems to us desirable that such schools should be established in the habitat of the diseases to be investigated. No doubt a school of tropical medicine in New York or London would attract students and be of value to the cause of progress, but its services would be increased a hundredfold if situated, for example, in India or the Philippines.

As a matter of fact such a suggestion has recently been made for the United States by Dr. J. J. Curry, acting assistant surgeon, U. S. Army. Dr. Curry was one of the army medical officers, appointed some time ago by the Secretary of War, to investigate the diseases of the Philippine Islands; in his report to the surgeon general he makes a strong plea for the establishment of a school for the training of medical men in the diseases of the tropics, at Manila. The school, he says, should be in connection with one of the large military hospitals with a well equipped laboratory attached. "At such a school both clinical

¹ January 21, 1901, p. 94.

and laboratory instruction might be given the new medical officers in the diseases of the tropics, and valuable work on the investigation of tropical diseases might be done. There is great necessity for such instruction, especially as in no medical school in our country are there any courses on tropical medicine." Such a plan would seem on the face of it to be eminently possible, and not by any means an expensive venture. Its usefulness must be unquestioned just at this time of feverish activity in the investigation of epidemic disease. Teachers would no doubt be forthcoming from among those who have already done highly creditable preliminary work, often under conditions of great disadvantage. When we consider that there are upward of seventy-five disorders peculiar to tropical climates treated at greater or less length in Manson's book on "Tropical Diseases," one is impressed with the growing importance of the entire subject.

This author writes further: "Although we do know something about a few of the tropical diseases and their germs, there must be many more tropical diseases and tropical disease germs about which we know absolutely nothing. Who can doubt that just as the fauna and flora of the tropical world are infinitely richer in species than those of colder climates, so there is a corresponding distribution in the wealth and poverty of pathogenic organisms; and that many, if not most, of the tropical diseases have yet to be differentiated."

Such an opinion expressed by one of the most ardent students of the subject must have weight. It is altogether fitting that America should take her place with England in these researches, and such an immediate opportunity seems to be offered in the Philippines. We hope the government may see fit to adopt the very modest recommendation made by Dr. Curry, and forthwith establish the nucleus, at least, of a school of tropical medicine at Manila.

MEDICAL NOTES.

TUBERCULOSIS IN CANADA.—Lord Minto, Governor General of Canada, has recently arranged a conference with reference to the checking of tuberculosis. It was declared the opinion of the conference that it is the duty of every government, municipality and individual citizen to adopt organized methods for lessening the spread of tuberculosis—a disease, it was stated, which was causing directly or indirectly probably one-fifth of the total deaths in the Dominion. The government was asked to assist.

ONE HUNDRED THOUSAND DOLLARS FOR TUBERCULOSIS HOSPITAL.—According to the *Medical Record*, on February 7th Senator Davis, of Buffalo, introduced in the Senate a bill appropriating \$100,000 for the construction of buildings for the New York State Hospital for the treatment of incipient pulmonary tuberculosis. The buildings are to be large

enough to accommodate at least 100 patients besides officers, employés and attendants. The additional sum of \$20,000 is appropriated for equipment and furnishing.

SAMUEL D. GROSS PRIZE AGAIN NOT AWARDED.—No essay deemed worthy of this prize of \$1,000 was awarded January 1st. It will be awarded October 1, 1901.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, February 20, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 105, scarlatina 31, measles 48, typhoid fever 4.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending February 16th was 243, as against 226 the corresponding week last year, showing an increase of 17 deaths, and making the death rate for the week 22.6. The deaths from consumption were 29, pneumonia 43, whooping cough 2, heart disease 25, bronchitis 6, marasmus 2. There were 19 deaths from violent causes. The number of children who died under one year was 37, under five years 69, persons more than sixty years 51, deaths in public institutions 69. There were 17 deaths from grip, but in 14 of these fatal cases other diseases contributed toward the cause of death.

A PLAN TO TAX BACHELORS.—As an inducement for young men to marry, a bill has been introduced in the House in Hartford, Conn., entitled "The Marriage of Bachelors." The bill reads as follows: "Every bachelor who shall remain unmarried at the age of forty years shall not thereafter be allowed to enter into any matrimonial alliance except upon the payment to the State of Connecticut of the sum of \$100." The measure is said to be regarded seriously by its introducer.

BEQUEST TO PRESBYTERIAN HOSPITAL, NEW YORK.—By the will of J. Arent Vanderpoel, who died recently in Brookline, Mass., there is left, among other charitable bequests, the sum of \$25,000 to the Presbyterian Hospital, of New York, to be available after the death of the testator's widow.

NEW ENGLAND BAPTIST HOSPITAL.—The New England Baptist Hospital has bought a piece of land on Mellen Street, Roxbury, where it already owns and occupies 35,862 square feet.

NEW YORK.

MORTALITY STATISTICS.—The Board of Health reports show a considerable increase in the mortality of the city in January over December, and over January of last year. The annual death rate in January, 1901, was 25.15, as against 20.73 in December, and 20.05 in January, 1900. The most marked increase is in the mortality from pneumonia, the weekly average of deaths from which was 270, against 175 in December. The weekly average of deaths from phthisis

increased from 148.25 to 179.75; influenza, from 5.75 to 88.75; diphtheria and erup. from 50.25 to 55.25; scarlet fever, from 5.75 to 18.50; bronchitis, from 35.50 to 54.75, and smallpox, from 1.25 to 2.25. The weekly average of deaths from typhoid fever decreased from 22.50 to 13.50; measles, from 1.25 to 1.75, and whooping cough, from 5.50 to 3.75. The highest mortality from pneumonia was reached in the week ending January 12th, when there were 328 deaths from the disease. It is probable that this fatality was largely due to the effect of influenza. In the week ending January 19th there were reported 139 deaths from influenza, independent of pneumonia.

THE NECESSITY OF A DIAGNOSIS QUESTIONED.—At the third hearing, on February 13th, before the Assembly Committee on Public Health, at Albany, on the Bell bill, the following somewhat extraordinary revelation was made by George Kinter, a "scientist healer." Being asked by Dr. Henry, chairman of the committee, what preparatory study the healers in Christian Science had, if any, he said that they took a course at the Massachusetts college of the society, and in reply to the question whether this course gave them the ability to diagnose disease, he stated that it did. Dr. Frank Van Fleet, of the New York County Medical Society, then put the question: "Would your treatment in a case of cerebral abscess, a fractured bone, a hemorrhage from an artery, or a case of smallpox differ?" "It would not," was the reply. "If your treatment never differs," asked one of the committee, "what is the necessity of your making a diagnosis." "Really, there is none," was the final answer.

ANNUAL REPORT OF GERMAN HOSPITAL AND DISPENSARY.—The thirty-first annual report of the German Hospital and Dispensary, just issued, shows that during the past year \$10,047 was received in legacies and \$4,964 in donations. Of 3,352 patients treated in the hospital department, 2,117 were free patients and the average daily cost of each patient was \$1.20. An annex, with an accommodation of seventy beds, is now in course of construction, and it is expected will be completed by June. It is to cost \$180,000, and of this amount \$115,760 has thus far been collected among the German population of the city. The trustees report that, in order to meet the demands upon it, it has been found necessary to increase the number of pupils in the training school for nurses to fifty, and that a three years' course, which assures a higher degree of efficiency, has also been introduced.

THE BRAINS OF DR. EDGEARD AND DR. E. C. SEGUN.—At a meeting of the New York Academy of Sciences held February 15th, Dr. E. A. Spitzka read a paper on the anatomical characteristics of the brains of the late Dr. Edmond Seguin and his son, Dr. Edward C. Seguin, which were bequeathed by these distinguished physicians to his father, Dr. Edward C. Spitzka. One of the most prominent features in both brains was the remarkable development of the left island of Reil, and it was noted that many pecu-

liarities of the right side of the father's brain appeared on the opposite side of the son's brain. In closing, Dr. Spitzka urged all successful men to will their brains to science, since this important department of anatomical study is now confined, for the most part, to an examination of the brains of criminals and other outcasts of society.

LIBEL SUIT REGARDING LEPROSY.—In a libel suit tried in the Kings County Special Term, Justice Gaynor has held that to falsely publish of one that he has leprosy is libellous, since the disease, whether properly or not, is still commonly regarded as infectious or contagious, and as tending to cause the sufferer to be shunned or excluded from society. At the trial the defendant contended that it is now scientifically established that leprosy is not infectious or contagious, and therefore is no longer within the definition of slander.

NEW YORK ORTHOPEDIC DISPENSARY AND HOSPITAL.—According to the report of Dr. Russell A. Hibbs, surgeon to the hospital, during the year ending September 30, 1900, 164 patients were admitted to the wards, 110 discharged improved, 3 unimproved, 3 died and 48 remained under treatment October 1, 1900. The number of days of hospital care for free patients was 17,902; for pay patients, 2,894; total, 20,796. Thirty-six patients were treated by operative measures, and 57 operations were performed. All were successful.

REQUESTS TO HOSPITALS.—Among the charitable bequests left by the late Oswald Ottendorfer, editor and proprietor of the *New Yorker Staats-Zeitung*, are \$100,000 to the Isabella Heimath, founded by his wife, and \$20,000 to the German Hospital and Dispensary. By the will of Mrs. Catharine Skatts, \$5,000 is left to the New York Eye and Ear Infirmary, and \$1,000 to the Home of St. Giles the Cripple, Brooklyn.

SMALLPOX.—On the arrival, on February 14th, of the Bremen steamship, *Oldenburgh*, which brought 1,132 steerage passengers, it was found that there was a case of smallpox on board, and the vessel was detained at quarantine until she could be disinfected and the passengers vaccinated. On February 11th there were 73 smallpox patients under treatment at the hospital for contagious diseases on North Brother Island.

NEW CONTAGIOUS PAVILION AT EYE AND EAR INFIRMARY.—The new Platt Pavilion, for the isolation and treatment of cases of contagious ophthalmia, has just been opened at the New York Eye and Ear Infirmary. The building was erected to the memory of the late James N. Platt, and presented to the institution.

ABOLITION OF PRESENT STATE BOARD OF HEALTH.—On February 14th, the State Senate passed a bill abolishing the present State Board of Health and establishing in its place a single-headed commission, in accordance with the recommendation of the governor in his annual message.

Obituary.

SAMUEL C. BUSEY, M.D.

SAMUEL C. BUSEY, M.D., died in Washington, D.C., February 12th, at the age of seventy-two. He was a member of the Association of American Physicians and of the American Pediatric Society. He had been for many years a prominent practitioner in the city of Washington, and was deservedly a highly respected man, of much influence both within and without the profession.

Correspondence.

NO PRACTICAL DANGER FROM THE X-RAY.

Boston, February 18, 1901.

MR. EDITOR:—In your issue of February 14th is published a letter from Dr. William Rollins, describing an experiment which, if confirmed by future observers, seems to me of very great importance. If the x-ray is capable of destroying life in the mammalia, the fact should certainly be brought to the attention of the medical profession. Dr. Rollins does not give the details of his experiment, merely his deductions. Other experimenters have found the x-ray incapable of destroying even the cryptogamic forms of organic life. However, I do not propose to contradict Dr. Rollins, and leave to the physicists and electricians the task of confirming or disproving the value of his experiments. Since Röntgen pointed out that non-conductors when traversed by the x-light may become conductors, the task of ruling out the electrical effect is not a light one.

What I do wish to call to the attention of your readers is this: that *practically*, in careful hands, there is no danger from the use of the x-ray to the patient and very little to the operator.

The facts on which I make this statement are these:

That in the last five years about 8,000 exposures in over 3,000 cases have been made at the Massachusetts General Hospital *without a single case of x-ray dermatitis in the patient.*

That at the Children's Hospital, in the last eighteen months, we have made about 1,000 exposures in over 300 cases, *without a single case of dermatitis in the patient.*

That in the last five years, in my private practice, I have made nearly 1,000 exposures without a single case of dermatitis in the patient.

The sum total is about 10,000 exposures in 4,000 cases without one case of loss of hair or burn of the skin.

As far as danger to the operator goes, there is no question that a serious dermatitis extending into the deeper layers may be set up. At times my own hands have had the typical appearances of a slight grade of this form of burn, but they have never been excoriated nor cracked, nor so severe that I could not go through the ordinary permanent preparation for surgical operations. I attribute this freedom from trouble to my habit of never exposing myself near the tube if I can possibly help it. I take no other precautions. One severe case of maiming dermatitis I have seen, in a gentleman whose enthusiasm outweighed his prudence, but the value of whose work has almost compensated for the sacrifice.

I seek the opportunity of mentioning these facts in your columns because I believe that the comparatively small number of unfortunate cases which have been published have circulated much farther than the immense number of fortunate cases, and have given the profession the idea that the process is a dangerous one to the patient. No doubt Dr. Rollins's precautions are necessary to an operator who constantly uses this form of diagnosis, but my personal experience leads me to think that the important point is to keep the hands away from the tube. Such sensational headings as "X-Light Kills" are apt to give a

wrong impression. The fact that the x-ray is in daily use in the large hospitals without harmful results should be put in blacker type than the death of two guinea pigs.

Very truly yours,

E. A. CODMAN, M.D.,

Surgeon to Out Patients, Massachusetts General Hospital; Skiagrapher to the Children's Hospital.

METEOROLOGICAL RECORD

For the week ending February 9th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer Daily mean.	Thermometer Daily mean.	Relative humidity.	Direction of wind.	Velocity of wind.	Wet'thr. ° F.	Wet'thr. ° C.	Rainfall in inches.
	Daily mean.	Maximum. Minimum.	8.00 A. M. 5.00 P. M.	Daily mean.	8.00 A. M. 5.00 P. M.	8.00 A. M. 5.00 P. M.	8.00 A. M. 5.00 P. M.	8.00 A. M. 5.00 P. M.
S...3	30.21	24 32	16 65	64 64	W. W.	11 8	C. C.	F. F.
M...4	29.65	26 31	22 88	100 94	N.E. N.W.	9 10	N. N.	N. N.
T...5	29.48	21 29	18 74	70 77	N.W. N.W.	26 30	O. O.	O. O.
W...6	29.66	18 22	51 52	52 52	N.W. W.	30 24	O. O.	C. C.
T...7	19.77	18 26	10 54	49 52	N.W. N.W.	26 15	C. C.	C. C.
F...8	29.91	20 26	13 51	41 46	W. W.	14 11	C. C.	C. C.
S...9	29.74	20 30	11 55	66 60	W. W.	11 12	C. C.	C. F.

* O, cloudy; C, clear; F, fair; G, fog; H, haze; S, smoky; R, rain; T, threat-
ening; N, snow; † Ind. cases trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, FEBRUARY 9, 1901.

CITIES	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.	
New York . . .	3,437,202	1289	331	23.74	12.72	2.32	.69	3.10	
Chicago . . .	1,698,573	—	—	—	—	—	—	—	
Philadelphia . .	1,250,697	—	—	—	—	—	—	—	
St. Louis . . .	675,528	—	—	—	—	—	—	—	
Baltimore . . .	508,957	271	64	15.13	20.66	—	.37	2.58	
Cleveland . . .	384,768	—	—	—	—	—	—	—	
Buffalo . . .	352,357	—	—	—	—	—	—	—	
Cincinnati . . .	325,902	—	—	—	—	—	—	—	
Pittsburg . . .	321,616	117	40	26.50	22.23	1.71	5.13	3.42	
Washington . .	278,718	—	—	—	—	—	—	—	
Milwaukee . . .	265,315	—	—	—	—	—	—	—	
Providence . . .	175,637	70	18	15.73	37.18	—	—	—	
Boston . . .	560,892	215	40	19.06	2.78	.46	.46	3.25	
Worcester . . .	118,421	45	9	31.08	22.20	6.66	4.41	2.22	
Fall River . . .	104,863	42	14	14.28	16.66	—	—	—	
Lowell . . .	94,830	36	8	22.80	19.46	—	—	—	
Cambridge . . .	91,886	46	16	23.87	23.87	—	—	—	
Lynn . . .	68,513	20	6	15.00	25.00	—	—	—	
Lawrence . . .	62,754	24	12	4.17	0.85	—	—	—	
New Bedford . .	62,412	27	—	—	—	—	—	—	
Springfield . .	62,049	15	6	20.01	0.41	—	—	—	
Somerville . . .	61,643	19	4	36.82	15.78	10.52	5.26	5.26	
Holyoke . . .	45,712	13	5	30.76	7.69	—	—	—	
Brockton . . .	40,063	13	2	7.69	23.97	—	—	—	
Haverhill . . .	37,173	7	—	42.87	14.29	—	—	—	
Salem . . .	35,656	10	—	10.00	10.00	—	10.10	—	
Chelsea . . .	34,672	12	—	—	—	—	—	—	
Malden . . .	33,694	7	4	85.71	—	57.16	—	28.58	
Newton . . .	33,787	8	2	25.00	25.00	—	—	12.50	
Fitchburg . . .	31,541	10	2	20.00	10.00	—	—	10.00	
Taunton . . .	31,086	18	5	22.20	16.65	—	5.56	—	
Gloster . . .	26,121	—	—	—	—	—	—	—	
Everett . . .	24,236	9	6	11.11	22.22	—	—	—	
North Adams . .	24,200	5	1	—	—	—	—	—	
Quincy . . .	23,899	3	—	—	66.67	—	—	—	
Waltham . . .	23,481	9	—	44.44	—	—	—	—	
Pittsfield . . .	21,795	—	—	—	—	—	—	—	
Brookline . . .	19,953	7	1	—	—	—	—	—	
Chicopee . . .	19,167	7	2	14.23	14.29	—	—	—	
Medford . . .	18,514	5	—	—	20.00	—	—	—	
Newburyport . .	14,478	3	—	—	66.67	—	—	—	
Melrose . . .	12,962	4	—	25.00	—	—	—	—	

Deaths reported 2,399; under five years of age 604; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough,

erysipelas, fevers and consumption) 520, acute lung diseases 402, consumption 280, diphtheria and croup 73, diarrheal diseases 48, scarlet fever 43, influenza 37, typhoid fever 22, whooping cough 11, cerebrospinal meningitis 6, measles 5.

From whooping cough New York 3, Baltimore and Cambridge 2 each, Providence, Pittsburg, Boston and Everett 1 each. From cerebrospinal meningitis New York 5, Boston 1. From scarlet fever New York 30, Malden 4, Worcester 3, Pittsburg and Somerville 2 each, Boston and Revere 1 each. From typhoid fever New York 9, Pittsburg 6, Worcester 2, Baltimore, Boston, Somerville, Salem and Taunton 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,000, for the week ending January 20th, the death rate was 17.9. Deaths reported 1,639; acute diseases of the respiratory organs (London) 394, whooping cough 12, diphtheria 75, measles 58, fever 48, diarrhea 43, scarlet fever 31.

The death rates ranged from 10.5 in Portsmouth to 24.6 in Gateshead; Birmingham 20.4, Brighton 17.5, Bristol 14.1, Croydon 15.2, Derby 15.2, Halifax 15.5, Hull 18.3, Leeds 17.3, Liverpool 24.0, London 17.6, Manchester 20.2, Newcastle-on-Tyne 20.4, Norwich 23.7, Nottingham 19.5, Plymouth 19.1, Sheffield 19.7, Swansea 16.0, West Ham 11.6.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 16, 1901.

C. P. BAGG, passed assistant surgeon, detached from Cavite Naval Station and ordered to the "Culgoa," February 7th.

A. R. ALFORD, passed assistant surgeon, detached from the "Culgoa" and to the Naval Station, Cavite.

C. FIDDLE, surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered home to wait orders, February 9th.

D. O. LEWIS, surgeon, detached from the "Iowa" and ordered to the "Philadelphia," February 13th.

W. F. ARNOLD, surgeon, detached from the Naval Recruiting Rendezvous, Chicago, Ill., March 1st, and to the "New Orleans," sailing March 15th.

S. H. GRIFFITH, surgeon, detached from the "Prairie," when put out of commission, and ordered to special duty under the Bureau of Medicine and Surgery.

F. J. B. CORDEIRO, surgeon, detached from the "New Orleans," on reporting of relief, and home to wait orders.

A. M. MOORE, surgeon, retired, ordered to duty at the Naval Recruiting Rendezvous, Chicago, Ill., March 1st.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEBRUARY 14, 1901.

SAWTELLE, H. W., surgeon. Granted leave of absence for thirty days from February 20th. February 14, 1901.

KALLOCH, P. C., surgeon. Granted leave of absence for three days from February 17th. February 8, 1901.

GIDDINGS, H. D., passed assistant surgeon. Granted leave of absence on account of sickness, for eight days, from January 26th. February 12, 1901. Granted leave of absence for thirty days from February 3d. February 12, 1901.

GARDNER, C. H., passed assistant surgeon. Granted leave of absence for seven days. February 11, 1901.

PARKER, H. F., assistant surgeon. To proceed to Gulf Quarantine and assume temporary command of the service during the absence on leave of the medical officer. February 8, 1901.

MOORE, DUNLOP, assistant surgeon. To proceed to Port Townsend, Washington, and assume temporary command of the service during the absence on leave of the medical officer in command. February 11, 1901.

McCOY, G. W., assistant surgeon. Granted leave of absence for fourteen days from March 18th. February 12, 1901.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Obstetrics and Diseases of Women will meet in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, February 27, 1901, at 8 P. M.

Papers: Dr. Edward B. Lane, "Puerperal Insanity."

Dr. William J. Daly, "Ophthalmia Neonatorum."

Dr. Sarah Palmer, "Hysterectomy for Rapidly Growing Myoma, Complicated by Pregnancy."

E. S. BOLAND, M.D., Chairman.

W. H. GRANT, M.D., Secretary, 419 Boylston Street.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—A regular meeting of the society will be held at 3 Park Street, on Thursday, February 21st, at 7:30 P. M.

Papers: "Cerebral Section and Hysterectomy for Fibroid Uterus," by Dr. Mary A. Smith.

"Mental Deterioration," by Dr. Bertha C. Dowling.

AGNES C. VICTOR, M.D., Secretary, Trinity Court.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.—A stated meeting of the society will be held on Monday, February 25, 1901, at 8:15 P. M.

Drs. Wm. H. Teller and F. X. Dercum will exhibit "A Case of Astereognosis."

Drs. George L. Walton and Walter E. Paul, of Boston, will, by invitation, read a paper entitled "Astereognosis: with Illustrative Cases."

AUGUSTUS A. ESHNER, M.D., Secretary.

WESTERN OPHTHALMOLOGIC AND OTO-LARYNGOLOGIC ASSOCIATION.—The association will meet in its next annual session in Cincinnati, O., April 11th and 12th.

W. L. BALLEGGER, M.D., Secretary.

APPOINTMENTS.

F. W. SPALDING, M.D., has been appointed visiting ophthalmologist to the Long Island Hospital, Boston Harbor.

JOHN J. MAORATH, M.D., has been appointed attending surgeon to the Harlem, N. Y., Hospital.

ERRATUM.

In a note on *Diphtheria at the Naval Hospital, Chelsea*, published in the issue of the JOURNAL for February 7th, an error was made in the text, in the substitution of "marine" for "naval." The sentence should read: About 30 cases of mild diphtheria have developed at the Naval Hospital in Chelsea.

RECENT DEATHS.

BENJAMIN FRANKLIN, M.D., of Newark, N. J., died from the effects of influenza on February 6th, at the age of fifty-four. He was born in New York and graduated from the Medical Department of the University of the City of New York, and was a veteran of the Civil War.

FRANK BOND, M.D., of Brooklyn, N. Y., died on February 10th. He was born in Erie County, Pa., in 1827. He was graduated from Williams College in 1851, and from the Medical Department of the University of the City of New York in 1857.

PETER MORRIS BARCLAY, M.D., a leading physician of Orange County, N. Y., died at Newburgh-on-the-Hudson, on February 11th. He was born in Aberdeen, Scotland, in 1834, and was graduated from the Medical Department of the University of the City of New York in 1855.

BOOKS AND PAMPHLETS RECEIVED.

A Clinical Case. By A. R. Moulton, M.D. Reprint. 1900.

Report of the Commissioner of Education for the Year 1898-99. Vol. II. Washington. 1900.

Annual Reports of the President and the Treasurer of Harvard College, 1899-1900. Cambridge. 1901.

Transactions of the Luzerne County Medical Society for the Year ending December 31, 1900. Vol. VIII.

The Johns Hopkins Hospital Reports. Vol. VIII, Nos. 3-9. Baltimore: The Johns Hopkins Press. 1900.

Fifteenth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Vols. I and II. 1899.

A Clinical Treatise on Fractures. By William Barton Hopkins, M.D., Surgeon to the Pennsylvania Hospital, etc. Philadelphia: J. B. Lippincott Co. 1900.

Massage, Movements and Bandaging in the Treatment of Displaced Semilunar Cartilages. By Douglas Graham, M.D., Boston, Mass. Reprint. 1896.

Double Ureter; Report of a Nephrectomy done upon a Young Child with this Condition Present. By John Edward Summers, Jr., M.D., Omaha, Neb. Reprint. 1901.

Report of the Connecticut Hospital for the Insane to the Governor for the Two Years ended September 30, 1900. Middletown, Conn.: Printed by order of the Legislature. 1900.

Obstetric and Gynecologic Nursing. By Edward P. Davis, A.M., M.D., Professor of Obstetrics, Jefferson Medical College, etc. Philadelphia and London: W. B. Saunders & Co. 1901.

Reports of the Trustees and Superintendent of the Butler Hospital for the Insane, presented to the Corporation at its Fifty-seventh Annual Meeting, January 23, 1901. Providence, R. I.

Sixteenth Report (Third Biennial) of the State Board of Health of the State of New Hampshire, for the Two Years Ending November 1, 1900. Manchester: Arthur E. Clarke. 1901.

The Use of the Röntgen Ray by the Medical Department of the United States Army in the War with Spain (1898). Prepared under the direction of Surgeon-General George M. Sternberg, U. S. A. By W. C. Bordeu, Captain and Assistant Surgeon, U. S. A. Washington. 1900.

Original Articles.

THE USE AND ABUSE OF SPECTACLES.

BY HASKET DERBY, M.D., BOSTON.

WITHIN the memory of living practitioners the choice of spectacles was made by the patient needing them, either on his own responsibility or aided by the optician of whom they were purchased. It was not until 1858 that Donders wrote his first article, entitled "Hints relating to the Use and Choice of Spectacles," and published it in *Graefe's Archive*. For several years following the illustrious professor of Utrecht continued to write on the same subject, and finally, at the instance of the New Sydenham Society, he brought out, under its auspices and in the English language, his great work on "The Anomalies of the Accommodation and Refraction of the Eye."

The introduction of the new doctrines and the placing the choice of glasses in the hands of the ophthalmic surgeon followed in our own country somewhat slowly. In 1861 the Eye Infirmary in this city possessed no trial case of glasses, a few battered frames containing glasses of high power for the use of patients who had been operated on for cataract comprising its entire resources in this line. And in 1862 a leading American ophthalmic surgeon wrote thus: "When possible, any one desiring glasses should go in person to select them from the establishment of a good optician."

With the return from Europe of the younger men of this day, a different system soon began to prevail. The prescription of glasses was now recognized to be properly within the province of the surgeon, and in his hands it has by right ever since remained. In the beginning his task was a simple one. Near sight and old sight, myopia and presbyopia, had been the only conditions recognized by the public at large as requiring the use of glasses. Hypermetropia now first came into prominence as a common form of refractive error, and its neutralization greatly increased the number of glasses worn in the community. Astigmatism was still comparatively unknown. Discovered and described as it existed in their own eyes by Thomas Young in 1793, and later by the astronomer Airy in 1836, the condition was long regarded as an anomaly of infrequent occurrence. Donders published his monograph on this subject in 1862. At this time no trial case, even though made in Germany, contained any cylindrical glasses. The first pair ordered in Boston were prescribed in 1863. The order had to be sent abroad to be filled, and the patient himself walked forward by *Graefe* in 1862, and with its domain much widened by the researches of *Stevens*, of New York, has rendered the prescription of prismatic glasses, either alone or in combination, quite a frequent occurrence. The busy practitioner of today finds it hard to imagine the comparatively small number of prescriptions for glasses but little more than forty years ago.

It would be well if this matter of ordering glasses had remained in the hands of the educated physician. But with the increase in the number of recognized anomalies of refraction, opticians themselves multiplied. Optical institutes became the fashion, and proffered instruction on easy terms and extending

over but a brief period, in some cases offering to teach by correspondence, to examine candidates for degrees in the same manner, and then to forward the degree itself on the receipt of a stipulated sum. A little knowledge soon proved a dangerous thing. The shop windows in our principal streets teemed with placards, announcing that eyes were examined free of charge; while the rural districts were soon raided by peripatetic sellers of spectacles, who furnished ill-fitting and worse made glasses at a heavy cost, professing to hail from some well-known institution or infirmary, or giving some other false address.

The prescribing of glasses by incompetent and often unprincipled individuals is an abuse that cannot easily be corrected. To the honor of the better class of opticians in a city like our own be it said that they prefer to fill orders sent them, and as a rule avoid the selection of glasses on their own responsibility. If the case be a complicated one, or if the lenses previously worn have been ordered by a surgeon, they refuse to prescribe or change, and urge the patient to seek professional advice. More could not be asked of them, for they naturally cannot be expected to turn away customers who are willing to bear the burden of making their own selections.

Ordered, then, authoritatively or carelessly, the use of spectacles has enormously increased within the past generation. One may walk the streets of Boston and almost fancy himself in some city of Germany or Russia, so numerous are the wearers of glasses. Particularly is this to be observed among young children, both here and abroad. The German writer *Seidel* has written a little poem in which he pictures two old people sitting together and discoursing about the good old times of their youth, when the world wore so different an aspect. They enumerate many things that were better in those days. And at last one says:

"The children then were not so pert,
No spectacles they wore."¹

The attention of the laity has therefore also been attracted to this state of things.

It is of but little use to allude to the mistakes made by ignorant opticians, or the impositions practised on the public by those greedy of gain. The writer has recently seen a case of simple hypermetropia set down as one of compound astigmatism, and a correspondingly complicated and costly glass ordered; he has seen prisms given where there was no muscular weakness, and cylindrical lenses furnished in emmetropia. He has known a presbyopic patient, suffering from tobacco amblyopia, to be provided with a weak concave lens for reading purposes. The tendency to swell the profits of the store by the sale of a compound glass at a high price is to a certain class of dealers irresistible. Such conduct on the part of opticians it is easier to deplore than to prevent.

But how is it with ourselves? Does the ophthalmic surgeon of the day make no mistake? Do we not, with the best intentions, occasionally order glasses in cases where their use is not strictly needed, and by enjoining their habitual employment create a dependence on artificial aid that ultimately grows into a necessity? Do we sufficiently consider the moral effect on children, the ridicule the boy or girl at first experiences from his or her companions; the consequent effect on many a sensitive nature; the cosmetic

¹ "Die Kinder waren nicht so keck,
Sie trugen keine Brillen."

disadvantages in the case of young and growing girls; the possible handicap of the young man in search of employment? These considerations are added, not that they should be allowed to interfere with needed assistance to refraction, but that they may be at least given due weight in doubtful cases.

Giving his personal opinion for what it is worth, the writer's experience has occasionally led him to differ from some of his colleagues in the ordering of glasses.

Before alluding to the different forms of ametropia in which lenses are prescribed, it is well to consider a single source of error on the part of the patient, namely, the influence of the imagination. Great as are the advantages gained by the objective methods of examination, by ophthalmometry, ophthalmoscopy and skiascopy, it is, I think, a recognized fact that it is ordinarily undesirable to base a prescription for glasses solely on the above tests. The patient himself must be questioned and his judgment appealed to. The vision of the unaided eye is, for instance, found to fall slightly short of the normal standard: a weak convex or concave lens, spherical or cylindrical, restores normal vision. Let it not, however, be inferred that the patient, if a young person, surely needs this glass. What examiner has not seen the vision instantly raised one or two-tenths by the application of a pair of plane spectacles? I always test a child with a heavy empty frame, observing its effect, and I often find some improvement in sight. This test occasionally is found of value with those of riper years. The explanation would seem to be simple; the weight of the apparatus induces a belief in its complexity, the patient feels that some change in his sight ought to follow, makes an additional effort and often really sees more in consequence. Occasionally, however, he has heard of the application of this test in others, and comes prepared for it. If I observe him to be suspicious I use with him a pair of glasses the outer surface of which is convex 1 D., and convince him of this fact by the application of the lens measure, the principle of which I manage to explain. If, with these glasses, he sees better, the imagination is again a factor, for I have omitted to inform him that the posterior face of the glass is just as concave as the anterior is convex, and that he is really wearing a pair of plane glasses. If, then, vision remains the same, we are dealing with one whose judgment may be relied on.

There are many who in hypermetropia advise the constant use of neutralizing glasses, both by old and young, and many patients who obey this direction. In this we have departed from the advice Donders originally gave. Speaking of those who in the ordinary affairs of life suffer no inconvenience, and at a distance see well, he says, "We should not press spectacles on them to be worn constantly."² This teaching has been confirmed by the most reliable authors, although here and there a writer of eminence takes the opposite view. It would seem that the advice occasionally given those moderately hypermetropic, to put on their glasses on rising and remove them only on retiring, is in many cases injudicious. The patient has become habituated to the moderate use of his accommodation on distant objects, and suffers no ill effects from the slight strain. He sees clearly and distinctly. The use of glasses for the street enfeebles

the accommodation, which after they have been worn any length of time rarely regains its former power. The patient is reduced to a dependence upon them which might otherwise have been avoided. It is perhaps imperative that they be used for near work, but when asthenopic symptoms are at other times wanting I believe it to be a serious error to insist on their constant employment. And if the refractive error be not excessive I always attempt to emancipate the patient from his street glasses.

Myopia. — It is in the ordering of glasses for those who are near sighted that the optician makes his most fatal errors. Possessed of no useful knowledge of the ophthalmoscope, and unable to appreciate the existence of serious and possibly progressive organic change in the eye itself, one case of myopia is to him the same as another, and he prescribes the glass that gives the greatest visual acuteness. It is not until incurable macular changes or retinal separation have driven the patient to seek proper medical advice that he realizes how disastrous has been his policy in accepting glasses from unprofessional hands. It may be laid down as an axiom that no glass should be ordered in myopia until a thorough investigation of the history of the patient, the family tendencies, the acuteness of vision and the condition of the interior of the eye has been made. Moreover the case should be carefully followed up from year to year, and the progressive or non-progressive character of the disease fully determined. It is not too much to say that all children should be examined at least once a year during their school life, in order that the first invasion of near sight may be detected and promptly encountered. Fortunately the tests for this purpose are so simple and so readily accessible that the simple examination of the condition of vision may, under ordinary circumstances, be safely conducted by the parent or teacher.

And as we are now treating of the use as well as the abuse of spectacles, it is well to here allude to the important part glasses play in checking the progress of myopia in the young, more especially as so little is to be found on this subject in the accepted textbooks. Donders distinctly advised against the use of glasses for near work in slight degrees of myopia, as well as against full neutralization in the young, at any rate when glasses were first used. He quotes cases of considerable and advancing myopia with good acuteness of vision, treated by rest of the eyes and relatively weak glasses, the trouble, however, still progressing. Other writers have followed his teachings, and we find one of the most careful and reliable of modern teachers, Professor Fuchs, of Vienna, whose book more than any other is probably held at the present day to be the standard manual of ophthalmology, saying nothing in his edition of 1898 in regard to the use of neutralizing glasses for all purposes in cases of progressive myopia in the young. When the myopia is 2 D. or less he distinctly advises against the use of glasses for the near, and makes no allusion to the possible prevention of the increase of the near sight.

The credit of devising the most efficacious means for this purpose belongs certainly to American ophthalmologists. At the twenty-eighth annual meeting of the American Ophthalmological Society, in 1892, Dr. Jackson, of Philadelphia, read a paper on the "Full Correction of Myopia," and Dr. Harlan, of

² Accommodation and Refraction of the Eye, 1861, p. 281.

the same place, on the "Constant Correction of High Myopia." They both opposed the teaching of Landolt, who states in his work on "The Accommodation and Refraction of the Eye" (English edition, page 490), that "a myope must be prohibited from wearing a concave glass for any distance in which he can clearly see without accommodation." They both advocated the constant and full correction of myopia, especially in the young, as a means of preventing its progress. The discussion that followed the reading of these papers showed substantial unanimity on the part of the members present in approving the views of the readers.

It would be difficult to overestimate the importance of this discovery, for a discovery it is in the true sense of the word. Its general acceptance, in this country at least, at the present day has proved of great advantage. A young person, at the age of twelve or fourteen, begins to complain that he cannot see the blackboard across the schoolroom as well as formerly. Examination shows a moderate myopia, .75 D. or even 1 D. Six months later this has increased to perhaps 1.5 D. Glasses of this strength are given and their constant use enjoined. The progress of the near sight is probably at once arrested, or in the majority of cases its subsequent increase is found to be relatively slight. Certain cases in my own practice have made a deep impression on me. One of these, a boy of ten, came to me many years ago for some slight inflammatory trouble. I took occasion to examine the sight, knowing that both father and mother were very myopic, and found the refraction and vision alike normal. Two years later very slight myopia, about .25 D., was present. This steadily increased, and in seven years had become 5 D. Since then it has, I think, remained stationary. This was some time before the publication of the observations of Jackson and Harlan. Another case is that of a young girl of eight who had normal eyes. At the age of nine she had a myopia of 1.25 D. She went several times through the atropine treatment, with the result of temporarily arresting the progress of the near sight. At thirteen she had myopia 2.75 D., at fourteen, 3.5 D., despite much rest of the eyes and frequent courses of atropine. At fifteen there was myopia 4 D. I had just learned the advantages of full neutralization, and now for the first time gave her the necessary glass. Seven years have now elapsed, and there has been no further progress. Another case was that of a lad, who in 1890, at the age of ten, was slightly hypermetropic. In 1894 he had myopia .5 D. He now went through the atropine treatment without result. There was myopia 1 D. in 1895. He was given neutralizing glasses in 1896, and in 1898 his myopia was found to be stationary. He has since left off his glasses, and although he has since worked hard at the study of civil engineering there has been no change for the worse. These cases are quoted for the purpose of illustration.

Thus in hypermetropia we see glasses worn too much, in myopia probably too little. In speaking of astigmatism we open a new chapter. So much relief has been given to many reflex disturbances by the skilled adaptation of cylindrical glasses, so many headaches have been cured, and so much asthenopia prevented by their use, that they have been and are frequently prescribed in cases where they are not

strictly needed, and we find glasses that either do no good or even inflict a certain amount of injury worn by many today. Leaving out of the question the needlessly complicated and costly lenses prescribed by ignorant or rapacious opticians, it is sometimes a question whether we ourselves do not occasionally stray from the path of simplicity, whether we do not rely too exclusively on the objective methods of examination and endeavor to neutralize the astigmatism obtained by the ophthalmoscope, the ophthalmometer, the shadow test, and even subjectively by the patient's inspection of the radiating lines on the astigmatic test card, rather than the simple test of vision on the letters of Snellen or Monoyer. My own experience certainly is that where vision in each eye is normal, whether without glasses or by the aid of the ordinary sphericals, there is little to be gained by going into the question of the existence of slight degrees of astigmatism. "*Das Bessere ist der Feind des Guten*," as the proverb has it. I make this statement with diffidence, well aware that many whose opinions are entitled to respect will not agree with me. It is becoming unusual for patients who already wear glasses to bring in simple lenses for inspection and possible change, so great is the professional tendency to prefer complexity. I certainly believe that a cylindrical addition may safely be dispensed with in cases where vision, either with or without a spherical glass, is found equal to unity.

Concerning the use of prisms there is less to be said. Muscular weaknesses receive local treatment much less frequently than was the case a few years ago. The day has largely gone by when a series of so-called partial tenotomies would be performed, not only for the relief of asthenopia, but even of serious general disease, such as epilepsy and chorea. It is true that this method of treatment has its sphere of action, but a more limited one than was formerly supposed. The writer has come across people whose ocular muscles have been operated on, not only for the relief of headache, but for the cure of rheumatism of the shoulder and torpidity of the bowels. The numerous cases of distressing diplopia and artificial insufficiency that have resulted from the too exclusive use of such a surgical method have brought about its partial abandonment, and this has led to a decrease in the number of prismatic glasses formerly prescribed. It is more and more frequently found to be the fact that apparent muscular anomalies vary directly with the condition of the general health. Within a month or two the writer has seen the entire disappearance of a hyperphoria for which a prismatic glass had been worn two years with great relief, and has verified the restoration to the normal condition of an excessive exophoria on which, in years gone by, he had vainly urged an operation, and for which heavy prisms had been prescribed and worn with much temporary advantage.

AVULSION OF THE FINGER, WITH A CASE IN WHICH THIS ACCIDENT OCCURRED TO AN INFANT TWENTY MONTHS OLD.

BY GEORGE B. MONKS, M.D., BOSTON.

ON November 24th I saw with Dr. Bernard T. Daly, of Roxbury, the following case, which seems to me of such unusual nature as to justify its publication.

It appears that an infant, a girl of twenty months, was crawling about the floor, and in some way inserted the little finger of her right hand into the jamb of a door. Immediately after this the door was closed. The parents realized at once that some accident had happened, but they did not discover that the child was definitely injured until, on looking at the right hand they saw that the little finger was missing, a bloody stump appearing in its place. A search was made for the finger, and it was found in the jamb of the door where it had been caught (Fig. 1). The child was given ether, and the stump was trimmed up. In order to get skin enough for the flaps it was found to be necessary to dissect out the first phalangeal bone, which still remained connected with the hand. The flaps were then united by suture. Recovery followed.

An examination of the finger, which was somewhat dried when I saw it, showed that a long portion of the flexor tendon was attached to it—a fact which suggested that the finger had not been simply crushed off, but actually torn off by traction of some sort. Exactly



FIG. 1.

how the traction was applied is not clear. The history throws no light on it. It is quite possible that, at the moment the finger was caught, the child herself instinctively pulled back her hand with such force away from the finger, as it were, that the finger and the tendon were left in the door.

This injury is commonly referred to in the textbooks, and occasionally cuts illustrate the text. An illustration in Billroth shows a middle finger, which has been torn from the hand. Attached to the finger are two flexor tendons and one extensor. Beside this cut is another showing the entire arm, including scapula and clavicle, which had been pulled off by machinery. In Bryant's "Surgery" there is an excellent drawing of an avulsed finger. In the first volume of Dennis's "Surgery" are beautifully shown several terminal phalanges of the thumb which had been torn off in various ways—one of them in an attempt to reduce a thumb dislocation. A flexor tendon is attached to each specimen.

In the Warren Museum at the Harvard Medical

School there are several interesting specimens illustrating avulsion, to which the curator, Dr. Whitney, kindly called my attention. Among them are the following:

No. 1,619. A dry specimen furnished by Dr. H. O. Martin, of Roxbury, in 1854. In this case the last phalanx of the thumb was torn off, and the whole of the long flexor drawn out.

No. 1,621. Specimen, sent by Dr. King, of Nantucket, in 1856, consisting of the last phalanx of the little finger and about 10 inches of the flexor tendon. The finger had been amputated at the joint by a finger ring. The specimen—so the story goes—was from a man who, in falling from the upper deck of a steamboat, caught his finger ring upon a hook, where it was left hanging with the finger and tendon.

No. 3,723. Specimen showing two phalanges of the index finger torn off at the articulation by machinery, and $7\frac{1}{2}$ inches of the flexor tendon drawn out. (Dr. H. J. Bigelow in 1870.)

No. 5,307. Middle finger of right hand torn off by machinery and flexor tendon with shreds of muscle drawn out. (Dr. John Jeffries in 1843.)

No. 5,308. A dried specimen. The last joint of the index finger torn off, and with it the flexor tendon, and a small piece of muscle. "The patient, a healthy lad of seventeen years of age, got his finger caught beneath a heavy piece of timber, and without waiting for assistance, made a sudden and strong effort, and tore it off at once." (Dr. James B. Greger-son.)

No. 5,411. "The skin and nail of the little finger from a lad of thirteen years, who, jumping up to reach something on a hook, got the hook caught in a ring which he had upon the finger, and tore the skin and nail entirely off. The patient eventually had a serviceable finger, upon which a rudimentary nail grew. The ring accompanies the specimen."¹ (Dr. William E. Coale in 1845.)

No. 6,312. The specimen consists of the last phalanx and the skin that covered the last two phalanges in connection with it. The patient, a young clerk in the post office, who had a thin plain gold ring upon the little finger of his right hand, slipped from a stool, the ring catching in a hook as he fell. This ring, cutting through the skin on the back of the finger commencing just below the second joint, amputated the last phalanx at the joint. The ring remained on the hook and the finger fell to the floor. There was very little hemorrhage.² (Specimens furnished by Dr. D. S. Shale. Case reported in the *Boston Medical and Surgical Journal* for February 8, 1855.)

No. 6,577. "The little finger and flexor tendon torn off by a finger ring. From a young man who jumped from the top of a stage coach and caught the ring in the rail." The integument is extensively lacerated, and the last phalanx completely separated from the second at the articulation; but flexor tendon not torn through at this point. The accident happened in July, 1866.

Another specimen, a dried one, consists of the principal part of the right hand with a thumb and three fingers. Many long tendons are attached. The ap-

¹ No bone was torn off in this instance. It is the only case I could find where all the soft parts, including the nail, had been pulled off, the bone and tendons remaining with the rest of the hand.

² It is worthy of note that no bone was pulled off in this case, all the tendons having been severed at about the level where the finger was torn off.

pearance of the specimen suggests avulsion. No history can be found.

In the "Museum Catalogue," under the heading of No. 3,709, a case is related in which the entire upper extremity of a boy of thirteen years was torn off as a result of its being caught in a machinery belt. This patient survived the terrible injury. Three photographs can be seen at the museum, showing his condition after recovery. The case occurred in the practice of Dr. Charles D. Homans. The accident happened in 1870.

But, returning to the subject of avulsion of the fingers, the following *general observations* may be made:

(1) *As to the nature of the accident.*—(a) The finger may be firmly held in something moving away from the person with considerable force, as machinery, vehicles, etc. The tearing off of a terminal phalanx in efforts to reduce a dislocated thumb would thus come under this heading. (b) The finger may be held while the body, or at least the hand, is pulled away from it. Thus, the finger may be caught on a hook or any other projecting object, while the person is rapidly moving, as in jumping, falling or running. A finger ring catching on such a projection amputated the finger in a number of cases given. It is likely that the involuntary "pull-back" of a hand, one finger of which has been suddenly caught, as in the case of the infant described at the beginning of this article, may be in certain cases of sufficient force to pull the hand away from the finger.

(2) *As to where the bones usually give way.*—The joints are the weakest parts, and, therefore, it is usually at a joint that the phalanges are separated from the rest of the hand. Avulsion of the terminal phalanx would appear to be the commonest variety. Occasionally, when the finger has been much crushed or bent, a phalanx may break and the joint may hold. The separation rarely takes place as far back as the metacarpophalangeal joint.

(3) *As to whether or not the tendon is pulled out.*—A tendon—and it is generally the deep flexor tendon—is usually attached to the avulsed finger and forms part of the specimen. Sometimes both flexors and the extensor come away with the finger. The finger has been known to come off without either tendon; a circumstance which suggests that the violence in this special case was quite as much in the nature of a crush as a pull. The end of an avulsed tendon usually exhibits a few muscular shreds, suggesting that the rupture took place at the spot where the tendon was entering the muscle. This spot would therefore seem to be the weakest point. The reason that the deep flexor is usually found attached to the avulsed finger is (a) because this tendon is a round cord (not flattened nor split like the others), and is probably the strongest of all the tendons; (b) because it is attached to the base of the terminal phalanx, and therefore in all cases it is pulled upon.

(4) *As to where the skin and other soft parts are torn off.*—In almost all cases the skin is torn from the finger at a much higher level than that where the bones give way. If the violence of the pull has been more or less superficial, it may happen that only the skin and soft parts are torn off, the bones and tendons remaining connected with the hand.

(5) *As to hemorrhage.*—It would appear that the

bleeding following the accident is seldom troublesome. This is just what one would expect, as tearing a blood vessel probably favors contraction of the torn ends just as twisting does.

(6) *As to treatment and result.*—In order to get flaps it will always be necessary in cases of this kind to dissect out a portion of the bone in the stump. The operation is very simple, and the results, even in the days before the use of aseptic or even antiseptic methods, were almost always good, so far as healing was concerned. This is rather singular, as in former times such a wound was pretty sure to be infected, and the long synovial track left empty by avulsion of the tendon invited an extension of the suppurative process up the arm.

No attempt should, of course, be made to replace the avulsed portion of the finger, as has been sometimes done with severed digits. An injury of this nature has damaged the part beyond possibility of repair.

TWO CASES OF LIGATURE OF THE INTERNAL JUGULAR VEIN FOR INFECTIVE THROMBOSIS OF THE SIGMOID SINUS DUE TO PURULENT OTITIS MEDIA; ONE RECOVERY AND ONE DEATH.¹

BY FREDERICK L. JACK, M.D., BOSTON.

LIGATING the internal jugular vein as a preliminary to operating for sinus thrombosis is comparatively rare. We know from the data already at hand that the mortality in sinus thrombosis has been less in those cases in which the vein has been ligated. The records of many cases must be accumulated, however, before such comparisons are of value. These 2 cases are reported with a view of adding to the statistics bearing on this point, as well as with the hope that they may throw some light on the subject in general.

CASE I. P. L., a man of thirty-four, was admitted to the Massachusetts Charitable Eye and Ear Infirmary, Boston, August 30, 1900. He was suffering from a suppurative right middle-ear inflammation of two months' standing. He had always been in good health up to this time. Since the beginning of the attack he had had otorrhea, pain in the ear and right side of the head, varying in intensity. On admission the auditory canal was found filled with a purulent discharge; the inner posterior wall was bulging. The membrana tympani was of dark color and boggy, and there was a small perforation in the posterior inferior quadrant. The mastoid process was tender to deep pressure, especially over the tip. The patient remained fairly well for five days, when the temperature rose to 101° F., with a chill. Examination of the eyes was negative. The blood count was normal.

Operation.—On September 5th the mastoid antrum and the middle ear were opened in the usual way, and found filled with pus and granulation tissue. The bone over the sigmoid sinus was removed with chisel and mallet, exposing the wall of the sinus for $\frac{3}{4}$ inch. The wall of the sinus was carefully examined and found thickened and covered with granulation tissue. The granulations were removed and the wound was thoroughly irrigated and dressed with iodoform gauze. The next morning a severe chill

¹ Read by title at the Third Pan-American Medical Congress, Havana, February 4, 1901.

occurred, a rise of temperature to 102° F., followed by profuse perspiration. The pulse was 130. Upon changing the dressing the exposed wall of the sinus appeared very dark in color without pulsation. It was evident that the sinus contained a disintegrating thrombus and its removal after ligating the internal jugular was deemed the safest means of arresting further septic absorption. An incision 1 inch below the tip of the mastoid along the anterior border of the sternocleidomastoid muscle was made. Dissection was carefully continued down to the large vessels in the neck and the vein separated from the sheath. An aneurism needle was then passed under the vein above the anterior belly of the omohyoid muscle and the vessel ligated with catgut. The incision was closed with silk sutures. The sigmoid was then opened and a small thrombus containing pus was removed. The wound was thoroughly cleansed and lightly packed with iodoform gauze. For three days following the operation, the symptoms improved and the temperature remained normal. The wound in the neck healed by first intention and the stitches were removed. On the fourth day, however, the patient complained of a chilly sensation and temperature rose to 101° F. There was slight discharge of pus from the mastoid wound. During the next two days there were two chills with subsequent elevation of temperature from 104° to 101° F. The mastoid wound was frequently dressed and thoroughly cleansed. The blood count again was negative. The urine was normal. Seven days after the operation a hull took place in the symptoms and the temperature dropped to 95° F. This subnormal temperature persisted for several days.

From now on the patient made an uninterrupted recovery and was discharged from the infirmary thirty days after ligating the internal jugular vein. Both wounds were perfectly healed.

CASE 11. P. K., male, twenty-two years old, admitted to the infirmary September 19, 1900, suffering from a chronic otorrhea in the left middle ear with an infective sigmoid sinus thrombosis and probable cerebral abscess. The discharge from the ear had been constant for several years. His present illness dated back six days prior to his admission, when he complained of intense pain over the left side of the head followed by vomiting and rigors. The general condition was alarming. The temperature was 106° F., the pulse 120. There was no mastoid tenderness or swelling. Pressure over the upper half of the internal jugular and cervical triangle was painful. The auditory meatus was filled with fetid pus. The drum membrane was much thickened and perforated posteriorly. The blood count showed increase of white corpuscles (19,000). No plasmodia were found. Ophthalmoscopic examination was negative. The chest and abdomen were normal.

Operation.—The drum was freely incised and the usual incision over the mastoid was made. The bone was sclerosed, and the antrum when opened was found filled with granulations and pus. The sigmoid groove was removed with difficulty on account of the ivory-like character of the bone. The sinus was found thrombosed and covered with foul smelling pus and sloughing tissue. The sigmoid was then opened upwards into the posterior fossa of the skull and downwards toward the bulb of the jugular. The sinus was

found to contain a decomposing thrombus to the exposed limit in both directions. At this point it seemed necessary, to prevent further dissemination of septic material, to ligate the internal jugular before taking away the thrombus. An incision along the anterior edge of the sternocleidomastoid muscle and careful dissection exposed the vein filled with fluid blood. In this case ligation was made difficult by free venous hemorrhage which obscured the jugular. The vein was, however, ligated about 1 inch above the clavicle and the wound packed with iodoform gauze. The facial and lingual branches were also ligated. The whole of the thrombus was then removed by means of the curette from the bulb upwards an inch into the posterior fossa of the skull. One drachm of foul-smelling pus deeper in was evacuated between the dura mater and the skull. The patient bore the operation poorly and further exploration seemed inadvisable. The cavity was washed out and filled up with iodoform gauze. One hour later the temperature had fallen to 101° F. The pulse was 160.

The patient was fairly comfortable for the next two days. He had a slight cough and complained of pain in the chest. His temperature was about normal and the pulse diminished in rapidity. The wounds were dressed and found free from pus. On the third day after the operation, however, the symptoms became worse. The temperature ranged from 101° to 107° F. with chills. The cough increased, accompanied by expectoration of offensive odor. An examination of the lungs proved negative. He rapidly sank and died nine days after the operation.

Post-mortem examination showed the dura over the tegmen mastoideum for an area 1½ inches in diameter, thickened and granulated. The brain in the same region was intensely congested, but otherwise normal. The sinus over the cerebellum nearly to the torcular Herophili was necrotic. There was a layer of pus between the dura and the skull on both sides of the sinus spreading over the posterior portion of the petrous bone and extending well into the cerebellar fossa. Pus was found surrounding the vein in the neck from the bulb downwards about 2 inches. The lungs were normal, with the exception of a small abscess cavity of doubtful etiology near the apex of the right lung. A pathological diagnosis was made of epidural abscess, left lateral sinus thrombosis and septicemia.

Remarks.—The early constitutional symptoms of these cases are of interest. The first illustrates the so-called malarial type; the second the typhoidal. In the second case valuable time was lost before entrance to the hospital. The patient was supposed to have typhoid fever. When typhoid or malarial symptoms are present in cases of suppurative middle-ear disease, the chances are that the ear disease is primary, and the resulting symptoms, however severe, do not contraindicate an exploratory operation to determine the condition of the sinus; in fact, life may depend on immediate action.

It is interesting to note the rise in temperature without apparent cause four days after ligating the vein. A number of observers have called attention to an elevation for a day or two after the operation, and have considered it due to the elimination of the general sepsis. In my case the rise coming four days after the operation indicated the reverse, namely, an increasing septic absorption.

Every hour of delay in removing the source of infection naturally lessens the chances of recovery. The results in early and late operation are clearly contrasted in these cases. What the result of early ligating in the second case would have been we can only conjecture. Time is important. If, as in the first case, operation is done before a general septic invasion the chances of recovery are good. If after, as in the second case, recovery is improbable. Ligation of the vein is theoretically the most complete means of obliterating the channel of infection and is a procedure recommended by some in every case of disintegrating thrombus. So far as 2 cases have any weight, the evidence is in favor of ligating. Yet cases of successful removal of septic clots without ligation of the jugular have been reported by a number of operators, notably by Dr. Macewen, of Glasgow. Although the operation may be difficult and in some cases dangerous, still its omission may lead to greater danger. In my first patient the primary focus was thoroughly removed in both directions until a firm thrombus was reached, but without any subsequent improvement of symptoms.

Conclusions.—In acute cases before ligating the vein remove the purulent material in the sinus until a healthy clot is reached. After this operation, if rigors and elevation of temperature recur immediately, ligate the jugular vein and then remove the entire thrombus above and below until a free flow of blood takes place. If at the original operation no healthy clot is found, ligate immediately. In chronic cases no time should be lost in ligating the vein and completely removing the thrombus.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

(Concluded from No. 8, p. 186.)

REGULAR meeting, December 14, 1900, the president, DR. C. B. PORTER, in the chair.

DR. WALTON showed a

CASE OF BRAIN TUMOR WITH ASTEREOGNOSES.

This young woman presented herself at the Neurological Department, Friday, November 17th, complaining of numbness in the left arm and leg. The symptom had been of gradual onset, commencing in the leg about six weeks earlier, ushered in by a temporary blur of vision and loss of power. There had been occasional slight occipital headache, and occasional involuntary movement of the left hand, not amounting to spasm. Her movements suggested slight weakness on the left side, or perhaps rather awkwardness; she drooped a little and favored the left leg in walking, but there was no decided limp or toe drop; the separate motions were made perfectly and with good strength, the grasps being practically alike. The knee jerk was exaggerated on the left. Ankle clonus was present, but there was no plantar reflex. In other respects she was well, and was doing her work as a compositor.

On investigating the numbness it was found that when objects were placed in the left hand, she was unable to name them with closed eyes, for example, a knife, a coin, a pencil. On analyzing the anesthesia

only a slight degree of loss of tactile sensation appeared, by no means enough to explain her inability to name objects. The temperature and pain senses were also slightly impaired. The so-called muscle sense was lost; she could not tell with the eyes closed whether the fingers were raised, lowered or separated. Examination was otherwise negative, including that of the fundus oculi.

The diagnosis was made of subcortical tumor of the brain in the parietal region. It was decided not to advise operation until the symptoms became more marked. Monday she returned, when Dr. Putnam examined her and agreed in the diagnosis, noting also the fact that there was marked loss of space sense, two points being felt as one on the palmar surface of the hand, until widely separated.

The patient continued her work and was practically well up to Wednesday, when there was rapid onset of left hemiplegia, violent headache and vomiting. Dr. Hamilton attended the patient at her home and Drs. Putnam and Lord were called to see her. Her condition steadily grew worse and she was urged to enter the hospital for operation. She delayed until Friday morning, when her general condition had become alarming. At this time the Babinski reflex was present on the left. The operation was performed that day by Dr. Warren, who will describe the technique.

With regard to the point of election for operation, we benefited by the experience of Drs. Mills and Keene, who operated under very similar conditions, by removing a large flap bounded anteriorly by the fissure of Rolando. The tumor in their case presented so far anteriorly that it was necessary to enlarge the opening forwards by rongeur forceps. In our case it was planned, therefore, that the edge of the flap should extend well forward, so that its centre should be just posterior to the fissure of Rolando; this decision was justified by the result, as the trocar on its first introduction at this point, directed toward the median line, entered the cyst.

Recovery from operation has been uninterrupted; there is now only occasional slight headache, no vomiting, no elevation of temperature. A certain degree of movement is now present in the arm and leg. The Babinski reflex has disappeared.

The importance of recognizing astereognosis (loss of ability to recognize objects, from *στέρω*, solid, and *γνώσκω*, to know) lies in the cerebral location of the function involved. Of course if tactile sense is entirely lost in a given case, the patient will be unable to recognize objects placed in the hand, and in such a case the symptom is of no material aid in diagnosis, inasmuch as tactile loss may be due to peripheral or spinal, as well as cerebral, lesion; but given preservation, or comparative preservation, of tactile sense, if the patient is still totally incapable of recognizing such objects, the case falls in quite another category.

The recognition of the nature of objects involves a higher psychical process than mere sensation, and requires the co-ordination of various senses, that is, those of posture, space, pressure, temperature and position; the space, position and posture senses enable us to recognize the *form* and *size* of objects, the pressure and temperature sense their *character*, as, for example, whether of metal or of wood; still further, for the proper recognition of objects we require the integrity of our memory for the sensations excited by simi-

lar objects in the past. Such processes are essentially cerebral.

Astereognosis, while generally neglected, has been carefully studied by certain investigators (Hoffman, Dercum, Sailer). It appears from their observations that the symptom may be produced in various ways, and may imply various degrees of diminution of the different factors concerned in sensation.

It would seem that the most constant defects involve (1) so-called muscle sense or posture sense of the fingers; (2) space sense, or the recognition of the number of points coming in contact with the skin, and (3) position sense, or recognition of the place touched. The loss of any one of these sensations may produce the symptom, and it would even appear that astereognosis may occur while all individual varieties of sensation are perfect, including touch, temperature, space and posture. (I have not alluded to pain sense, as this factor can hardly have much bearing on the subject, further than to indicate the disagreeable degree of sharpness, heat or cold, or the violence of contact.) One case of astereognosis has, in fact, been reported in which all the senses were normal. This would imply lesion of a centre high in the psychological scale. In such a centre may be stored the memories of the feel of objects, and to this centre we perhaps appeal for the reproduction of ideas aroused by such complex sensations.

The condition is perhaps somewhat analogous to that of mind blindness and word deafness, though a fundamental difference exists as regards diagnosis, in that stereognosis apparently has a bilateral representation in the brain, for its loss occurs in both right and left hemiplegia. The exact position of these centres, if, indeed, they exist as such, is not established, a fact not surprising, in view of the lack of unanimity regarding the cerebral localization of sensations in general.

In this case, as in that of Mills and Keene, the post-central region was certainly involved, but neither lesion was sufficiently limited to indicate the exact seat of the stereognostic sense.

DR. WARREN: The points of interest about the operation were in opening the skull. The difficulties in opening on a large scale have long been recognized. Surgeons tried first trephining with a large trephine and nibbling off with rongeur forceps, making a large hole. The disadvantage is that it leaves a large opening. Attempts were made to put the buttons back. That does very well with a small opening, but is not a very desirable thing with a large opening. Then came osteoplastic openings, and they were first done with a saw and afterwards with a chisel. These methods were all rather unsatisfactory because slow, and the chisel, although rapid, produced a tremendous amount of shock. I shall never forget the impression produced upon me by the profound shock occasioned by opening a skull in twelve minutes, so that I feel disinclined to again use that method of opening the skull. The instrument which I have here (the maker's name I am not familiar with) seems to have overcome this difficulty very nicely. All that is necessary is to make your incision through the scalp of the length that you want and not reflect the scalp from the bone, turn up one corner of the flap, and with a trephine opening of small size start in with this nibbling instrument, the small point going in under the edge of the bone, taking slight turns one way and

another; thus you cut a swath in the bone of the shape you wish, and then with elevator you pry up the bone; it cracks across the base easily and is turned back with the flap. This incision exposed the fissure of Rolando, and although we found, on turning back the dura, no tumor, as we hoped, Dr. Walton suggested I should make a puncture with a trocar at a certain spot, the ascending parietal convolution, and on doing so a test tube full of clear serum came out from a cyst less than $\frac{1}{2}$ inch from the surface and $\frac{1}{4}$ to $\frac{3}{8}$ of an inch from the surface of the brain. The finger was passed in, went forward; it seemed to be superficial over the ventricle. It was afterwards drained by putting a small piece of Dr. Harrington's tape drain in, leaving it there, sewing up the dura matter and turning back the flap, sewing that up and allowing the tape to come out at this point. Afterwards gutta-percha tissue was inserted as a drain which does not dry up and allows the fluid to escape. Drainage was kept up ten days and then the small hole was allowed to heal.

DR. WALTON, in answer to a question, said: I think the prognosis is extremely doubtful. The cyst may refill and again the cyst may, I suppose, be merely a part of an underlying tumor; this proved to be the case, for example, in the case of Mills and Keene to which I have alluded. In this event the tumor will continue to grow. The future is not very brilliant, excepting that the cyst may of course entirely heal up, and even then we could hardly expect complete recovery of motion, though we might that of sensation.

DR. H. H. A. BEACH presented a case of

OPERATION FOR THE REMOVAL OF A FOREIGN BODY IMPACTED IN THE ESOPHAGUS FOR MORE THAN TWO WEEKS.

CASE I. The patient, a boy eight years old, while playing, was carrying in his mouth a circular piece of tin $\frac{3}{4}$ of an inch in diameter. It slipped into the gullet and became fixed at a point just below the episternal notch, as shown by the x-ray. Soon after, it became impossible for him to swallow solid food. Until his admission to the hospital he lived on liquids. The duration of the impaction suggested the possibility of ulceration from pressure and the inadvisability of attempts at removal by instruments passed through the mouth. External esophagotomy made it possible to reach the coin-shaped obstruction with the tip of the finger and to remove it with forceps. At the same time two fragments of undigested meat presented in the wound and were removed. They may have protected the mucous surface from the sharp edge of the tin during the impaction. The gullet wound was closed by kangaroo tendon, the external wound by provisional sutures enclosing a gauze wick for a few days. He was fed by nutritive enemata for ten days and then beginning with a spoonful of milk his diet was gradually increased to solid food. Discharged well in seventeen days.

BACKWARD DISLOCATION OF THE ULNA; FRACTURE OF THE EXTERNAL CONDYLE OF THE HUMERUS; FRACTURE OF THE RADIUS AND ULNA NEAR THE WRIST JOINT.

CASE II. The whole arm was livid and swollen. The patient, a boy of fourteen years, who had fallen 15 feet from the branch of a tree, Unsuccessful attempts at reduction had been made under ether.

The condition of the arm contraindicated any prolonged manipulation. An x-ray examination showed unmistakable dislocation. Under ether, I found it impossible to adjust the dislocation from some unusual impediment which could only be disclosed by an internal examination of the joint. The arm was prepared and a straight incision of 5 inches was made, as though excision of the joint was to be done. The tendon of the triceps was split and the joint opened. The external condyle of the humerus was fractured and impacted so as to prevent the reduction of the dislocation. I was obliged to dissect off the outer half of the triceps tendon from the olecranon to the point where the posterior ligament joins the orbicular, then pushing the external condyle forward and with a blunt hook pulling backward on the inner side of the shaft of the humerus, the articular surface quickly snapped into the sigmoid notch and the movements of the joint became perfect. The wound was carefully cleaned and tightly closed. The radial and ulnar fractures were set and an elbow splint applied. The fractures have united, the wound has healed and an x-ray picture shows the dislocation reduced. Motions: Rotation good, but slightly limited at the wrist. At this time has about one-half power of extension and very good flexion; is gaining.

RETENTION OF URINE FROM OBSTRUCTION BY
THE THIRD LOBE OF THE PROSTATE GLAND.

CASE III. The patient, a man of sixty years, entered with a history of more or less difficulty in urinating for nearly five years. Lately he had grown much worse in frequency and pain, and upon entrance the retention was complete. He was easily relieved by catheters, but only for a few hours. As his temperature was showing some sensitiveness to the instrumentation, it was thought best to relieve his bladder by constant drainage; this was carried out for eighteen days. Upon the removal of the catheter retention again occurred and his temperature again began to rise. His prostate gland felt through the rectum was unusually small. Upon the withdrawal of a sounder (for stone) there appeared to be a ring of tough fibrous material at the neck of the bladder, that suggested a teething ring in shape and consistence. Believing that a division of this structure would relieve his obstruction, I injected a solution of eucaïne B. and passed the Bottini instrument, dividing the anterior neck 1 centimetre, the lateral 2 centimetres, and as I could not make an obstruction posteriorly upon withdrawing the instrument, did not divide him posteriorly. He had little or no pain, passed an ounce of blood, but his retention continued. I then made a suprapubic section and finding a valvular projection of the size of the end of the thumb which would allow entrance to, but obstruct exit from, the bladder, crushed it by two lateral constrictions and removed it with scissors. The bladder was drained and his recovery has been uneventful. He now has from 3 to 4 drachms of residual urine, and passes it once in about three hours, without catheter.

DR. R. H. FITZ reported

A SERIES OF CASES ILLUSTRATIVE OF THE CLINICAL IMPORTANCE OF BACTERIOLOGICAL EXAMINATIONS,

in which the diagnosis and prognosis were influenced largely by the bacteriological examinations made by

his assistant, Mr. C. H. Dunn, who demonstrated the results of his investigation.

Three of the cases were of inflammation of the respiratory apparatus, and the examination of the sputum showed in one a pneumococcus pneumonia, in the other a pneumonia from Friedländer's bacillus, while in the third the influenza bacillus was the organism concerned.

CASE I. The patient, a boy of seven years, was sent to the hospital as a case of empyema following a kick in the back two weeks earlier. The physical signs were those of solidification of the right lung and the vocal and respiratory sounds were feebly transmitted from the lower lobe. On the day of entrance the temperature was 103° F., the pulse 140, and the respiration 70. The chlorides were much diminished; the blood examination gave 50,000 leucocytes and the sputum showed many pneumococci without tendency to form chains and often contained within leucocytes. The diagnosis of a late stage of pneumococcus pneumonia was based upon the bacteriological examination. The crisis, with immediate improvement, began on the day after entrance, and the boy promptly recovered.

CASE II. The patient was a woman, fifty years of age. After two days of malaise she was attacked with cough, dyspnea and sharp pain in the lower right chest, for which she sought medical aid on the following day and was immediately sent to the hospital. On her arrival there were dulness, continued into flatness over the lower right lobe, distant respiratory sounds and bronchophony with many fine moist râles at the end of inspiration. Temperature 102° F., pulse 120, respiration 45. The chlorides were absent and the blood count gave 14,000 leucocytes. The liquid, bloody sputum showed a prevalence of Friedländer's bacilli with occasional pneumococci. Death took place on the sixth day after entrance, the patient remaining intelligent and comfortable until the end. The prognostic importance of the presence of Friedländer's bacillus in the sputum thus was confirmed.

CASE III. The patient, a woman of twenty-seven years, was confined to the bed for three days before entrance on account of weakness, although there was also general malaise. There had been no coryza. On the fourth day she entered the hospital suffering from painful cough, dyspnea and cyanosis. Temperature 104° F., pulse 110, respiration 30. There was dulness of the lower right back without modification of respiratory and vocal sounds, but a limited friction sound was heard in the right axilla. On the following day the rub disappeared, the respiratory and local sounds became distant and numerous fine, moist râles appeared in the dull area. The chlorides were much diminished; 12,000 leucocytes were found on examination of the blood. The reddish-brown sputum contained numerous influenza-bacilli within and between the leucocytes. The case followed the course of an atypical pneumonia. Although the temperature remained high for several days and the respirations were from 30 to 50 per minute, the case progressed favorably. Three days after her admission to the hospital there was a discharge of offensive sputum which persisted for a number of days and at the end of a week the sputum contained elastic fibres. The physical signs of the pleuropulmonary disturbance gradually disappeared.

CASE IV. A fatal case of acute meningitis is re-

ported in which the etiology first was made clear after death, although a post-mortem examination was not held. The patient was a girl four years of age, whose illness began with vomiting, followed on the next day by frontal headache and pain in the ears and abdomen. Two days later she left her bed and went to school, but returned weak and cyanotic. On the seventh day her mother noticed that there was diminished use of the left arm and leg. On the eighth day she entered the hospital with these extremities completely paralyzed. Temperature 102° F., pulse 120, respiration 40. The examination of the blood showed 19,000 leucocytes. At the end of a fortnight in the hospital the child died. During this time she remained in a condition of stupor, but suffered from occasional atypical convulsions involving the head and extremities and from inconstant strabismus. Feeding through a tube was necessary. The head was not retracted, nor was there any hydrocephalic cry. The pupils were symmetrical and reacted normally to light. The examination of the ears showed somewhat retracted membranes, which were punctured without any relief. Kernig's sign was absent. The examination of the chest was negative and there was no enlargement of the spleen. The etiology of this case was made known after examination of the fluid obtained from the spinal canal by lumbar puncture after death. It proved to be one of sporadic meningitis from pneumococcal infection.

IDIOPATHIC DILATATION OF THE COLON; CHRONIC RHEUMATIC ARTHRITIS; CHRONIC MITRAL ENDOCARDITIS; HEMIPLEGIA; EMBEDDED NEEDLE.

DR. FITZ showed a patient who was admitted to the hospital with the diagnosis of an abdominal tumor, but who was interesting also from a complication of diseases. The enlargement of the abdomen, which first attracted attention during the summer of 1890, resembled that of a woman seven months pregnant, and was found to be due to a persistent dilatation of the sigmoid flexure made prominent by contraction of the abdominal muscles.

The patient, an Englishwoman, single, forty-four years old, had acute articular rheumatism twenty years ago and was confined to her bed for six weeks. Nine years later, after an intervening period of good health, she suffered for two years from arthritis involving many of the joints and causing permanent flippant hands, partial dislocation and impaired mobility of the distal phalanges of two fingers of the left hand and a stiff knee and ankle. This illness had been diagnosed in England as rheumatoid arthritis. She was treated in various hospitals in Bath and elsewhere and was bedridden most of the time. The radiograph of the hands showed no deformity of the articular ends of the bones, but a piece of a needle, more than an inch in length, was apparent in the palm of the right hand. The patient had no recollection of the passage of a needle through the skin within the last fifteen years. She had never suffered discomfort from the needle. Nine months ago, having been constantly at work since her emigration to this country in 1892, the right arm and half the face became paralyzed and the speech was disturbed. She speedily recovered from the attack. At present there is a systolic murmur confined to the apex, but there is no enlargement of the heart

and there have been no symptoms of cardiac insufficiency.

DR. SHATTUCK: Does that disappear or stay all the time?

DR. FITZ: It persists.

DR. RICHARD C. CABOT: How do the bowels act?

DR. FITZ: She has had more or less tendency to constipation, but not sufficient to cause any particular distress.

DR. F. C. SHATTUCK: Is the colon involved?

DR. FITZ: No; the sigmoid itself is large.

DR. C. A. PORTER reported a case of

OPERATION FOR GUNSHOT WOUND.

I should like to speak of a case on which I operated late this afternoon, to show the brilliancy with which Mr. Walter Dodd can make a diagnosis with the x-rays, for I think it is doubtful if we all recognize how valuable a man he is to us. A man entered the accident room this afternoon who had shot himself with a 32-calibre revolver in the head just above the right parietal eminence. It was evident that the bullet had entered the cranial cavity, as disintegrated brain tissue appeared in the wound. He was profoundly unconscious. There were no localizing signs or symptoms whatever, except perhaps a little swelling and redness just above the left ear.

Two plates were made by him which, as you can see, show the bullet distinctly in the left side of the brain. I will not repeat his calculations, simply because I do not understand them. I asked him *where* the bullet lay, and he said: "Trephine 1 inch in front of the ear and an inch above the zygoma on the *left side*." I did this without ether, using a $\frac{3}{4}$ inch trephine. The dura was tense and blue; the circle was enlarged to 1½ inches in diameter with rongeur forceps, and the dura was opened. Blood clots under tension escaped; the breathing became quieter. Exactly in the centre of the opening was the clearly cut wound of exit from the brain, the bullet having passed quite through both hemispheres; as the clots came for the most part from in front, the opening was enlarged in that direction. The bullet had ricocheted from the skull without injuring the dura and glanced forwards and inwards. It was finally recovered in the centre of the anterior part of the temporal lobe, the little finger having been introduced along the track made by it. Gauze wicks were placed in the operation wound and that of entrance, and the man put to bed. He died, unfortunately, early in the morning.

DR. C. B. PORTER: I want to show this case as a case of fracture of the kidney, with bloody urine. He comes from the Norfolk Club, and was kicked in the belly by a horse, one hoof striking here (indicating), and one here (indicating). He came in the next morning and there was dullness through this line here (tracings upon body). Immediately after the injury there were pain, vomiting and bloody urine. At the time of entrance he was passing considerable quantities of blood. He was in a condition of shock. Examination showed dullness on the right side from the fourth rib downwards in the axillary line, tender, swollen, rigid abdomen. There was no change in this line by changing his position in the bed, but the interesting thing is that from the time of entrance his temperature commenced to drop, which led me to hold my hand. He went on uninterruptedly a number of days, his pain clearing up and this dullness

slowly and gradually disappearing. He got up one morning in a hurry and went to the bathroom and commenced to have another rise of temperature. I was afraid that he had lighted up the condition for which he came in and that we should have more bloody urine, but he did not have bloody urine follow that. He is now all right, has been discharged, and came in merely to be shown. It is interesting to see that in cases of fracture of the kidney it is possible at times for them to get well without operation. Another interesting thing in connection with this case is that from the same club last year I had another case of the same kind, which also got well without operation.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

(Concluded from No. 8, p. 188.)

PROPHYLAXIS AND CONTROL OF LEPROSY IN THE UNITED STATES.

In a paper read before the American Dermatological Association in May, 1900, Morrow³ asserts that the question of leprosy has been chiefly agitated by alarmists in the daily press, although the association was the first of the scientific bodies to call attention to its prevalence in the United States. By this and other means an act for the investigation of leprosy was passed by the United States Congress in April, 1898, which provided for the appointment of a commission of medical officers of the Marine-Hospital Service to investigate, and to report what legislation is necessary to check the spread of the disease. Nothing has been heard from this commission.

Dr. Morrow points out that our leper population has been largely increased by our territorial acquisitions. In Hawaii the native population is largely tainted with leprosy, as is the case with Cuba and Puerto Rico. The Philippines are one of the chief Eastern centres of leprosy which are continually exposed to fresh contamination by their nearness to China and Japan. The danger to us will come from the exposure of sailors and soldiers, of administrative officers, and those engaged in trade in the islands. The leprosy that has been found in Southern and Central Europe within the last century has come almost entirely from soldiers, sailors or administrative officers who have lived in the colonies where leprosy occurs. Of the 100 cases seen in Great Britain during the last ten years, all, with possibly 2 exceptions, contracted the disease in the leper colonies of England. Of 1,500 cases of leprosy in Spain the great majority were soldiers or monks who had contracted the disease in the Philippines, the Canaries, or Cuba. Additional opportunity for the spread of the disease is afforded by the open-door policy in China, and by the increased quickness of transportation. The Chinese have been the most active disseminators of the disease in modern times, and its spread in many countries can be traced to coolie immigrants.

The most obvious method of prophylaxis is to exclude all leprosy immigrants, as far as possible, realiz-

ing that an absolutely perfect quarantine is impossible. It could be made more effective by international co-operation with countries where leprosy prevails, and by examining emigrants at points from which they embark. All immigrants from leprosy families or from leprosy districts should be registered and kept under observation for several years. This system is in operation in Hawaii with the result that of 2,600 Japanese laborers brought to Hawaii there have been only 6 cases of leprosy. Skilled experts as quarantine inspectors would also be an advantage.

With regard to leprosy as it exists within the United States, Morrow says that the leper is still an outcast in some parts of the country. No organized effort for the control of the disease has been made. Louisiana has provided a special asylum for lepers, but Dr. Dyer declares that its operation has been ineffective. The enforcement of the law of isolation has been more vigorous in California than in most other States, especially in the case of Chinese immigrants. In New York the health authorities have undoubtedly been hampered by the conflicting opinions of the medical profession with regard to contagiousness. Too much importance, in Morrow's opinion, has been laid on negative facts of contagion; as, for example, that lepers have lived for years in New York City without communicating the disease. The same could be said of tuberculosis or syphilis. In Louisiana there is much evidence of contagion, as shown by the great increase in the disease and in the large numbers of indigenous cases.

Morrow states his impression to be that leprosy is slowly increasing in the United States. Assuming therefore the necessity for the control of this disease, the question arises, whether it should be divided among local and State authorities, or be assumed by the national government. The results of the policy pursued by municipal and State boards of health have not been satisfactory. There has either been nothing done, or the patients have been cruelly imprisoned in a pest house. Co-operation between the different States would be necessary, and the expense is considerable, so that, the disease being very irregularly distributed, it would be hard to persuade the authorities of a State where there was very little, if any, leprosy to provide an expensive building for isolation. Morrow thinks that the control of leprosy should be given to the national government. Isolation or segregation is undoubtedly the most effective means for controlling this disease. It is necessary that all cases should be reported. Morrow thinks that a board of competent experts should be appointed to determine the existence of the disease or not, and he is not prepared to say that every leper should be seized and confined until he dies. A certain amount of discrimination in the selection of suitable cases for segregation should be practised. There would seem to be no reason for regarding an anesthetic leper without cutaneous or mucous membrane changes as dangerous to the community. Hygienic homes or asylums should be provided by the government, and should be made as comfortable and attractive as possible, giving the patients an opportunity for work or recreation. Segregation has never been thoroughly carried out in countries where it has been tried, on account chiefly of the opprobrium attaching to the disease and the desire for concealment. The removal of the popular prejudice against, and fear of, the disease, would render seg-

³ Leprosy, December, 1900.

regation much easier of accomplishment. "Instead of the traditional lazaretto with its veiled inscription, 'All hope abandon, ye who enter here,' asylums should be provided which would be suggestive in their surroundings and mode of management of a sanatorium rather than a prison. These institutions should hold out assurances of humane care, of medical treatment, and, if possible, a hope of cure."

"SARCOID" TUMORS OF THE SKIN.

Kaposi has proposed the name "sarcoïd" as a provisional one for certain tumors of the skin that bear a striking resemblance to sarcomata in some respects while in others they differ from them widely. Kaposi includes under this heading: (1) Mycosis fungoides; (2) lymphodermia cutis; (3) sarcomatosis cutis; (4) sarcoma cutis proprie dictum. Fendt⁶ would separate mycosis fungoides from this group, as a distinct, well-defined infectious disease, as well as lymphodermia cutis, which includes leukemia and pseudoleukemia cutis. He throws out also sarcoma cutis proprie dictum, as Kaposi includes in that the isolated sarcomata, and typical melanotic sarcoma. From sarcomatosis cutis he separates the multiple, idiopathic pigmented form, so that he has left finally only the form of generalized sarcoma, described as occurring on the trunk and extremities in the form of a hundred or more finger-nail sized and larger, bluish-red flattened or projecting nodules which are situated in the corium and subcutaneous fat tissue and are of firm, elastic consistency. There are no enlarged glands, no abnormalities to be found in the blood, or constitutional disorders. It is to this class then that Fendt wishes to restrict the term "sarcoïd" tumors, a far different conception from that of Kaposi. This class of cases is the one that responds to the administration of arsenic, and about 25 such cases are said to have been reported. In most of them, however, an absolute cure could not be claimed. In several cases of this variety an intercurrent erysipelas caused the tumors to disappear.

Fendt reports a case observed in Herxheimer's clinic in Frankfort, that of a boy of sixteen, who had first observed six months previously a small, painless nodule on the right arm, which was soon followed by numerous nodules on various parts of the body. When seen nothing abnormal could be detected in the internal organs. Scattered over the body were fifteen to eighteen tumors, which were rounded and hard and had their seat chiefly in the subcutaneous tissue. A few of the tumors were of a violet color, most of them not colored. The patient was immediately treated with intravenous injections of arsenious acid, beginning with .01 daily, and increasing to .02. Examination showed the blood normal. There was a constant appearance of new nodules for a time. Later they ceased to appear and the old ones became smaller until at the end of five months they had all disappeared, without leaving a scar. Asiatic pills were substituted for the intravenous injections on account of local pain and swelling from the injections.

Histologically the cutis was found to be filled with a collection of large round cells, which were in part present as encapsulated tumors from which the connective tissue had in great measure disappeared, in part represented a true infiltration, with the connective tissue present, but greatly affected. In certain places

the new-formed cells had undergone a certain amount of degeneration. Although the histological picture was that of sarcoma, it was not considered proper to class this definitely among the sarcomata, inasmuch as one of the laws of sarcomata that they grow progressively and do not disappear spontaneously was not followed in this case.

Another case from the Frankfort clinic is described in which a woman of sixty presented a diffuse infiltration of the skin of the eyelids and other parts of the face, and of the breasts. Over other parts of the body were scattered tumors of apparently different ages and different sizes, slightly pigmented and in some instances umbilicated. There was no enlargement of the lymph glands. The affection proved to be a lenticular cancer, and the case terminated fatally. It is thought that a case reported by Joseph under the head of sarcoïd tumors was probably a cancer and analogous to this, and it is pointed out that the clinical diagnosis between carcinoma and sarcoïd tumor may be very difficult.

The conclusions are reached: (1) That the form of sarcomatosis here described as sarcoïd tumors of the skin ought not to be classed with the sarcomata, as they vary from sarcomata both histologically and clinically. Their etiology is at present obscure, but it is probable that they represent an infectious disease. (2) Carcinomatosis cutis can as a rule be excluded only by a microscopical examination.

TREATMENT OF CUTANEOUS AFFECTIONS WITH FINSEN'S CONCENTRATED LIGHT AND WITH THE X-RAYS.

Bie,⁶ Finsen's assistant in his institute at Copenhagen, remarks that Finsen, in his first communication on the subject of concentrated light, indicated the superficial local bacterial affections as especially suited for treatment by this method. Lupus vulgaris was first chosen as a test, as it fulfilled these indications and also offered a good test on account of its obstinacy. The treatment is based on the capacity of the blue, violet and ultra-violet rays to destroy bacteria, provoke an inflammation of the skin and to penetrate through an anemic skin. It is not impossible that the inflammation alone may be the cause of the cure, and in any case it is remarkable that the two affections, apart from lupus, that have given the best results, epithelioma and alopecia areata, are not of known microbic origin. It is asserted that alopecia areata can be healed comparatively quickly by means of the light treatment, and the favorable result may be due to the active inflammation set up in the skin, as other inflammatory agents may also cause the hair to grow. The light has the advantage over applications of penetrating deeply into the skin.

Finsen has exhibited a number of patients in the Copenhagen Dermatological Society, to show that cutaneous epithelioma also may be healed by the light treatment. In this case also we do not know whether the beneficial effect is due to the destruction of possible bacteria, to the inflammation of the skin, or to both factors. In some of the cases of epithelioma so treated there was a sloughing of the tissues shortly after the beginning of the treatment. This is the more interesting since it has never been observed, in more than 500 cases of lupus and other cutaneous affections treated in this way. Nor has

⁶ Fendt: *Archiv. f. Derm. und Syph.*, Bd. III, H. 2 and 3.

⁶ *Dermatologische Zeitschrift*, August, 1900.

necrosis been seen when normal skin has been treated experimentally; normal skin treated with strong concentrated light exhibiting redness, swelling, infiltration and usually the formation of bullae, but never necrosis. Microscopical investigations have shown that when normal skin is exposed to a weak electric light there is a serofibrinous or cellular exudation, a swelling of the collagenous tissue and epithelium, and a liquefaction of these tissues; when a more intense light was employed there was a thrombosis of the cutaneous vessels, but the possibility that this was due to heat could not be fully excluded.

Of 16 cases of epithelioma treated in this way by Finsen, the treatment was without result in 3. Five patients were improved but not healed, 1 patient was apparently cured, but had a recurrence shortly afterward. Seven patients were cured. Of the 5 who were improved but not cured, in 2 the affection was seated on the eyelids, where it was feared to use a strong light. The 7 cases that were cured had remained without recurrence from six months to two and one-half years. Whether all these cases have been permanently healed it is of course impossible to say as yet. In all the cases that were cured the lesions were small and superficial and therefore well suited to the treatment. In the case of those previously treated, more was accomplished by this method than by previous measures. Finsen declared, in conclusion, that the method could be undertaken with hope of success only in the cases of epithelioma that were superficial and sharply bounded, and were situated in places suitable for the treatment.

Loewald⁷ in the same number discusses the value therapeutically of both the concentrated light and x-rays. Until quite recently the inflammatory properties of light were falsely interpreted. So-called *eczema solare* was thought to be due to the heat rays, but doubt was cast upon this by the observation of similar phenomena after walking on snowfields, on high mountains and after exposure for a long time to a strong electric light. It was then found that the cutaneous inflammation was due, not to the heat rays, but to the chemical rays, especially the ultra-violet, and less prominently to the violet and blue rays. The green, yellow and red rays are not in the least concerned.

It has been proved that bacteria may be killed by light, and the best observers have found the ultra-violet, violet and blue rays again the most effective. Finsen succeeded, by means of concentration, in killing various kinds of bacteria in a few seconds. The results of the treatment of lupus by this method are said by Finsen and his pupils, and by Lassar, to be especially favorable. An hour's treatment daily causes an inflammatory redness and swelling, and then a shrinking up of the lupous tissue and the formation of a cicatrix. The treatment is painless, and no ill results have been observed. The long duration is a great objection, as light cases of small extent require from four to six months, the severer forms one to two years. The results in lupus erythematosus were variable. Of the 30 cases reported, in some there was permanent healing with good cicatricial tissue, while others were obstinate and showed a continual tendency to recurrences.

Turning to the x-rays, the unfavorable effects on the normal skin are not seen immediately after the

exposures, but appear usually several weeks after the last sitting. They take the form of redness, with or without succeeding inflammation, decolorization of the skin, or increased pigmentation, transference of pigment toward the periphery, simple scaling of the epidermis, the formation of bullae with serous or pustular exudation, edema of the corium and the formation of sloughs and ulcers. There is much pain and increased sensitiveness of the skin. The course is remarkably long. The hair often falls out and the nails may become brittle and fissured, or may be wholly lost. Histologically a thickening of the epidermis, increase of keratohyalin, atrophy and disappearance of hairs, follicles and glands have been noted. Gassmann observed peculiar changes in the walls of the vessels and a degeneration of the subcutaneous tissue. These unfavorable effects on the skin are estimated by Unna as occurring in about 1% of the cases.

In employing the rays therapeutically these unfavorable effects must be taken into account. Practically the danger from them can be reduced to a minimum in practised hands. In lupus vulgaris the first effect of the rays is a yellowish discoloration of the skin, which is soon followed by a dermatitis, characterized by redness and slight burning. If the rays are interrupted at the moment when the yellowish color appears, there is little succeeding dermatitis. When the dermatitis has disappeared, the rays are renewed, and healing follows with cleaning of the ulcers, cicatrization and separation of crusts. A number of observers have reported favorable results from this method, yet it does not protect from recurrences. It is, like Finsen's light treatment, of very long duration, but has the advantage over the latter that it may be used in very extensive cases. The cosmetic results are in every way equal to those of Finsen. Several writers report good results in chronic eczema with this treatment. The early results in many of these cases appear to have been better than the later, as there were recurrences and the rays seemed to lose their effect. No especially good results have been noted in psoriasis. Diseases in which a temporary haldness is desirable, as favus, sycois, tinea trichophytina, have been favorably influenced.

With regard to hypertrichosis, Schiff, Freund and Jutassy have reported favorable results. It is, however, a very nice matter to adjust the application so carefully that no dermatitis is caused, and several cases of disfiguring scars have been reported. A brownish discoloration of the skin is noticed one or two days before the hair falls. The hair of brunettes becomes white just before it falls. Twenty to thirty sittings are necessary as a rule, but a single series of treatments is not sufficient, as a new growth begins two or three months later. It is said to be permanently removed if three or four sittings are practised at intervals of six weeks. The rays have also been tried in pigmented and angiomatous nevi, elephantiasis, etc.

Is has hitherto been impossible to explain the action of the Röntgen rays on the skin. Shutting out the heat rays and the light has not been able to prevent the dermatitis, or shutting out the electrical action also. It cannot, as experiment has proved, be ascribed to the action of the chemical rays. Experiments made to test the bactericidal properties of the rays in the case of lupus have not shown them to have this power.

What is the outlook for the treatment of cutaneous

⁷ Dermatologische Zeitschrift, August, 1900.

affections by the x-rays? It is to be feared that the great hopes cherished by some will not be realized. In the majority of affections in which they have been tried, we possess numerous methods which give just as good results without the danger of injurious after effects. It is possible that much may be done by combining phototherapeutics with other methods. It cannot be doubted that the chemical rays of light, as well as the Röntgen rays, have a peculiar action on certain diseased conditions of the skin, and there can be no doubt that there is a certain resemblance in the method of action of the two kinds of rays. It is possible that this may prove a means of solving the secret of the Röntgen rays.

Reports of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

STATED meeting, January 1, 1901, FREDERICK PETERSON, M.D., president.

SPINAL ACCESSORY PARALYSIS.

DR. PEARCE BAILEY presented a man who last March had been operated upon for suppurating glands of the neck. During the operation the spinal accessory nerve had been cut. There had been immediate and complete paralysis of the sternomastoid and trapezius. About six weeks later the nerve had been sutured, with considerable improvement in the symptoms. During the past summer a weakness had appeared in the deltoid and in the muscles supplied by the musculospiral nerve. There had been considerable return of power. A fairly large incision had been made at the operation in the region of the mastoid. On inspection the shoulder on the affected side was seen to droop and the scapula hung away from the spine. The only anesthesia observed had been limited to the ear and over the right side of the face—an area corresponding to the supply of the great auricular nerve, which had undoubtedly been cut at the same time. There was now marked hyperesthesia over the distribution of this nerve. When first seen the position of the head had been slightly towards the injured side and a little downward.

DR. E. D. FISHER suggested that there was a psychical element in the case. He said that on pressing along the muscles of the arm slowly there was no reaction, but if done suddenly there was a spasmodic contraction of the muscles of this region.

DR. JOSEPH COLLINS did not think the whole condition had been explained by Dr. Bailey, for, in his opinion, there were symptoms of root involvement over a rather extended area. He could not understand how these could be explained by mere section of the spinal accessory nerve. The tic of the facial muscles and on either side of the neck, and the narrowing of the palpebral fissure, appeared to be associated with fibrillary twitchings. This would indicate a rather extensive involvement of the anterior roots in the cervical region. He would also like to know about the condition of the pupils.

DR. F. PETERSON said that he had seen this case before, and had been interested in the complications. He had seen the man before the appearance of the twitchings, and on first noting the latter he had been inclined to assume that it was hysterical. However,

after having made the electrical examination he had felt sure that it was not hysterical, but a pressure palsy involving a number of nerves, possibly as a result of sleeping with the arm in an upward position.

DR. BAILEY said that the suppurating gland had been situated deeply underneath the sternomastoid. When first seen by him last April there had been a typical picture of paralysis of the sternomastoid and trapezius, but no symptoms referable to the arm, no tics and no functional disorders. The man had been completely incapacitated for work, and this probably explained his psychical condition. The irritative condition of the face was probably explicable by the formation of new connective tissue in the scar. As soon as his attention had been called to the pressure palsy he had been watched at night and prevented from sleeping on his arm, and this had resulted in immediate and decided improvement. It was probable that in time the man would get fairly good use of his arm.

FACIAL HEMIATROPHY.

DR. MAX MAILHOUSE presented a man, twenty years of age, without neurotic family history. Twenty-two months ago a discoloration had appeared on the right side of the face below the lower lid. It had begun as a pale depressed spot. When first seen by the speaker, the right side of the face had been much atrophied, and the beard had been absent on this side. The mouth had been drawn to the right and the right half of the tongue very much atrophied. The apparent prominence of the right eyeball was due to retraction of the lower lid. The hair of the right half of the scalp was grayer than on the left, and was falling out. He had been losing his teeth on the right side. The nasal cartilage was wasted, and its tip was turned to the right. The muscles of mastication were also atrophied, and this was associated with spasmodic pain. There was a fibrillary tremor of the large muscles. The affected muscles reacted feebly to faradization, and normally to galvanism. No scleroderma was found. For the past two months there had been twitching of the muscles on the right angle of the mouth, and at times after laughing this angle would remain retracted. At such times there was a very tender spot situated in front of the ear. A blow of moderate severity had been received over the mouth ten years ago. No other etiological element could be elicited, and even this one seemed to have but little weight. The atrophy of the tongue seemed to be a strong argument for the theory that this affection is a trophoneurosis.

DR. C. L. DANA said that he had met with several such cases, and had found them all quite obscure. At one time the view had prevailed that it was a trophoneurosis due to some lesion of the trophic root—a condition very difficult to understand. In one of his cases there had been a typical diffuse trigeminal neuritis occurring in a woman of about forty years. The attack had begun with herpes and neuralgia, and had been followed by a general neuralgia in the course of the fifth nerve. After this there had been atrophy and some anesthesia, and finally a peculiar pitting of the face, like that from smallpox. In another case the trouble had begun, as it often did, with pigmented spots and neuralgia, and this had been followed by anesthesia in spots and a typical

progressive anesthesia involving all the tissues, including the masseter muscle and the bone. In this woman there had been deafness and some disturbance of vision on the affected side. It was difficult to understand how a trophic or central lesion would cause all these symptoms. A herpes was almost always a sign of peripheral trouble.

Another case had been in a woman, who had married at the age of seventeen. Her husband had died, it was said, of syphilis a few years later, though the woman denied ever having become infected. She had had a progressive facial hemiatrophy for a number of years, and had finally developed atrophy on the same side, affecting the arm and the leg. In none of his cases had there been anything indicating the true nature of the etiology. Perhaps the best explanation was that of a peripheral lesion as a starting point. He had obtained no definite results from treatment, perhaps because he had not been able to keep these cases under treatment for a sufficient length of time. If the trouble were peripheral, Dercum's idea of resecting the trigeminus seemed to be worthy of careful consideration.

DR. FRAENKEL asked if any difference had been observed in the behavior of the sweat glands on both sides of the face.

DR. MAILHOUSE replied that there had been less sweating on the affected side.

DR. JOSEPH COLLINS thought the disease could be explained just as well by a central as by a local lesion. He was inclined to think that the patient just presented had a lesion in the pons, in the area of central representation of the sympathetic nervous system in the pons. The lesion was probably a slowly progressive one, such as gliomatosis. There already seemed to be involvement of the motor nuclei of the medulla oblongata. The enlargement of the pupil would be explained by an irritation of the sympathetic which had gone on to paralytic effects.

PROGRESSIVE LINGUAL HEMIATROPHY.

DR. C. L. DANA presented in connection with the last case a rather rare form of progressive lingual hemiatrophy. It occurred in a man, twenty-six years of age, who had had the trouble three years, but had been otherwise in perfect health. The half of the tongue was gradually wasting away, and this was associated with fibrillary twitchings. The patient was a healthy young medical student without history of syphilitic infection or nervous heredity. It did not seem to him necessary to suppose that there was a gliosis, for Mendel had already shown that there is a change in the motor root of the trigeminus. Of course, these changes might be secondary to degeneration and partial destruction of the nerve.

DR. PETERSON said he was inclined to believe with Dr. Collins that some central lesion would best explain the condition. He had seen several cases, but all of them in a much earlier stage. In none of them had the tongue or the muscles of mastication been involved, or had they presented the same pupillary phenomena.

DR. MAILHOUSE thought the dilatation of the pupil might be explained by a similar process involving the sphincter pupillæ and causing weakness. Hoffmann had reported some improvement from the use of galvanism for half an hour daily.

NEW YORK OBSTETRICAL SOCIETY.

STATED meeting, Tuesday, January 8, 1901, the president, DR. H. J. BOLDT, in the chair.

DR. JANVRIN presented a

SPECIMEN OF LARGE MYOMATOUS GROWTH OF THE UTERUS.

The history was as follows: Patient single, forty years of age, menstrual history regular, no pain or bleeding. One month ago she had her normal period, which continued for several days, after which she began to flow freely. The hemorrhage was controlled somewhat, but she continued to flow for several weeks. Upon examination, at the end of three weeks, a large abdominal growth was found and the tumor removed which is here presented. Several cysts of the ovaries were removed at the same time. The case was of interest because no hemorrhage had occurred until the last month, although the mass was of large size. The reason for this lies in the fact that the tumor is probably of the cystic variety.

DR. H. J. BOLDT presented a

SPECIMEN OF TUBAL PREGNANCY.

in which the fetus of two months was found still within the tube. The great interest in this case lies in the fact that operation was performed as the process of tubal abortion was taking place. The abdominal extremity of the tube is dilated to a diameter of 1 centimetre. The uterine end is completely occluded. The tube is $2\frac{1}{2}$ centimetres in diameter at the thickest point. The patient had been bleeding for three months at irregular intervals, accompanied by cramp-like pains. During the week before operation the bleeding was very profuse, so that her physician (who thought that the patient had an intra-uterine pregnancy) said that she would abort. Large clots were expelled per vaginam. The patient was very anemic, and suffered great pain. In the abdomen there was a large quantity of blood which had escaped at different times, shown by the varying degrees of consistency; some clots were recent, bleeding continuing from the tube; while some were very firm and yellowish-red, the latter being on the floor of the pelvis. The bleeding for such length of time without completion of the abortion is the main interesting feature.

DR. VINEBERG said that the case was of great interest, showing as it did that we may get as profuse a hemorrhage from the uterus in ectopic gestation as from an intra-uterine abortion. He also emphasized the advisability of giving an anesthetic in cases of supposed abortion in order to make a careful diagnosis of the exact conditions.

DR. ABRAM BROTHERS mentioned the fact that some men thought it unnecessary in cases of tubal abortion to perform laparotomy, or to excise the tube. But in cases like this one of Dr. Boldt's, where the diagnosis of tubal abortion is made, and where the patient may lose her life from exsanguination, the loss of blood occurring externally or in the peritoneum, one is justified in doing an abdominal section and removing the diseased tube.

DR. JANVRIN remarked that in many cases upon which surgeons are called to operate there is really a tubal abortion present, and no rupture of the tube itself. It is rare for hemorrhages to continue from a tube for two or three weeks without abortion being

complete. In most cases tubal abortion takes place inside of a week. In his opinion there was no question of the necessity for operation in any case where hemorrhage was going on.

DR. BOLDT said he believed that an impregnated tube should be treated as one of malignant disease and operation was therefore indicated.

Dr. Boldt read a paper entitled

I. THE DEFINITION OF SEPTICEMIA AND PYEMIA;
II. THE INDICATION FOR VAGINAL HYSTERECTOMY AND FOR ABDOMINAL SECTION AND DRAINAGE IN PUERPERAL FEVER.

The writer, in reviewing the bacteriology of the ailments under discussion, said that while there were many varieties of streptococci, they could be divided into three classes or varieties, depending upon their virulence. In order to show the various definitions for septicemia and pyemia and their mingling with the terms "septic infection" and "septic intoxication," thus creating confusion, the author quoted from a number of recent textbooks and dictionaries. So different in meaning are these various definitions that one is necessarily confused in choosing the correct term for a given pathological condition.

The best definition for septicemia is given by Coplin in his "Manual of Pathology," third edition, published in 1900. This is found on page 389 under the term "mycoses of the blood." He states that "in these the bacteria are present and multiplying in the circulating blood in which their products are generated. The intensity of the septic phenomena is augmented by the greater production of the poison, and not having even the barrier of protection afforded by the necessity of osmosis or absorption, they are enabled to engender lesions not presumed to occur, at least not to the same extent, in either sapremia or local infection. The embolic production of abscess is the essential element of pyemia, a disease recognized by surgeons as septicemia plus the infected emboli to which are attributed metastatic abscesses."

DeLafield and Prudden, in their "Pathological Anatomy and Histology," fifth edition, state that "if from a focus of suppurative inflammation due to microscopic organisms, or if from a point of entrance of microscopic organisms without local reaction, the germs and their product become distributed through the body, inducing disease, the general condition is called septicemia. If in the invasion of the body by the microscopic organisms and their products new supplementary foci be established, it is now customary to designate the condition pyemia."

Dr. Boldt in his paper makes use of and favors the terms "acute" and "chronic" bacteriemia. He defines "acute bacteriemia" as a blood disease caused by microscopic organisms invading the circulation from some primary seat of infection. These infection-producing elements multiply so rapidly in the blood that the patient usually succumbs within five days after the disease begins. Usually the parasitic germs are streptococci pyogenes, but other pathological germs may be present also. Chronic bacteriemia (or pyemia) is likewise caused by the invasion of the system by microscopic organisms, but they disseminate from an infected thrombus. They are not diffused into the system in one large quantity, neither are they possessed with the same foudroyant virulence from a clinical standpoint. The production of the abscesses

found in the condition called pyemia, and upon which the pathological difference between the two conditions depend, is due to the parasitic organisms finding a resting place outside of the blood circulation, and there giving rise to abscess formation. That there is a decided difference in the virulence of streptococci no one will deny; for instance, an incised wound of the finger may be infected with pus containing streptococci, and yet slight local disturbance result. On the other hand, during an operation on a patient with puerperal septic infection a small puncture of the epidermis may result in grave local and constitutional symptoms. When septicemia originates from infected thrombi, the infection elements, in the writer's opinion, are diffused to a great extent through the lymph channels. In acute bacteriemia there is usually but one chill, or in some instances there is none. The infection is intense and occurs suddenly. There is usually no repetition of the chill, because the rapidly multiplying organisms are already in large quantities in the circulation.

In chronic bacteriemia, on the other hand, there are repeated chills, due to fresh additions of septic organisms into the system. The pathological differences found on autopsy are well known, and harmonize with the manner in which the pathological germs are introduced into the system. It is impossible to distinguish septicemia from pyemia by a bacteriological examination of the blood or tissues. The author proposes for simplicity to limit the term "septic infection" to "local sepsis," reserving the term "acute bacteriemia" for what is ordinarily called septicemia, and the term "chronic bacteriemia" for "pyemia," so called.

Both acute and chronic bacteriemia are caused by microscopic organisms, but one is of short duration, the other long. So much then for the definitions of the terms to be used in the second part of the paper.

If the definitions and the pathological changes of acute bacteriemia are kept in mind, it should be evident that surgical intervention, like extirpation of the uterus, whether performed by abdominal or vaginal route or an abdominal section with drainage, must be futile. The author believes that it is a common error to report cases of local sepsis with severe constitutional symptoms as cases of acute bacteriemia, and thus much confusion is caused. In this way, it has been claimed that hysterectomy for acute bacteriemia has been followed by recovery. In the opinion of the writer, no such result ever has been or ever will be achieved by the surgical intervention alluded to for the cure of acute bacteriemia. If ever we should be fortunate enough to find a remedy for acute bacteriemia it will be found in the realm of serum therapy. The writer then said that this decisive assertion had been verified by clinical experience, extending over the past eighteen years. During this time he had performed all of the major operations on a large number of patients, yet he had not seen a single instance of recovery from acute puerperal bacteriemia (general puerperal sepsis), even if operations had been performed. In his opinion, the only effect from the operation on such patients was to hasten death. He had continued to perform the various operations for acute bacteriemia, thinking that it might be possible to save a life, because others had maintained that they had been successful, but it is evident to him that those who made these assertions were mistaken in the view as to what acute bacteriemia

(septicemia) is. There is no doubt, however, that the operations alluded to in the title of the paper are indicated in some patients ill with septic infection.

It is then of the greatest importance to know when to operate, and for what conditions. It is not easy to make exact diagnoses, but as a rule we can come to a correct conclusion after observing the course of symptoms for several days. Some patients ill with sapremia will show such severe symptoms that they simulate acute bacteremia, but a short observation will usually decide the question. Occasionally patients who suffer from toxemia (sapremia) may show positive indications for the removal of the organ giving rise to the infection. To illustrate, B. S. Schultze¹ mentions the following case: The patient was delivered of a dead child on September 7th, the placenta did not follow, and upon traction the cord tore off. The physician could not reach the placenta to remove it. In the hospital it was found impossible to remove it, even under full anesthetics. She began to show symptoms of infection two days after delivery, and her condition became much worse. She had frequent chills and high temperature, so that it was evident that she would die if the cause of the infection could not be removed, especially as peritoneal irritation had begun. On September 13th a supravaginal amputation was made. The uterine bicornis was gangrenous nearly to the peritoneal cavity. The patient recovered. Another case was reported by Sippel,² in which the placenta was removed by manual extraction, but some placental fragments remained which Sippel could not remove because of the softened condition of the uterus. The patient was extremely anemic from blood loss, which was large. Septic endometritis resulted, and thirteen days subsequent to delivery supravaginal amputation was performed, recovery resulting. An infection by microscopic organisms had been added to the toxic infection by saprophytes, an occurrence not uncommon in sapremia. In such cases the reader favors total extirpation to supravaginal amputation, for the reason that the peritoneum can be protected from infection by approximate safeguards.

In cases of septic infection the author had based his blood investigations entirely upon smear preparations, obtained from a finger, and these were unsatisfactory. In 2 instances when streptococci were finally found, previous examination having proved negative, the patient succumbed. In 3 successful instances, in which indication for operation was based on clinical conditions, the blood examinations were negative, the second alone showing streptococci. It would not, in his opinion, be just to the patient to wait always for operation until positive evidence was found in the blood. The writer then mentioned a case which had occurred in his consultation practice in 1893. He had seen a patient three weeks after delivery who had shown all the symptoms of acute septicemia. The physician had not curetted, but relied solely on vaginal douches, stimulants and quinine. When seen by Dr. Boldt, the patient was greatly emaciated, temperature 103°, pulse 124 and feeble. There was no exudate in the pelvis, but the uterus was large, boggy and sensitive to touch. Examination of the interior of the uterus did not reveal the presence of placental tissue. After the examina-

tion the patient had a severe chill, temperature rose to 105.8°, pulse to 156. In view of the gradual sinking of the patient, the irregular chills, fever, the size and consistency of the uterus, the condition was diagnosed as septic metritis, and hysterectomy performed the following morning. The diagnosis proved correct, the tissues of the uterus tearing as if decomposed. The patient had no more chills, the highest temperature after the operation was 101°, and recovery was uninterrupted. Under similar conditions, even with a negative result of blood examination, the writer would adopt the same course today.

It is impossible with our present knowledge to lay down absolute rules for the performance or omission of the operation of hysterectomy, but for general guidance, I would advise the following indications for hysterectomy, if it is evident that less heroic treatment is useless:

(1) If after a full term delivery, or an abortion, there are no conception products in the uterus, and the patient has fever with exacerbations, chills, a small and frequent pulse (120 to 140 or more); if careful observation should show that the infection comes from the uterus alone, that organ being enlarged, and relaxed in its consistency; if there is no evidence of peritonitis, the parametria free; if streptococci are found in the uterus, and, especially, if the blood shows the presence of pathogenic germs.

(2) If there are decomposition products in the uterus, as in the instances reported by Schultze, Prochownik, Stahl and others, which cannot be removed satisfactorily per vaginam; if on doing a Cesarean section the uterus is found septic, then an abdominal hysterectomy is indicated.

(3) Abdominal section with drainage is indicated in diffuse septic peritonitis, when there is no evidence of an exudate in the pelvis.

(4) The adnexa are to be left undisturbed unless there is a positive indication to do otherwise.

In the discussion DR. VINEBERG said that he agreed with Dr. Boldt in his indications for hysterectomy, but that he personally preferred the abdominal route to the vaginal. He could not agree with the reader of the paper with regard to the definitions of sepsis. He thought there were no grounds for the introduction of the term bacteremia. To his mind there was but one kind of infection. Many times, from neglect, putrid intoxication runs into acute septicemia, and the profession should be taught that each case of sapremia is one of septic infection from the onset, and that it may pass into acute septicemia. Infection with other bacteria, such as the bacillus coli communis, the staphylococci and the bacillus aerogenes capsulatus, have also been attended with fatal results.

DR. STONE congratulated the reader of the paper on his successful effort to pick out and define the different varieties of puerperal infection. To his mind, the profession was too apt to think that there was only one form of sepsis, and that the correct thing to do in each case was to curette. This he thought a great mistake, as many cases get well without curettage.

DR. BROTHERS thought the question of treatment depended upon the recognition of the presence or absence of local infection. This infection may be due not only to placental debris after delivery, but to some condition of local infection occurring previous

¹ *Deutsch. med. Woch.*, 1886, No. 44.

² *Centribl. f. Gynaek.*, Bd. xviii, S. 667.

to delivery. He agreed with Dr. Boldt that if the diagnosis of acute bacteriemia can be made, hysterectomy or any other form of local treatment is contra-indicated. In his opinion, the terms "local sepsis," "acute bacteriemia," and "chronic bacteriemia" were well chosen.

DR. W. E. PORTER said he believed that many cases would not come to hysterectomy if persistent intra-uterine irrigations were properly carried out. In his experience the placental forceps were much better than the curette for the removal of retained scennula.

DR. MALCOLM McLEAN had seen several cases in which lactation had given symptoms severe enough to make one strongly suspect septic infection, and he advised the greatest caution in making the diagnosis which would result in the performance of hysterectomy.

DR. G. L. BRODHEAD referred to those cases of hysterectomy for retained placenta which Dr. Boldt had reported, and said that, in his opinion, if retained placenta could not be reached by the usual methods, it would be better to incise the cervix in order to get more space in which to operate. Certainly the greater part of retained placenta could be removed in this way, and therefore hysterectomy would never be indicated.

DR. JANVRIN said he had never attempted to remove a uterus for acute septicemic action, but that he should like to ask Dr. Boldt to tell how one should know whether to perform abdominal or vaginal hysterectomy.

DR. BOLDT said that he would again refer to the excellent definition given by Coplin under the term "mycosis of the blood." We must recognize the fact that puerperal fever is always in a degree a septic infection. If fetid discharges come from the vagina, it does not necessarily mean that the case is a serious one. Patients with acute bacteriemia may have no fetid discharge, and yet there may be an intense septic endometritis. We must watch our cases for a number of days or several weeks, and if we find that all treatment has failed, the patient is steadily getting worse, no other cause for the chills, etc., can be found, where the parametria are free, and there is no peritonitis, where perhaps streptococci are found in the uterine secretions, then, under these conditions, we are justified in considering vaginal hysterectomy.

Abdominal hysterectomy should be considered only in cases where we are called on to perform a Cesarean section on a septic uterus, or where there is an intense septic intoxication associated with a septic endometritis, the patient's condition not improving under other treatment.

The reason why the placenta could not be removed in the case reported by Schultz was on account of there being a uterus bicornis. In the other case, quoted from Sippel, the general condition of the patient was such that it was not advisable to carry on intra-uterine manipulation further, so great was the danger of perforation.

In conclusion Dr. Boldt said that it required great judgment to decide in these cases what was correct to do, but that each must judge from his own experience with the aid of all the symptoms present. We should all endeavor to make exact definitions of the diseases that we are dealing with.

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THE NEEDS OF A MEDICAL LIBRARY.

SINCE the Boston Medical Library moved into its new building on the Fenway, a number of suggestions have been made looking toward improvement of the advantages it already offers the profession.

The most important improvement, after all, must consist in the extension of the book collection, and it is with a view to the possible strengthening of the collection where it is still somewhat weak that we venture to call attention to the fact that books may not only be given to the library, but may also be deposited as loans, under good care and without risk of loss.

The library should be in the future even more than in the past both the place for systematic study of medical literature, and the place where it may be convenient for the medical men to drop in, to skim over current journals or look up a given subject or a given point with the least possible loss of time.

To admit of this requires a reasonably complete representation of the total information in various lines of work,—not only the journals, archives and annals, but also those monographs and books of reference which from time to time condense the scattered information of the periodicals in quickly accessible form.

The Medical Library, through the quarter century of its existence, has especially striven to present contemporaneous literature. In this it has been, as we all know, notably successful. During this period many books other than periodicals have been collected (nearly 15,000), but the collections of special works and books of reference are still somewhat deficient.

In the past the limited funds of the library have not allowed any considerable purchases, and the lack of accommodations has not encouraged gifts. The lack of funds continues, the more felt owing to the expenses incident to the change of quarters, and the library cannot, for the present at least, set aside any adequate fund for the purchase of books; can, in fact,

do little more than keep up its periodicals. Today, however, there is no lack of room or of facilities for keeping and handling books.

Undoubtedly the library's need will be met to some extent by gifts. Special libraries have been presented; there are already two funds to provide for purchasing special classes of books, and one of the specialists' clubs is now considering the question of helping to keep up the shelves representing its specialty.

But apart from this there is an opportunity for individuals to give valuable aid with a minimum of self sacrifice. Hundreds of volumes that the library does not possess lie unused on the shelves of private individuals. Many medical men, too busy to be bibliophiles, buy sets of reference books or send for special works or monographs, and after the present need for them has gone by rarely look at them, often hardly know where they are.

The library is ready and anxious to receive such books, not only as gifts, but as loans, to keep them safely, and, if need be, to restrict or prohibit their circulation as the owner may desire. In this way the owner can share with others what he little uses, and his books will be safer and in many cases more accessible, even to him, than if they lay unclassified, uncatalogued, on his own shelves.

It is not supposed that whole libraries will be so deposited, but it is hoped that this suggestion may lead to the depositing of many single volumes and sets not now in the library and not accessible. If this suggestion bear fruit and be responded to, many gaps in the present collection will be filled and we shall all be the richer in opportunity to learn. It is a chance to co-operate in the furtherance of a cause with which all are in sympathy.

GOOD BREAD AND SANITARY BAKERIES.

It is scarcely necessary to state that bread is one of the most important, possibly the most important, of all articles of diet. Its universal use, on all occasions, and at every meal, by all classes of people makes it imperative that it should be made not only of wholesome materials, but also under strict sanitary conditions. In 1896 a statute was enacted in Massachusetts providing for the regulation of bakeries, with special reference to their sanitary conditions, and placing them under the supervision of local boards of health. This legislation was a step in the right direction, but an important provision was omitted, to which considerable attention has been paid in the sanitary investigations of other countries,—the provision that no bakery shall be maintained in an underground room or apartment. It is quite clear that the important sanitary conditions of good ventilation, light, dryness and perfect drainage can never be so well secured below the surface of the soil as above it, and all these conditions should be maintained in a good bakery. This question has provoked lively discussion in English journals, as is shown by the following

extract from the *Local Government Chronicle*, London, February 24:

Scarcely a week passes that we are not called upon to part with one or other of our most cherished illusions. We have long known that typhoid lurks in water, milk and shell fish, but until recently few of us suspected that we were drinking arsenic in our beer. Still fewer of us have as yet regarded our daily bread with suspicion. We have been taught from our infancy that bread is "the staff of life," and it is, therefore, somewhat disconcerting to learn that Drs. Waldo and Walsh have cultivated thirteen different species of microbes from newly-baked London loaves, and that Surgeon-Major Rennie has traced two outbreaks of typhoid fever amongst our soldiers in India to the agency of bread baked in the native bazars. It is no new thing for us to hear that the majority of our urban bakehouses are underground; that they are very dirty and insanitary, and that the journeyman baker has a very bad time in them; but the majority of us have derived some satisfaction from the reflection that, bad as its surroundings might have been, and serious as might be the discomforts of those engaged in its production, our loaf has been purified by fire before it reaches us. If, however, the statements made in *Fabian Tract*, No. 94, entitled "Municipal Bakeries," and published last month, are to be relied upon, we can no longer feel assured that this is the case. So far we have not heard of any authentic case of disease having been communicated by bacteria from bread in this country, but several sanitary experts seem to be of opinion that insanitary bakehouses, of which we have long known there are a considerable number in all our large towns, constitute a source of danger to the public health, which it is very desirable to remove. The medical officer of health for Manchester is "strongly of opinion that the time has come when a period should be put to the existence of cellar bakehouses." Without fully endorsing this opinion, we fear there can be little doubt that sufficient attention has not hitherto been paid to the sanitary condition of urban bakehouses, and to the miserable condition of many of those who work in them. Most of us would prefer that our bread was made in clean rather than in dirty bakehouses, and it is not pleasant to hear that journeymen bakers are rarely to be found above forty-five years of age; that from the surroundings in which they work they are bound to suffer from lung diseases and anemia, to say nothing of "baker's itch," rheumatism, erysipelas, and other complaints; that their hours of work are exceptionally long, and that they are specially prone to suicide.

MEDICAL NOTES.

VITAL STATISTICS OF HAVANA FOR JANUARY, 1901.—The sanitary improvement heretofore noted continues during this month. It will be seen that the number of deaths, 476, is the smallest that has occurred in any January in Havana in the last twelve years, the next lowest being that of January, 1890, when there were 486 deaths, the highest being that of January, 1897, when there were 1,556 deaths and an average of 829 deaths. In comparing the death rate, there is a still better showing. The rate for this month, 22.75, is considerably less than the lowest for the past twelve years, 1894 being the next lowest, with a rate of 27.36. Yellow fever has decreased

from 62 to 24, and the deaths from this cause, from 20 to 7. The number of deaths is kept up by the increase among the deaths from tuberculosis, which about balances the decrease in deaths from fevers.

DIPHTHERIA ANTITOXIN INFECTED WITH TETANUS.—According to the *New York Medical Journal*, 20 deaths from tetanus were reported recently in cases which had been treated with a particular lot of diphtheria antitoxin made in Milan, Italy. A rigid governmental inquiry has been set on foot and the antitoxin seized.

DEATH OF PROFESSOR VON PETTENKOFER.—The death of Professor von Pettenkofer, of Vienna, is announced at the age of eighty-three.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, February 27, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 98, scarlatina 35, measles 51, typhoid fever 4.

DEATHS IN BOSTON IN 1900.—There were 11,678 deaths in Boston during the year 1900, an increase of 511 over 1899, and making the death rate for the year 20.82 per 1,000 inhabitants, as against 20.12 for the previous year. Consumption again leads in the total number of deaths from a single cause. There were 3,752 deaths of children of five years and under, which is 32.14% of the total number of deaths reported to the Board of Health for the year.

STATE LABORATORIES AS AIDS TO SANITARY WORK.—Dr. Samuel W. Abbott, secretary of the Massachusetts State Board of Health, read a paper before the Maine Academy of Medicine and Science, January 11, 1901, on the subject of "State Laboratories as Aids to Sanitary Work." Its sentiment received the heartiest approval of the academy, and to express its views upon the subject that body has caused a pamphlet to be printed and given a limited distribution, as a reason why the bill before the present legislature, asking for funds to equip a State laboratory in Maine, should receive favorable consideration.

A CENTENARIAN.—Mrs. Mary Welch, the oldest woman in Pittsfield, Mass., died last week at the reputed age of one hundred and two years. She came of a long-lived race, her father, John Fitzgibbons, dying at one hundred and five, and her mother one hundred and four. Mrs. Welch was born in Kinnaula, County Tipperary, Ireland, in 1799.

A PRECOCIOUS SUICIDE.—It is reported that a boy of thirteen has recently committed suicide in Connecticut, for the alleged reason, as given on a note found in his pocket, that he did not like his teacher, and "didn't want any more trouble."

GRADUATION OF NURSES AT BAPTIST HOSPITAL.—Three nurses have recently been granted diplomas from this hospital. At the exercises held on that oc-

casion, Dr. Hugh Cabot, of Boston, and Dr. Alfred Worcester, of Waltham, spoke.

A POSSIBLE HOME FOR CONSUMPTIVES IN BOSTON.—It is said that certain persons in authority contemplate recommending the use of the Marcella Street Home for incurable cases of consumption.

NEW YORK.

CLAIM OF AN INSURANCE COMPANY UPHOLD.—The Connecticut Mutual Insurance Company, in its defence of a suit by Jennie Louis to recover upon a policy issued by it in June, 1895, upon the life of her husband, Joseph Louis, claimed that the policy was void, because Mr. Louis's death, which took place in 1896, was caused by suicide. The policy contained a provision that the company did not assume the risk of self destruction, except upon satisfactory proof that the insured was so far insane as to destroy his responsibility. On the proofs submitted at the trial the jury gave a verdict for Mrs. Louis and that decision has now been upheld by the Appellate Division of the Supreme Court of New York. Justice Ingraham gave a dissenting opinion, holding that there should be a reversal because, in the application for the insurance, facts had been suppressed by the assured which were material in determining whether or not the insurance should be given.

SMALLPOX.—While the public apprehension of smallpox seems to have subsided, the disease has by no means disappeared, and on February 20th no less than 13 new cases were reported. The Health Department officials state that at present they are vaccinating only about 30 persons a day in Manhattan, while a few weeks ago the daily number of vaccinations was 2,000, and they fear a decided increase of smallpox from the indifference of the people. In the town of Woodbury, Gloucester County, N. J., where 3 cases of smallpox have occurred, there is much public excitement. All the Sunday and day schools have been closed by the health authorities, and 4,000 persons have been vaccinated within the past few days.

CARE OF MOTHERLESS INFANTS.—In the twenty-eighth annual report of the State Charities Aid Association, just issued, is given a full report, by the joint committee on caring for motherless infants, in regard to the institutions for children on Randall's Island. Owing to the work of the association, and to new provisions in the rules adopted by the State Board of Charities, the city has been saved over a million dollars during the last five years in caring for its destitute children. The report of the committee on New York County shows many improvements in the charitable institutions in the city and on Randall's and Ward's Islands during the past year.

SANITARY CONDITION OF SING SING AND ALBANY PRISONS.—In his annual report the State superintendent of prisons directs renewed attention to the utterly bad sanitary condition of Sing Sing and Au-

burn prisons, which are now more than seventy-five years old. He states that the evils, which are so serious as to demand immediate attention and prompt relief, if these structures are to be continued in use, have been repeatedly reported to the legislature, but no provision has been made for reconstruction or improvement.

BILL FOR ABOLITION OF PRESENT STATE BOARD OF HEALTH.—The Assembly has passed and Governor Odell has signed the bill providing for the abolition of the present State Board of Health, and substituting for it a single commissioner of health, to be appointed by the governor within twenty days after the passage of the act. The annual salary of the commissioner, who must be a physician of at least ten years' experience, is fixed at \$3,500.

CHANGE IN NAME OF MONTEFIORE HOME.—The directors of the Montefiore Home for Chronic Invalids, in order to designate more specifically the work of the institution, have had its name changed to the Montefiore Hospital for Chronic Diseases.

SITE FOR RED CROSS HOSPITAL AND TRAINING SCHOOL FOR NURSES.—The Red Cross Hospital and Training School for Nurses has purchased, for \$100,000, a site for a new building at 100th Street, facing the west side of Central Park.

Obituary.

J. H. LINSLEY, M.D.

DR. J. H. LINSLEY died at his home in Burlington, Vt., February 17th, at the age of forty-one, of meningitis. Dr. Linsley is survived by his wife and two children.

He was the only son of the late Hon. D. C. Linsley and grandson of Hon. Jo D. Hatch. He was born at Windsor, Vt., in 1859. He was graduated from the Medical Department of the University of Vermont in 1880, and later was in active practice up to 1887. His health failed about this time, and after a period of recuperation he went to New York City and was appointed instructor in clinical microscopy in the New York Post-Graduate Medical School and Hospital. One year later he was made director of the laboratories of histology, pathology and bacteriology. He was also pathologist to the New York Post-Graduate Hospital and the New York Infant Asylum. In addition, he did the pathological work of St. Luke's and the Presbyterian hospitals, during a part of the summer of 1889. In 1890 Dr. Linsley spent the summer in Berlin and took a course in bacteriology under Koch. He was also English secretary of the Section for Hygiene of the Tenth International Medical Congress held in Berlin in August, 1890. In the fall of the same year he again went to Germany as representative of the New York Post-Graduate Medical School and obtained some of Koch's lymph.

Returning to New York City, he gave the first address on the lymph treatment for tuberculosis in New York in the Academy of Medicine before the Medical Society of the County of New York. Later Dr. Linsley translated "Fraenkel's Grundriss der Bakteriologie." Later he was made professor of pathology and bacteriology at the University of Vermont, and in some capacity he was connected with the Medical Department of the university for many years. He served as city physician of Burlington for three years, and as health officer for the same period. He was also a member of the Board of Pension Examiners

for Chittenden County. On the establishment of the State Laboratory of Hygiene he was made its chief, and in that capacity he had done most useful work.

Correspondence.

[From our Special Correspondent.]

MEETING OF THE THIRD PAN-AMERICAN CONGRESS.

HAVANA, February 13, 1901.

THE third meeting of the Pan-American Congress, held at Havana during the week beginning February 4th, was noteworthy not only for the quantity and high standard of the scientific contributions, but equally for the hospitable courtesies and unique entertainments offered to the delegates by the local physicians, municipal and hospital officials and private individuals. Although the thermometer ranged from 80° to 90° F. during each day, this tropical heat, tempered by the cool trade winds, was made tolerable by the many devices within the houses, streets and *pacios* for maintaining shade and the free circulation of air. The nights, moreover, were delightfully cool, and at no time was experienced that suffocating temperature so frequently prevailing in New York and Philadelphia during July and August; while the scrupulous sweeping and washing of all public thoroughfares, formerly so squalid, has served to banish offensive odors. Indeed the cleanliness of the streets, which reminded me of that of Paris under the empire, has proved contagious, so that floors and wainscots, finished invariably in marble, slate or tiles, were rubbed and polished in the various hospitals and institutions until they fairly shone.

In one of the smaller hotels, called Florida, in the Calle Obispo, originally occupied as a private palace, we found cool, clean apartments, good attendance and a most excellent cuisine.

For the meetings of the general sessions and of the sections ample provision was made in the great theatres, Tacón and Martí, the *aula magna* of the University and the lecture rooms of the adjacent Institute of Secondary Instruction. The total number of delegates amounted to about 400, and I heard some disappointment expressed at the rather meagre attendance of less than 80 physicians from the United States. One can safely predict, however, that at the fourth meeting of the congress, to be held in 1903, in the remote city of Buenos Aires, the representation from North America will be even smaller. The language generally employed was naturally Spanish. Indeed, as this is now the tongue of seventeen independent nations of the new world, with whom, as well as with our island colony, Puerto Rico, and the Philippines, we are steadily cultivating more intimate relations, a speaking knowledge of this idiom will soon be of importance to our people and especially to medical men.

An extremely favorable impression was made upon the visitors by the professional attainments and linguistic accomplishments of the Cuban physicians, many of whom, educated in European capitals, at New York or Philadelphia, would take a high rank in any country. The general sessions were presided over with dignity and tact by Dr. Santos Fernandez, an oculist of wide repute, and director of the histo-bacteriological laboratory inaugurated in 1887. The governor-general, Dr. Wood, who had held a reception at the Palace in the afternoon, spoke the opening words of welcome Monday evening, at the Tacón Theatre, and was unremitting, thereafter, in his attentions to the delegates.

At the time of the organization of this congress it was announced that its paramount function would be the study of those intertropical contagious diseases which menace the cities of the temperate zones. Of the many valuable papers on this topic none commanded more widespread

interest than the contribution to the etiology of yellow fever presented at the Section of General Medicine by Drs. Walter Reed, James Carroll, and Aristides Agramonte, assistant surgeons attached to the United States army of occupation. Their experimental demonstration that under strict quarantine, and with all other sources of infection absolutely excluded, 85.71% of all individuals bitten by purposely contaminated mosquitoes (*Culex fuscatus*) were infected, was received by their audience as conclusive and incontrovertible. As a result of these experiments, it is made evident that the specific virus is not directly transferred by the proboscis of these insects from one individual to another; on the contrary it seems to undergo a distinct cycle of development within the organism of the mosquito before the latter is capable of communicating infection, and the period necessary for this process of elaboration is put at not less than twelve days. It is believed, therefore, that the danger of contracting this disorder may be virtually avoided by enclosing one's bed with a wire screen, a contrivance which I observed had been adopted by Gen. Lee in his summer palace at Mariano.

Another series of experiments seemed to indicate that articles of clothing and bedding contaminated with the excreta of yellow fever are absolutely incapable of conveying the disease, and hence that the disinfection of such articles is no more necessary than of the fomites of malarial fever; a theory too startling to be accepted on the rather limited evidence offered in its support. It is interesting to recall that this view of the propagation of yellow fever by mosquitoes was maintained by Dr. Charles Finlay, of Havana, in a paper based on experimental data which he reported at a meeting of the Havana Academy of Sciences held in 1881. On motion of Dr. Eduardo Wilde, minister of the Argentine Republic to the United States, it was resolved to constitute a Pan-American commission for the scientific study of the methods of propagation of yellow fever wherever endemic, and for the purpose of suggesting concurrent action on the part of all interested nations in carrying into effect such uniform sanitary restrictions as may lead to the suppression and possible extinction of this pestilence. When once this disorder is placed under control in the few seaports which at present constitute the foci of infection, then this continuous source of danger to the cities of North America will cease and a most expensive burden incident to quarantine regulations, disinfection, etc., will have been lifted from our maritime commerce.

At the closing general session held Thursday evening in the Martí theatre, the only paper in English was that on sanitation and quarantine by Dr. Walter Wynan, Surgeon General of the United States Marine-Hospital Service.

On Friday, the 8th, about 300 delegates, with their wives or daughters, accepted an invitation from Señor Pelayo to spend the day on the sugar plantation "Rosario," situated near Aguacate, about forty-five miles from Havana. Arriving at this town we found the entire school population drawn up with flags and banners at the station to receive us. Conveyed thence by private railroad directly to the villa, we were there graciously welcomed by the ladies of the household. After inspecting the cutting of the sugar cane and the large plant where the extraction of its sap and final conversion into sugar were accomplished entirely by machinery, we were conducted to a vast grove. There beneath the shade of a great variety of palm, fruit and other tropical trees unknown to us even by name, we were served an elaborate dinner made up of native dishes and choice wines. The favorite course with the Cubans was *el lechón*, or roast sucking pig, which we also found most palatable. By the nephew of the proprietor I was told that no less than \$60,000 was paid to the contending parties during the recent rebellion to secure the preservation of this property from destruction by fire, a fate which brought ruin to most of the neighboring planters.

On the same evening a grand ball was given by the municipal authorities in the Tacón theatre, attended by 7,000 invited guests, representing the beauty, wealth and learning of the metropolis. Music was furnished by a

well trained orchestra and large military band, while in the adjacent *patio* were served in profusion ices, *dulces* and wines.

At the reception given on the evening of Saturday to a limited number of delegates by Dr. and Señora Ygnacio Plasencia y Lizaola we had the opportunity of inspecting the interior arrangement of a large private mansion, and were amazed at the elegance, luxury and artistic taste displayed in the extensive offices, operating room and library of this distinguished surgeon, all designed on a scale which elsewhere would be thought adequate for a public institution.

A final excursion made to the province of Matanzas enabled us to visit the caves of Bellamar and the famous Yumuri valley, where we were fairly overwhelmed with acts of courtesy by many of the Cuban teachers whose acquaintance we had chanced to make at Cambridge during the previous summer. A. H. N.

LITHOTOMY AND LITHOTRITY IN TURKEY-IN-ASIA.

MARDIN, TURKEY-IN-ASIA, January 18, 1901.

MR. EDITOR: In your issue of March 22, 1900, you kindly noticed the "247 cases of lithotomy," quoting from the *Missionary Herald*. You were kind to do me the honor. "Lithotomy" did not give its true meaning. I have since added *eleven* more to my number, and the way in which they are recorded is the way in which I have been dealing with the stone in recent years. I carried the name *lithotritry* where I leave the debris to be carried off by the weight of the urine. I find it very suitable in some cases. The lithotomy cases are small children, for whom a small enough lithotrite has not been found.

The last year of the century, as it crowded itself into these regions, found Mardin contending with smallpox and a severe type of measles, worse than had ever been seen or heard of in this city. Its victims were counted by the hundreds, and some say thousands. It certainly was a very virulent form of a disease that they had always been accustomed to look upon as they would a slight cold, that comes and goes while the patient would not lose a meal or a day from his play. But now, scarcely a family but what were called upon to part with one or more of their little ones, some families three or four. No such epidemic of measles has ever been known in these parts. The whooping cough came in as a tailboard to the two preceding scourges, taking not a few of those left over from smallpox and measles.

Then, during the latter months of the year, a severe epidemic of erysipelas spread through the city, extending to the near and distant villages, no class or age escaping. That, too, carried off some of the less robust cases, and as the century unwinds the last roll of its great spring, we find about the only thing remaining of importance—and that is minor—chicken pox.

Notwithstanding the above account of sickness, suffering and death, to a foreign mind it would seem strange that the work of the medical man should be less than when these epidemics did not exist. For smallpox and measles who would call a doctor? They would only be leached at. But towards the last, when so many were being taken, they began consulting the M.D., but only a few at that, so that on the whole I have a smaller number of cases to record than last year.

The work of the year has been heavy and tiresome, very few capital operations, but a large number of minor cases, requiring as much, or even more, attention than the capital cases. I often had 20 or more dressings a day to do for out patients, aside from the regular hospital cases, the dressings for the year amounting to over 5,500.

The same old story to repeat accounting for the decline in the medical and surgical work of the year—*poverty*, which becomes year by year more acute. A number of capital surgical cases were turned away because they could not

pay the amount asked of them for their stay in the hospital, so they went their way sorrowing at their fate, while we too sorrowed because of our inability to take them in.

Very truly yours,

D. M. B. THOM, M.D.

SHOULD A HOSPITAL CHARGE FOR INFORMATION ABOUT PATIENTS?

BOSTON, February 23, 1901.

MR. EDITOR:—On February 11, 1901, a patient of mine was admitted to the Massachusetts General Hospital. I had attended him about two days previous to his admission and had made a diagnosis of ruptured urethra and extravasation of urine. This diagnosis was concurred in by another physician who saw the case with me. Yet on account of the absence of retention of urine, the peculiar character of the swelling and the absence of other typical symptoms, the diagnosis was not beyond peradventure.

Four days following admission, I requested, by letter, of the superintendent the diagnosis made and operation performed. I received an answer confirming the diagnosis made before entrance, with a statement of the operation performed. Two days later I received a bill for "searching and copying record, \$1.00."

Now, Mr. Editor, I consider this preposterous. A hospital of the character of this hospital, that has been generously aided by the State and generously endowed by public-spirited citizens, is not strictly a private institution. The State and citizens endowed this hospital primarily for the aid of the needy sick, and secondarily to educate students and physicians. It would seem a matter of common courtesy and in furtherance of one of its objects to supply this slight information when requested by the attending physician. I should even go further and say that the attending physician should be notified of any intended operation on his case and invited to be present.

It is not the amount to which I object, but the principle. In view of the enormous advantages granted to the favored few composing the staff, it would seem that this privilege to the practising physician is infinitesimal.

I am pleased to add that the City Hospital has cheerfully and freely furnished such information for which its aristocratic and autocratic neighbor begs pay.

Very truly yours,

W. H. E.

NOTES ON X-LIGHT.

BOSTON, February 23, 1901.

MR. EDITOR:—The only answer I desire to make to Dr. Codman's criticism of my previous communication¹ is embodied in the following statement:

A pregnant guinea pig was placed in a closed metallic chamber hung by silk cords within a closed metallic chamber connected with the ground. This is the same arrangement for excluding electricity as a factor in the results which was used in the other experiments. The source of x-light was outside. Exposure to x-light killed the fetus. I limit the statement of these experiments to one guinea pig, and publish this note because pregnant women are being exposed to x-light to determine the size of the pelvis or to examine the condition of the fetus. I may add that I have known of a woman who aborted after exposure to x-light. What people fear is uncertainty; therefore, when a new agent is employed in medicine it is important to determine its power by experiment on animals. When we know the worst and can control the agent, we need not fear that patients will object to its use. Nothing is gained by criticizing such experiments, for criticism is sterile, while experiment is fertile. An experiment can only be discredited by another experiment.

Very truly yours,

WILLIAM ROLLINS.

¹ Journal, February 21st, p. 197.

METEOROLOGICAL RECORD

For the week ending February 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer. Daily mean.	Thermometer. Daily mean. Maximum. Minimum.	Relative humidity. 8.00 A. M. 8.00 P. M.	Direction of wind. Daily mean. 8.00 A. M. 8.00 P. M.	Velocity of wind. 8.00 A. M. 8.00 P. M.	Wet'th'r. 8.00 A. M. 8.00 P. M. ° F. M.	Rainfall in inches.
S...10	29.89	22 28 16	53 37	45 N.W.	N.W.	15 18	C. C.
M...11	29.69	24 33 13	56 39	40 N.W.	N.W.	10 13	C. C.
T...12	29.72	25 30 20	86 45	66 W.	N.W.	8 30	C. C.
W...13	29.43	16 22 11	48 53	50 N.W.	N.W.	27 18	C. C.
Th...14	29.34	16 22 11	61 54	58 N.W.	N.W.	25 20	C. C.
F...15	29.41	22 32 13	68 63	66 W.	N.W.	12 13	C. C.
S...16	29.57	34 41 26	65 64	64 N.W.	W.	10 13	C. C.
☞	29.64	30 16	56				

* O, cloudy; C, clear; F, fair; G, fog; H, haze; S, smoky; R, rain; T, thunder; M, snow. † Induces trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, FEBRUARY 16, 1901.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1389	417	25.19	13.53	1.72	.79	3.59
Chicago	1,698,575	572	109	20.92	20.54	1.92	1.34	3.26
Philadelphia	1,232,607	575	238	41.19	17.73	1.11	1.11	2.06
St. Louis	575,238	242	70	12.39	30.57	—	—	—
Baltimore	508,957	242	70	12.39	30.57	—	—	—
Cleveland	381,768	104	27	26.97	—	—	—	—
Buffalo	321,937	128	41	25.00	26.79	—	5.42	2.33
Cincinnati	325,902	128	41	25.00	26.79	—	5.42	2.33
Pittsburg	321,616	128	41	25.00	26.79	—	5.42	2.33
Washington	278,718	128	41	25.00	26.79	—	5.42	2.33
Milwaukee	235,315	128	41	25.00	26.79	—	5.42	2.33
Providence	175,597	73	12	20.05	32.87	—	—	1.37
Boston	560,892	243	69	23.04	30.16	4.11	.82	3.29
Worcester	118,421	65	14	12.72	21.81	.18	—	—
Fall River	104,863	53	16	27.27	12.12	—	—	—
Lowell	94,869	45	4	8.88	33.33	—	2.22	2.22
Cambridge	91,886	27	9	22.22	40.70	—	—	7.40
Lynn	68,513	27	9	22.22	40.70	—	—	7.40
Lawrence	62,559	27	9	22.22	40.70	—	—	7.40
New Bedford	62,442	29	13	34.48	27.58	—	4.34	4.34
Springfield	62,069	25	5	12.00	32.00	—	—	—
Somerville	61,643	20	6	25.00	25.00	—	5.00	—
Holyoke	45,712	20	10	30.00	25.00	—	—	15.00
Brookton	40,063	13	1	38.46	—	—	—	—
Haverhill	37,175	28	4	14.28	10.71	—	—	—
Salem	35,656	12	1	16.67	—	—	—	—
Chelsea	34,072	11	—	—	—	—	—	9.09
Malden	33,664	10	2	20.00	33.33	—	—	—
Newton	33,587	14	1	50.00	—	—	—	7.14
Fitchburg	31,531	17	2	47.05	—	—	—	5.88
Taunton	31,036	9	3	22.22	—	—	—	—
Gloicester	26,121	2	1	50.00	—	—	—	—
Everett	24,336	6	3	33.33	16.67	—	—	—
North Adams	24,200	15	2	33.33	—	—	—	—
Quincy	23,899	10	5	70.00	—	—	—	30.00
Waltham	23,481	7	1	14.28	28.56	14.28	14.28	—
Pittsfield	21,766	1	1	100.00	—	—	—	—
Brookline	19,935	1	1	100.00	—	—	—	—
Chicopee	19,167	7	3	14.28	14.28	—	—	14.28
Medford	18,244	7	3	33.33	—	—	—	—
Newburyport	14,478	5	—	—	20.00	—	—	—
Melrose	12,962	5	—	—	—	—	—	—

Deaths reported 3,054; under five years of age 836; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 680, acute lung diseases 435, consumption 400, diphtheria and croup 92, diarrheal diseases 63, scarlet fever 46, influenza 14, typhoid fever 24, whooping cough 13, measles 8, cerebrospinal meningitis 6.

From whooping cough New York 1, Philadelphia 3, Boston and Somerville 2 each, Baltimore and Quincy 1 each. From cerebrospinal meningitis Worcester and Everett 2 each, Boston and Fitchburg 1 each. From scarlet fever New York 24, Philadelphia and Boston 10 each, Worcester and Medford 1 each.

From typhoid fever New York 11, Philadelphia and Pittsburg 7 each, Boston 2, Lowell, Lawrence, Somerville and Waltham 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,000, for the week ending February 24, the death rate was 16.4. Deaths reported: 5,707; acute diseases of the respiratory organs (London) 323, whooping cough 104, diphtheria 69, measles 56, fever 33, diarrhoea 30, scarlet fever 30.

The death rates ranged from 10.0 in Burnley to 26.4 in Norwich; Birkhead 13.1, Birmingham 15.5, Blackburn 13.9, Bolton 14.1, Bradford 17.2, Brighton 15.4, Bristol 15.8, Cardiff 11.8, Croydon 12.4, Derby 11.9, Gateshead 24.1, Halifax 19.5, Hull 13.1, Leeds 16.4, Leicester 10.2, Liverpool 21.9, London 16.1, Manchester 19.6, Nottingham 17.0, Plymouth 17.6, Portsmouth 16.2, Sheffield 16.5, Swansea 18.5, Wolverhampton 19.6.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 23, 1901.

R. C. HOLCOMBE, assistant surgeon, detached from the "Glacier," and to duty with detachment of marines at Pollock, P. I.

J. W. ROSS, surgeon, retired, by Special Order, Department of Cuba, February 15, 1901, to report to the chief sanitary officer, City of Havana, for duty.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the society will be held in Sprague Hall, Medical Library Building, 8 The Fenway, on Monday, March 4th, at 8.15 P. M.

Papers: Dr. Fred B. Lund will read a paper entitled, "The Surgical Treatment of Gastric Ulcer, with Report of Cases." Dr. Arthur T. Cabot, "Idiopathic Abscess of the Kidney."

The committee appointed to consider the formation of an Academy of Medicine will report.

ARTHUR K. STONE, M.D., Secretary, 657 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section will meet at the Medical Library, 8 The Fenway, on Wednesday evening, March 6, 1901, at 8.15 o'clock.

Paper: "Diagnosis and Treatment of Renal Tuberculosis," by Dr. F. Tilden Brown. Discussion by Drs. F. C. Shattuck, A. T. Cabot, Alfred Worcester and Paul Thorndike.

P. G. BALCH, M.D., Secretary, 279 Clarendon Street.

LECTURES AT NEW YORK SKIN AND CANCER HOSPITAL.

A series of nine clinical lectures on "Syphilis" will be given at the New York Skin and Cancer Hospital successive Wednesdays, beginning March 6th, by members of the visiting and consulting staffs.

SARATOGA SPRINGS AS A MEDICAL MEETING PLACE IN 1902.

We have received a communication from a correspondent in Saratoga Springs, N. Y., suggesting the city as a most suitable place for the meeting of the American Medical Association in 1902.

RECENT DEATHS.

SENECA TORIAS HYDE, M.D., M.M.S.S., of Dorchester, died at Hamilton, Bermuda, February 17, 1901, aged sixty years.

H. B. POTTER, M.D., of Lafargeville, Jefferson County, one of the most prominent physicians of Northern New York, died suddenly on February 17th, at the age of sixty-one.

BOOKS AND PAMPHLETS RECEIVED.

Drug Standardization Again. Reprint. 1901.

British Medical Association, Report of the Anesthetics Committee. July, 1900.

Boston Floating Hospital, History and Report, Season of 1900, January, 1901.

Inguinal Hernia. By B. Merrill Ricketts, Ph.B., M.D., Cincinnati. Reprint. 1901.

Twenty-third Annual Report of the Board of Health of the City of Lowell for the Year 1900.

A Case of Paroxysmal Hemoglobinuria. By William Judson Lamson, M.D., New York. Reprint. 1901.

Appendicitis. Ventral Hernia following Abdominal Section. By B. Brindley Eads, M.D., Chicago. Reprints. 1901.

Some Remarks on the Plantar Reflex, with Especial Reference to the Babinski Phenomenon. By J. T. Eskridge, M.D., Denver, Col. Reprint. 1901.

Cyclic Albuminuria. By G. A. Sutherland, M.D., Physician to Paddington Green Children's Hospital, etc. London: The Medical Publishing Co., Ltd. 1900.

An Introduction to Physiology. By William Townsend Porter, M.D., Associate Professor of Physiology in the Harvard Medical School. Cambridge, Mass.: The University Press. 1901.

The Syphilis of Children in Everyday Practice. By George Carpenter, M.D. (London). Physician to the Evelina Hospital for Sick Children, London. New York: William Wood & Co. 1901.

Medico-Chirurgical Translations. Published by the Royal Medical and Chirurgical Society of London. Vol. LXXXIII. (Second Series, Vol. LXV.) London: Longmans, Green & Co. 1900.

Lupus Healed with Roentgen Rays; Report of a Case. The Treatment of Epitheliomas of the Skin, with Report of Cases. By William Allen Pusey, A.M., M.D., Chicago. Reprints. 1900-1901.

Fifth Annual Report of the Board of Managers of the Springfield State Hospital of the State of Maryland, Sykesville, Md., to His Excellency the Governor of Maryland. October 1, 1900. Baltimore. 1901.

The History of Ancient Gynecology. By W. J. Stewart McKee, M.B., M.Ch., B.Sc., Senior Surgeon to the Beconolent Asylum Maternity Hospital, Sydney, etc. New York: William Wood & Co. 1901.

Charaka-Samhita. (Translated into English). Published by Avinash Chandra Kavira na, Editor of Charaka-Samhita and of Susruta-Samhita (in original), with commentaries, etc. Calcutta: Saniei & Sons.

Diseases of the Anus and Rectum. By D. H. Goodsall, F.R.C.S. (Eng.), and W. Ernest Miles, F.R.C.S. (Eng.). In two parts. Illustrated. Part I. New York and Bombay: Longmans, Green & Co. 1900.

Studies in Human and Comparative Pathology. By Woods Hutchinson, A.M., M.D., Professor of Comparative Pathology and Embryology in the University of Buffalo, etc. Edited by Dr. Edward Blake. London: Henry J. Glaisier. 1901.

On Some Cirrhoses of the Liver. Being the Lumenian Lectures for the Year 1900, delivered before the Royal College of Physicians, London. By Walter Butler Cheadle, M.A., M.D. (Cantab.) Illustrated. London: Smith, Elder & Co. 1900.

Operative and Practical Surgery for the Use of Students and Practitioners. By Thomas Carwardine, M.S. (Lond.), F.R.C.S., Assistant Surgeon, Bristol Royal Infirmary. Illustrated. Bristol: John Wright & Co. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. 1900.

The Essentials of Practical Bacteriology: An Elementary Laboratory Book for Students and Practitioners. By H. J. Curtis, B.S., and M.B. (Lond.), F.R.C.S., late Surgical Registrar, University College Hospital, London, etc. New York and Bombay: Longmans, Green & Co. 1900.

On the Use of Massage and Early Passive Movements in Recent Fractures and other Common Surgical Injuries, and the Treatment of Internal Derangements of the Knee Joint. Three Clinical Lectures delivered at St. George's Hospital. By William H. Bennett, F.R.C.S. Illustrated. Reprint. 1900.

The Present Position of the Treatment of Simple Fractures of the Limbs. An Address delivered in opening a discussion at the meeting of the British Medical Association, held at Ipswich, 1900. By William H. Bennett, F.R.C.S. To which is appended a Summary of the Opinions and Practice of about 300 Surgeons. Reprint. 1900.

An American Textbook of Physiology. By Henry P. Bowditch, M.D., John G. Curtis, M.D., Henry H. Donaldson, Ph.D., W. H. Howell, Ph.D., M.D., Frederic S. Lee, Ph.D., Warren P. Lombard, M.D., Graham Lusk, Ph.D., F.R.S. (Edin.), W. T. Porter, M.D., Edward F. Reichert, M.D., Henry Sewall, Ph.D., M.D. Edited by William H. Howell, Ph.D., M.D., Professor of Physiology in Johns Hopkins University, Baltimore. Second edition, revised. Vol. II. Muscle and Nerve; Central Nervous System; The Special Senses; Special Muscular Mechanisms; Reproduction. Philadelphia and London: W. B. Saunders & Co. 1901.

International Clinics: A Quarterly of Clinical Lectures and especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, etc. By leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A.M., M.D., Philadelphia, U.S.A. With the collaboration of John W. Murphy, M.D., Chicago; H. C. Wood, M.D., Philadelphia; Thomas G. Norton, M.D., Philadelphia; F. M. Roehl, M.D., Boston; J. W. Ballantyne, M.D., Edinburgh; Alexander D. Blackader, M.D., Montreal; E. Landolt, M.D., Paris; Charles H. Reed, M.D., Philadelphia, and John Harold, M.D., London. With regular correspondents in Montreal, London, Paris, Leipzig and Vienna. Vol. IV. Tenth Series. 1901. Philadelphia: J. B. Lippincott Co. 1901.

Original Articles.

CLINICAL NOTES AND COMMENTS: CANCER OF THE EXTREMITY OF THE COMMON BILE DUCT.

BY ROBERT T. EDEN, M.D., BOSTON.

CASES of disease observed in the early anatomical stage, when few if any secondary lesions have developed, are the more instructive clinically and pathologically, as they are less impressive from their magnitude or intensity. This condition may be met with where a small initial lesion is so situated that a slight increase in bulk seriously interferes with some important function, and the consequences are as clear cut and decisive as in a laboratory experiment. In the following case the results cannot have been widely different from what would have come from an antiseptic ligature placed around the common bile duct.

A single woman, aged forty-eight, neither excessively stout nor the reverse, had enjoyed good health up to June, 1898. The appetite and digestion had been excellent. Repeated inquiries failed to disclose anything like attacks of gall stone. She had been in the country riding a bicycle and enjoying herself. One day she came home saying she was very tired and was going to bed. Within a day or two there was a loss of appetite, intense jaundice, and light-colored stools. Neither then nor at any other time was there any severe pain or tenderness on pressure. This condition lasted essentially unchanged until her death. In September there was some swelling of the legs, which later disappeared.

In February she had lost, say, 30 pounds of flesh, and was of a deep yellow color. The abdomen was much distended, and evidently contained considerable fluid. The liver was not to be felt below the edge of the ribs, nor could its dullness be detected there. Neither could the spleen be felt. The urine was scanty, although it had been increased somewhat after taking diuretics. The bowels were somewhat loose from the action of mild salines. The appetite was moderate but not absent, and so far, at least, as the absence of discomfort went, the patient enjoyed and apparently digested her food. The blood showed the red corpuscles a little less than 4,000,000, with the whites in normal proportion and normally distributed. There was no material change under any of the medications employed, including those of a clairvoyant, except that from the beginning of the ministrations of the latter the stools were described as becoming green and then black. That which I saw at this time was of a slaty grey, without any tinge of biliary color, and could have been described as green only under psychic stimulus. With nitric acid it yielded a reddish-yellow fluid, which in its turn gave a bluish precipitate with ferrocyanide of potassium, and was undoubtedly due to iron. The diagnosis received no light from supernatural sources. The pulse was usually in the neighborhood of 100, and the temperature at times a trifle above normal,

although it was not regularly taken and charted. There was nothing in the least resembling a biliary fever. The tongue was nearly clean and the breath not offensive.

On April 24th she was tapped, and about 12 quarts of serum removed, which contained a large amount of albumin (2.5% dry), and gave a strong reaction for biliary coloring matter. The legs were a good deal swelled. She had "distressed spells." There had been several times specks and streaks of blood in the stools and sputa, and also some epistaxis, but never any severe hemorrhage. After this first tapping it was noted that palpation through the relaxed abdominal walls revealed nothing, but after the second, sixteen days later, there was to be plainly felt below the ribs what was supposed to be (and was) the liver, with the rounded end of the gall bladder below it. The projection of the liver increased somewhat, and after successive tapplings its edge could be grasped through the relaxed abdominal wall by the hand for quite a distance without pain, and almost without the notice of the patient. There were in all eighteen tapplings, about 12 or 14 quarts being drawn each time, the intervals gradually decreasing.

In September, the patient was seen by Dr. Arthur Cabot, with a view to the (very remote) possibility of painless impaction of a gall stone, and an operation was decided against.

Death occurred on October 15th, after nearly a week of diminishing consciousness and, at the last, convulsions, that is, sixteen months after the first symptoms.

The urine throughout was very deeply colored with bile, of high specific gravity, containing either no albumin or a mere trace, with a few casts, hyaline and epithelial. There was at one time a deposit of rather unusual crystals, consisting, as I was informed by Dr. Wood, of phosphate of calcium. Its quantity used gradually to diminish until a tapping, when for a number of days it was more abundant.

Autopsy took place twenty hours after death. Body was extremely emaciated. A pailful of fluid was found in the abdominal cavity. There were no adhesions in the neighborhood of the punctures, but a few slight ones between the liver, spleen and diaphragm. The omentum was much emaciated. A few flocculi of recent lymph were on coils of intestines and abdominal walls. Kidneys were normal. Spleen was a little larger than the average, but not soft.

There was nothing abnormal in the external appearance of the stomach or intestines. The gall bladder was enlarged, containing many gall stones, pearly white, angular, with colored tips. The interior was yellowish brown in the centre, growing gradually lighter toward the outside. They were largely cholesterol. The fluid contents were greyish and viscid. The lower part of the gall bladder was adherent to the neighboring liver substance, and could not be separated from it except by cutting. The cystic duct was not followed down to the junction. The biliary passages were enormously dilated within the liver, and also the

hepatic and common ducts, down to a point 2 inches from the duodenum where there was an abrupt narrowing. Below this point there was some dilatation but much less extreme. At the point of narrowing there was a small rounded tumor, the size of a medium bean, in or closely attached to the wall of the gall bladder between it and the hepatic duct, and pressing upon the latter. Further down there were some dense portions of tissue seeming on section much like cicatricial. The substance of the liver after the emptying of the ducts was flabby, and very dark-greenish brown. Its firm rounded feeling during life was evidently due to its distension by bile in the dilated ducts. The duct and substance of the pancreas were healthy.

The specimen was given to Dr. R. M. Pearce, at that time of the Harvard Medical School, for microscopic examination. He reported that there was a carcinoma of the papilla at the orifice of the common duct, and a lymph node in the immediate neighborhood. The cancer was very slight in amount, and might easily have been overlooked or mistaken without the microscope. In fact, the primary growth was overlooked at the autopsy and the lymph node supposed to be the primary. The whole amount of tissue involved was hardly as much as the last joint of one's finger.

Although this location of cancer is stated by many monographists to be very rare, a number of cases have been collected from the more easily accessible medical literature, periodicals, and especially from inaugural theses.

There is but little doubt, however, that cancer of the bile ducts is in reality somewhat more common than would appear from the older statements, and that many cases which would have been described as "obstruction" even so lately as fifteen or twenty years ago, have been brought by more careful microscopic methods under the head of carcinoma. This is rather interestingly shown by a comparison of titles in the earlier and later series of the "Index Catalogue" of the Surgeon-General's Library.

TITLES.	1ST SERIES, UP TO 1881.	2d SERIES, 1881 TO 1897.
Bile ducts, obstruction and dilatation of.	7 dissertations, 2½ column references.	6 dissertations, 1 column references.
Bile ducts, cancer of.	1 dissertation, 1 column references.	7 dissertations, 1½ column references.

In a case which I saw some sixteen years ago, a man aged seventy-six, of simple habits but (supposed) gouty diathesis, had jaundice for forty-five days, with very dark urine and clay-colored stools. The liver and gall bladder were felt below the ribs. My diagnosis was, "probably cancer of the liver with a possibility of simple jaundice (that is catarrhal)."

At the autopsy the bile ducts were all enlarged down to a point about ½ inch from the opening into the duodenum, where there was a sudden narrowing, and the duct was very small for the remainder of its course. In the neighborhood of

the stricture the tissues, adipose and fatty, were somewhat consolidated and nodulated. There was no distinct new growth, either here or in the liver. There is no record of a microscopical examination, but it is quite as likely that this was an unrecognized cancer as that it was a piece of cicatricial tissue, for the existence of which no cause could be found. Cicatricial stenoses have been found in other cases, but usually with them an indication of the causative lesion in the form of an old ulcer.

There are three points at which the bile ducts are especially liable to be affected by cancer, although it may occur in the intervals between them. These are the union of the ducts from the two lobes of the liver, the union of the cystic and hepatic ducts, and the entrance of the hepatic duct into the duodenum. Of cases in which the lesion has been found in the last-named region, that is, at the papilla or a very short distance above it, I have looked up 22, including a number also given in Musser's table.

As to the frequency of cancer in the ducts and of the papilla in particular, the following figures may be of interest. Musser gives 18 cases, of which 9 were in or near the papilla, as against 100 of the gall bladder. In Villard's monograph (1871) are collected 24 cases of cancer of the ducts, of which 1 may have been in this position. Dieckmann¹ says that in the reports of the Munich Pathological Institute, from 1854 to 1884, he finds only 1 case of gall bladder cancer recognized as primary, but 71 of cancer of the liver. Howald² says that in the last fifteen years, at the Pathological Institute at Bern, there were 10 cases of primary gall bladder cancer. As both of these last theses were upon "cancer of the common duct," it is fair to suppose that if the authors had found accounts of any cases beside those upon which they based their theses they would have been reported. Kelynaek (1897), after the remark that primary malignant disease of the bile passages "although far from common, can hardly be considered rare," states that, "in an extensive search through our pathological records (Manchester Royal Infirmary) of 4,578 cases, I can only find details of 8 clear cases of primary cancer of the gall bladder and 2 undoubted cases of primary cancer of the common bile duct."

The presence of gall stones in connection with primary cancer of the bile ducts and gall bladder is very interesting, in connection both with diagnosis and etiology, and as having a bearing on the origin of cancer in general. Considering the great frequency of gall stones, it is certainly fair to assume that in a certain number of cases their occurrence with cancer is a coincidence. In others, of which the one just reported is one, the deposition of the concretion is much more probably the result of the retention in the gall bladder of what is at first bile, but afterwards becomes considerably altered by a partial absorption and the secretion of mucus.

In this case the stones were small and angular,

¹ Inaug., Thesda, Munich, 1880.

² Inaug., Diss., Bern, 1890.

without being faceted, as if they had never been disturbed or subjected to friction. Their color in the interior was dark brown, with thin successive layers of lighter yellow, and externally a pearly white, as if they had been deposited from a menstruum, at first dark, becoming lighter, and at last white, like the fluid in which they were found. This undoubtedly took place after the duct was occluded, the bile originally contained therein having undergone the usual changes. Had they been the cause of the cancer and the stoppage, there was no reason why they should not have been throughout of the usual dark color. There was no stone in the common duct nor in the immediate neighborhood of the new growth.

The theory of the origin of cancer in a local irritation certainly receives support from many cases where gall stones are found in the midst of malignant growths, where they may have been the source of that long-continued but not very intense mechanical irritation, which seems, if any, to be the kind necessary to the formation of a neoplasm. This, however, is far more common in the gall bladder than in the bile ducts. Thus Musser, in 100 cases of cancer of the gall bladder, found stone mentioned 69 times and supposes that it may have been overlooked in many more. On the contrary, in 22 cases mentioned above of cancer of the papilla, or a very little above it, including some of those already tabulated by Musser, gall stones are mentioned 4 times, 3 at least of these being in the gall bladder. The possibility has been suggested that a stone may find a lodgment long enough to set up the necessary irritation, and then escape, without leaving behind definite traces. One case of Leith³ lends some support to this view. A patient had definite symptoms of gall stones. None were found at the autopsy, but there was a malignant adenoma, and the walls of the duct were roughened and thickened as if from catarrhal inflammation resulting therefrom. Quinlan (quoted by Kelynaek) mentions a case of cancerous disease of the liver where the duct was imbedded in a mass of malignant growth, but its opening into the duodenum was four times the normal size, and suggested the likelihood of passing of gall stones.

To suppose, however, that this is an adequate explanation of the origin of cancer in the papilla or higher up, in any considerable number of cases, is working a mere hypothesis very hard in the face of a large number of cases, in fact in nearly all, where there have been no symptoms whatever of the presence or the passage of gall stone.

The further assumption of a painless passage to cover this gap involves the contradiction of an almost universal rule that the movement of a gall stone through a previously undilated duct is one of the most painful processes which ever takes place in the body. The records of the Dorchester Medical Club mention 2 cases where, death having apparently taken place from the pain and shock, a gall stone was found protruding from the papilla into the duodenum, that is, at the very point where this theory demands that they should escape with-

out pain, but leaving behind them a neoplasm. The observation of Musser that, unlike cancer of the gall bladder which, as well as gall stones, is more frequent in the female, that of the bile ducts occurs with equal frequency in both sexes, also points to the conclusion that while it is very probable that gall stones play an important part in the etiology of cancer of the gall bladder we must look elsewhere for the local irritation necessary to set up a similar growth in the ducts.

The diagnosis of these small neoplasms, lying as they do in a region where they are inaccessible to palpation, is stated by some authors to be almost impossible. This is undoubtedly true as regards their exact size and location, but an approximate diagnosis, such as can in many cases be made with some accuracy, is not without its practical value. I think that every one of the several physicians who saw this case, even in the early stage, formed at least a mental diagnosis not far from the truth as regards the nature of the disease, but I think also that all of them, including myself, would have expected a more extensive lesion to be found at the autopsy after more than a year's growth.

A rapid, complete, non-febrile jaundice in a person over forty or forty-five, preceded and accompanied by no severe and painful paroxysms, and succeeded, if by any, only by a moderate amount of diffuse pain and tenderness, especially after it has lasted long enough to exclude catarrhal jaundice, is an adequate basis for a highly probable diagnosis of cancer of the ducts; and if later the smooth non-nodular edge of the liver, with the gall bladder tense but not tender, presents below the ribs, it is also highly probable that the lesion of the ducts was the primary.

Unfortunately the presence of painful paroxysms is not so decisive in one direction as their complete absence is in the other, for even if significant of gall stones this does not exclude carcinoma.

The distinction between a growth originating in the walls of the duct itself and a small malignant or other tumor in the head of the pancreas pressing upon it, and producing total occlusion there before giving rise to symptoms elsewhere, would certainly be very difficult to make. When the pancreatic disease is more advanced, many of the symptoms are likely to resemble those arising from the bile ducts. The presence of such a tumor must be an extremely rare condition, much more so even than any we have been considering, and when the disease is more advanced the deep seated pain and tenderness, the gradual onset of the jaundice, a hard immovable tumor in the median line, would be likely in most cases to decide the matter. The presence of fatty stools would of course have great diagnostic value, but as this is usually insisted on rather from physiological theory than from clinical observation, its absence throws no light upon a doubtful case, and the same may be said of sugar in the urine.

Of course the important point is to determine as early as possible the exact location of the growth, and this certainly cannot be done without an operation. This has, of course, often been done and

³ Transactions Medical Chirurgical Society, Edinburgh, 1895-96.

successfully for the diagnosis and relief of gall stone.

Musser in his last case⁴ had in contemplation an operation for cancer which was for special reasons postponed a few days, during which the patient was suddenly attacked by a fatal hemorrhage. Had this operation been performed it would have been the first to be based upon a distinct diagnosis of cancer of the biliary ducts. It can hardly be doubted that in the future exploratory operations will be undertaken with the object distinctly in view of dealing with a cancer, if such shall be found, either by removal or by circumventing the obstruction in such a way as to give a more or less extended relief.

So far as I am aware the only operation as yet done for the removal of a cancer of a bile duct was that reported by Dr. Halsted,⁵ and doubtless familiar to readers. Although not successful as to its ultimate result, it shows the feasibility of such an operation, and the return of the disease after the very careful removal only emphasises the fact, already only too well known, that it is almost impossible to cut wide enough of any focus of cancer to be sure of having included the utmost limits of the infected region.

At the time when the question of operation was formally considered in the present case, it certainly could not have been successful, but had it been possible a year before to have known exactly the condition, it might perhaps have been feasible as in Dr. Halsted's case, and either relief or permanent cure obtained according to the presence or absence of cells of carcinoma beyond the limits of the operation. Considering, however, what must have been the very slow growth, when even after sixteen months the primary and secondary growths together were so small, and yet, as it seems, so far beyond the bounds of a possible thorough removal, it is by no means improbable that even when the first symptoms appeared there must have been a wider diffusion of the new growth than would have been apparent or accessible to the knife.

This case exhibits without any complication the effects of suppression of the bile flow, and does not show the effects usually attributed to its reabsorption, which so far as coloring matter is concerned evidently took place freely. It is to be regretted that no examination of the urine for bile acids was made. I have not found any statement of such an examination having been made in any of the cases closely resembling this. There was not the slow pulse supposed to follow the ingestion of cholic acid, it having been usually not far from 100. There was no delirium until the last few days, no disturbance of the intellect nor excessive depression. It would appear from this and similar cases that the evil effects of long-continued obstruction to the flow of bile are due not so much to its presence in the circulation, as to its absence from the intestine and a consequent steady and fatal impairment of nutrition. Hence

the inutility, so far as promoting recovery, of tapping the gall bladder and establishing a fistula, although such a procedure would in cases where the cystic duct remains permeable, remove the effects of reabsorption such as the liability to hemorrhage and to sepsis, which is likely to take place if any ulceration occurs.

In case the only obstruction should be situated near the mouth of the duct, the cholecystenterostomy suggested by Mr. Robson would relieve both sets of symptoms until the growth of the neoplasm made another invasion higher up, and in the case of a very slow growth, such as there may be, such a temporary relief might add a considerable time to life.

An operation for establishing an anastomosis between the common bile duct and the duodenum is reported by Dr. J. E. Summers, Jr., of Omaha,⁶ but without details as to the anatomical condition before operating, especially the nature of the stricture. He speaks as if the getting rid of the bile were the chief object in making the communication, and as if it were to be undertaken only when the discharge cannot be secured through the gall bladder. The supply of this digestive fluid in the intestines, which cannot be supplemented by any other, is of equal importance, and more details as to this case would certainly be very interesting.

The bibliography of the subject may be found largely in the "Index Catalogue" of the Surgeon-General's library, but it is useful to call attention to four important articles not to be found there. The elaborate study by Dr. Musser in the *Transactions of the Association of American Physicians* for 1891 is not there, probably for the reason that it is to be indexed under the title "Gall Bladder," although it is equally complete on the subject now under consideration. There is a subsequent paper of his in the *Philadelphia Medical Journal* for October 6th of last year. The largely statistical article by Kelynaek is to be found in the *Medical Chronicle* (Manchester), and is a very important one. Fourthly, come the article and book (1897) of Mr. Robson on the "Surgery of the Biliary Passages."

THE INTERPRETATION OF BACTERIOLOGICAL FINDINGS IN DIPHTHERIA DIAGNOSIS.

By EDWARD WINSLOW HILL, M.D., BOSTON,
Director of the Boston Board of Health Bacteriological Laboratory.

IN May, 1898, the examination of diphtheria cultures for the city of Boston was transferred from the Harvard Medical School to the laboratory then just established by the Board of Health in the Sudbury Building. For about three years prior to that date this work had been under the direction of Prof. H. C. Ernst. On him fell the trials and difficulties always inseparable from the introduction of new methods and procedures. Having successfully met and conquered these, he

⁴ University Medical Magazine, September, 1899.

⁵ Boston Medical and Surgical Journal, vol. cxli, No. 26, vol. 2, 1896, p. 615.

⁶ Journal American Medical Association, December 1, 1900, p. 1103.

⁷ British Medical Journal, April 28, 1894. *Lancet*, May 27, 1897.

banded the work over at a time when its value was established, and it had become a recognized factor in the always difficult subject of the management of diphtheria cases.

Only two changes of any moment were made in the diphtheria diagnostic service; one technical (the substitution of the now almost universal "swab" for the platinum wire), the other executive (the requiring of two consecutive negative cultures for release instead of one). In May, 1900, a further executive change was made in requiring that each of the two consecutive negative cultures for release should be taken from both the nose and throat of the convalescent patient.

SUMMARY OF EXAMINATIONS.

The official year ends January 31; therefore, the diphtheria work of this laboratory since May, 1898, may be conveniently divided into three periods: the first representing nine months of 1898-1899, the second and third periods corresponding with the two following years to January 31, 1901. The following table shows the main features of the work:

Year	CULTURES EXAMINED.				PERSONS EXAMINED.				Diph. cases in city*
	Month av.	For D.	For R.	Total	Month av.	Pos. D.	Neg. D.	Total	
	1	2	3	4	5	6	7	8	
1898 9 mos. actual	440	1,544	2,404	3,948	190	321	1,148	415	
est. 1898	440	2,000	3,200	5,300	190	400	1,500	550	1,661
actual 1899	600	4,408	3,502	7,930	380	1,019	2,920	1,002	2,836
approx. 1900	1,560	8,000	10,800	18,800	700	2,100	5,600	2,000	5,020

* Cases reported.

It will be seen (column 9) that the number of diphtheria cases reported in the city increased about 75% each year over that of the year before during this time. The monthly average of persons examined (column 5), naturally increased also. Some of these examinations were compulsory, that is, due to the regulation of the Board requiring cultures for release from persons convalescent from diphtheria. The examinations made for diagnosis are wholly voluntary however, and it is satisfactory to see that the number of persons thus examined (columns 6 and 7) have increased at the rate of about 90% to 100% each year.

The most satisfactory increase is that shown by comparison of the total diphtheria cases reported (column 9) with the total positive cases examined for diagnosis at the laboratory (column 6). It will be seen that in 1898, the positive laboratory diagnoses were but 25% of the total cases reported; in 1899, they were about 35% of the total cases reported, and in 1900 about 42%, holding out the hope that the majority of the cases reported in the future as diphtheria will pass through the laboratory for examination.

Comparison of column 8 with column 9 shows that from 33% to 40% only of the total cases reported are released by this laboratory. The remaining cases are accounted for by the large number of "removals to hospital" (50 to 60% of the total cases) and by deaths.

INTERPRETATION OF RESULTS.

The meaning of a positive report.—When a physician receives a positive report on a culture sent in from a doubtful case he is sometimes puzzled to know exactly what diagnosis to base upon it, and is sometimes not clear as to the status of such a patient in the eyes of the Board of Health. If the positive report coincides with such a clinical condition that the physician is satisfied of the presence of the disease of diphtheria, no trouble arises. If, however, the positive report is made on a patient whose clinical condition is not that which the physician is accustomed to regard as the disease of diphtheria, the physician may either yield but doubtfully to the laboratory report or may dispute its correctness.

At the bottom of much of the trouble found in adjusting laboratory reports to clinical diagnoses of disease lies the fact that the definitions and nomenclature of bacterial diseases are yet in a state of flux. Agreement in diagnosis can never be reached by two men whose definitions of the disease in question differ essentially.

That form of definition and nomenclature based on cause, as distinct from anatomical or physiological character, is every day becoming more and more used in all forms of bacterial disease.

Tubercular meningitis and chronic consumption are totally different diseases clinically. But no one hesitates now to class them together on the basis of cause—the tubercle bacillus. Such a basis of classification is more useful and rational than a merely clinical basis, since it allocates more correctly the ultimate processes of disease as well as important relationships of these to complications, sequelae and infectiveness.

It must be remembered of course that bacteria as such are not themselves the immediate cause of disease. A pathogenic bacterium is pathogenic only through the poisons it may but does not always produce; moreover the body forces tend to neutralize these poisons when they are produced.

The definition of any specific bacterial disease may be stated therefore very broadly, as *the reaction of the body to that portion of the specific bacterial toxins which the body fails to neutralize or eliminate*. Under this definition the disease of diphtheria exists always, and exists only, when the body shows a reaction to toxins formed by the diphtheria bacillus. This definition does not require that the reaction of the body to the toxins shall be along fixed clinical lines. Indeed, poisoning by diphtheria toxins does not invariably result in such fixed conditions. All gradations of the systemic poisoning may be recognized and a variety of anatomical conditions may accompany these. The relation of the various common types

of "sore throat" to each other under the older and the newer conceptions of the disease may be roughly shown thus:

OLDER ANATOMICAL CLASSIFICATION.	CLASSIFICATION ON BASIS OF CAUSE.
Membrane=diphtheria.....	Membrane due to diphtheria bacillus toxins=diphtheria. Membrane not due to diphtheria bacillus toxins=not diphtheria.
Exudate=follicular tonsillitis	Exudate due to diphtheria bacillus toxins=diphtheria. Exudate not due to diphtheria bacillus toxins=not diphtheria.
No membrane or exudate = simple sore throat.....	Simple sore throat due to diphtheria bacillus toxins=diphtheria. Simple sore throat not due to diphtheria bacillus toxins=not diphtheria.

The difficulty of working under this definition and classification of diphtheria is that it makes the presence of the disease depend on the presence and activity of diphtheria toxins, while no absolutely decisive method for determining the presence and activity of the toxins is at hand. It is true that, if marked symptoms of diphtheria poisoning develop the physician may accept as demonstrated both the presence of the toxin and its activity, that is, the absence of its neutralization; if no symptoms at all develop he is sure that the toxins were not formed, or if formed were neutralized—it does not matter which so far as the patient is concerned. This clinical test is, however, likely to be spoilt, or at least seriously interfered with, by treatment, especially if diphtheria antitoxin be employed—the very symptoms to which the physician might look forward for confirmation of his earlier tentative diagnosis being often thus made of no avail from the diagnostic standpoint. Finally even the developed symptoms may be of an indecisive character.

The determination of the presence of the diphtheria bacillus is therefore used as a sort of "toxin-indicator." It is true that the diphtheria bacillus may be present and yet no toxin be formed, for the diphtheria bacillus does not always produce its poisons. It is true that the diphtheria bacillus may be present and may be producing its poisons, and yet that the body forces may neutralize them as fast as they are made. In both these cases a diagnosis of diphtheria based on the presence of the diphtheria bacillus alone must fall to the ground, since in neither case will the body show a "reaction to diphtheria toxins" as required by the definition given.

Animal experiments may demonstrate the presence or absence of toxin-making power in the particular diphtheria bacilli isolated, but such a laboratory test is too slow for use in diagnosis, besides leaving undetermined the equally vital question of whether or not the diphtheria toxins are being neutralized by the patient. This latter point can indeed be decided only if at all by the condition of the patient, who is himself at once a combined "test for virulence" and for "neutralization of toxins."

Diphtheria diagnosis by culture, therefore, is based on a definition and some assumptions. We must admit that diphtheria is that disease, what-

ever its precise form, which is caused by diphtheria toxins. We must assume that if diphtheria bacilli are present, the diphtheria toxins are present also. We must assume that if diphtheria toxins are present, any symptoms presented by the patient are due to those toxins.

In the great majority of cases, these assumptions, always legitimate in the absence of evidence to the contrary, prove correct. Being based on generalizations, however, they will sometimes fail in particular cases, but the percentage of failure is much less than that of unaided clinical observation.

The relation of the Board of Health to the patient showing a positive culture is comparatively simple. The Board of Health does not take the position, as may be gathered from the foregoing discussion, that a sick person is necessarily suffering from the disease of diphtheria simply because a positive culture has been obtained, although this is usually true. The board does insist, however, that such a person is a nucleus from which the bacilli may be spread, and remains such until the bacilli disappear. The board recognizes that the patient may be harmless, despite the positive culture, if the bacilli in his nose or throat are not actively producing toxins. But since the methods for determining that the bacilli fail to produce toxins are impossible of application in practice to large numbers of cases, the board feels justified in assuming that they are virulent on the strength of very much evidence which shows that the error involved in this assumption is small. Hence it is that a positive report on a case for diagnosis is considered sufficient evidence for the isolation of the sick person as infective.

The questions relating to virulent diphtheria bacilli in well persons are now under consideration in many quarters. An extensive investigation under the auspices of the Massachusetts Association of Boards of Health has been organized, and the results are expected to be of much interest.

None of these methods are perfect. Perfection is beyond humanity as yet. They are, however, the best at hand. Their imperfections result perhaps in occasional injustice to the individual, but on the whole the community is better protected, with less injustice to the individual, than under other circumstances. The greatest good to the greatest number must be the rule.

The meaning of a negative report.—If the bacilli are absent from a given throat or nose it is of course impossible to find them in cultures taken therefrom, but unfortunately they may be present in the throat or nose and still fail to be found in the cultures; hence, while a positive report indicates clearly the presence of diphtheria bacilli, a negative report is by no means such good evidence of their absence, particularly in laryngeal cases. This is especially true of a single negative culture but also, although to a less degree, of two or even three, thus, very occasionally, a positive result may be obtained on the fourth or fifth culture, the earlier cultures being negative.

From 5% to 10% of the cases finally proving positive fail to yield a positive result on the first examination.

The absence of the bacilli once established is complete proof of the absence of the disease of diphtheria; the difficulty is to establish their absence. Four or five negatives at least should be obtained (the more, the better) before a diagnosis of diphtheria is surrendered on bacteriological evidence alone.

The clinical diagnoses made by the physician compared with the bacteriological results of the cultures show that diphtheria bacilli are found in about 60% to 70% of the cases which the physician designates as diphtheria, and in about 10% to 11% of the cases which the physician designates as "not diphtheria." The clinical diagnoses mentioned are those appended to the card by the physician at the time of taking the culture, and of course in many cases do not represent the final clinical diagnosis which he arrives at later on, but only the tentative diagnosis at an early stage of the disease.

The meaning of a "no growth" report.—This form of report is used when for any technical reason the examination of the culture is a failure. Most of the "no growths" result from the use of dry tubes or from the growth in the serum tube of a certain bacterium or group of bacteria which liquefies the serum. The number of "no growths" has been very much reduced of late. In 1898 they formed over 2% of the total cultures; in 1899 a little less than 2%, in 1900 under 1%. In December, 1900, 3,900 cultures were examined with only 11 "no growths"—less than .3 of 1%. This decrease has been due largely to the greater care exercised by physicians in rejecting obviously dry or bad tubes, and to the increased use of the cultural test which keeps the serum tubes in circulation, affording no time for drying out. With every precaution and care, however, some cultures will be failures for the reason that the liquefying bacteria are wide spread, and occur sometimes in the throat or nose of the patient himself. In such a case the more perfect the technique of inoculation the more certain is the liquefaction of serum. In one instance, four consecutive cultures from the same patient taken on four consecutive days were all liquefied.

The meaning of a request for another culture.—If the physician states that membrane is present on pharynx and tonsils, or if the physician makes a clinical diagnosis of diphtheria, it is our custom to request another culture, should the first be negative. If what used to be called the "nose bacillus" is found in a culture for diagnosis, a request for another culture is also made, because at the present time there is considerable evidence to show that this nose bacillus may be a member of the diphtheria group and may often be virulent.

The meaning of the rapid or swab examination.—Briefly, a positive report from a swab examination has the same significance as a positive report from a culture. A negative report from a swab is absolutely meaningless. In such cases the cultural

report must be waited for. In about 50% of the finally positive cases only can a positive result be obtained from the swab itself. However, since a positive swab result saves fifteen to twenty-four hours of waiting for the result of the culture, it is in this 50% of cases well worth obtaining.

Release from isolation.—The principle of release by culture in diphtheria is analogous to that of waiting for the desquamation to cease before release in scarlet fever. In scarlet fever the infective agent is supposed to be in or on the scales. These are evident to the eye, and the friends and relatives of the convalescent comparatively seldom object to the continuance of isolation until they have disappeared. The infective agent in diphtheria, however, is unfortunately only perceptible by cultural tests, and much difficulty is found at times in making clear the necessity for their disappearance before release is granted.

A scarlet fever patient grows quantitatively, though perhaps not qualitatively, less infective as the desquamation decreases. So, also, the diphtheria patient grows quantitatively, perhaps sometimes also qualitatively less infective, as the diphtheria bacilli become fewer. It is true that diphtheria is somewhat less infective than scarlet fever in the proportion of nearly 3 to 4; that is, of 100 persons exposed to scarlet fever 38 may be expected to contract the disease (Chapin),¹ while of 100 persons exposed to diphtheria only 30 will take it. On the other hand, this smaller infectiveness of diphtheria is more than counterbalanced by its greater fatality, which is, at least, double that of scarlet fever. There can be no question, then, of the expediency of isolating diphtheria patients until they become non-infective. The character of the bacteriological proof required to show that this has occurred is a different matter.

Release on one negative culture allows 30% of the total positive persons released to go out of isolation while the bacilli are still present. This is because negative cultures for release partake of the weakness of all negative cultures, in that they do not necessarily prove the absence of the diphtheria bacillus. Indeed, a negative culture for release is less reliable than a negative culture for diagnosis, because the bacilli are then fewer in number, have become scattered and, moreover, lie in the folds and follicles of the mucous membranes from which they are extruded only at intervals with the secretions. Hence, a culture may one day be negative, the next positive. Indeed, this is true sometimes of cultures taken only an hour apart.

Extensive investigation has shown that if two consecutive negative cultures for release be demanded, only 1% to 3% of those released will be still infective (McCullom). To make sure of this 1% to 3% by requiring three consecutive cultures for release would involve so much additional trouble for the physician and the patient that hitherto it has proved impracticable outside of hospitals.

¹ Annual Reports, Providence, R. I., Board of Health.

*NOTE.—The term "toxin" has been used in this article as an equivalent for poisons derived from a bacterial source, not in its technical sense as a particular chemical form of bacterial poison.

DESTRUCTION OF LEFT EYE AND FRONTAL LOBE OF BRAIN FROM A SHOTGUN EXPLOSION.¹

BY EDWARD SWASEY, M.D., WORCESTER, MASS.
Oculist and Aurist to the Worcester City Hospital.

THE severe and destructive injuries of the frontal lobes of the brain form an interesting and instructive basis for physiological and psychological study. Just what functions these lobes perform in the human economy, I believe have not been fully determined. That these functions are more of the psychological than the physiological nature, I believe has been pretty well determined. We know that in man they are more developed in proportion to the remaining portions of the brain than in any other species of animals. And in different types and races of men the development of the forward part of the brain is indicative of their mental calibre and equipoise. The massive forehead we are wont to associate with the mental power of a Webster, Scott, Everett and many others, while the low, retreating forehead, the "beetle brow," we as instinctively associate with low mental power, and in extreme cases with low brutality and viciousness. But these are only broad and general conclusions, and do not tell us what the specific purpose of the so-called frontal portion of the brain is.

That the frontal lobes are of little importance in sustaining the vital functions in man has been well known for a long time. And yet I find but little explicit information regarding them in various authorities consulted. The following quotations bear on the subject as directly as any I have seen. One authority says: "Modern physiologists regard the prefrontal part of the brain as the seat of character and intellect. After removal of this part in dogs and monkeys, no paralysis of any muscles or loss of sensibility occurs, but singular changes in the behavior, emotions and character of the animals have been observed. They become livelier, restless, impatient, irritable, quarrelsome and violent. Their movements seem purposeless, and their attention to what is going on around them, and their intelligence, are diminished." "These observations," says the same authority, "have been confirmed by similar phenomena in cases of human beings." Another authority says: "Removal of one frontal lobe is comparatively insignificant in its effects, while when both are removed the change is profound. On removal of the frontal lobe in one side only, there is disturbance of vision, intelligence and character. There do occur both sensory and motor disturbances; but these, for the most part, are transient. On the side opposite to the lesion there is in the limbs a blunting of all sensation and some paresis. Moreover, there is a hyperesthesia combined with a paresis of the muscles of the neck and trunk, which move these parts away from the side of the lesion. These effects of the operation tend to pass off. If the remaining lobe be removed from a dog or monkey, not only do the

symptoms first described appear on the other side of the body, but still more fundamental changes occur. A ceaseless wandering to and fro, curiosity, affections, sexual feelings, pleasures, memory and the capacity to learn are at the same time abolished; and the expressions of the animal are those of fear and excessive irritation. But that the frontal lobes are the seat of the intelligence is by no means established."

Following this brief introduction, I wish to relate the history of a case of injury to one frontal lobe which came under my observation in the City Hospital, in November, 1898. It is chiefly interesting in showing how little disturbance and reaction may follow these severe lacerations of the brain. To supplement this history by briefly reviewing some similar cases shall constitute this paper.

A boy of sixteen years of age was out gunning on a Sunday afternoon. He had an old shotgun that had contained a charge of powder for a long time. Not seeing any game, for even the birds and squirrels of quiet West Boylston are disposed to observe Sunday, the boy's desire to make a big noise could not be resisted, and he discharged the gun, resting his face on the stock, and sighting along the barrel. There was an explosion, the boy was knocked senseless, and when picked up there was a large, ragged wound, involving the left eye, eyebrow and part of the frontal bone. He soon recovered partial consciousness, and Doctor Warren, of West Boylston, seeing the seriousness of the injury, decided he should be sent to the Worcester City Hospital. He came in that evening, was examined by a member of the house staff, and as the boy was not suffering, having a pulse of 70 and respirations normal, he decided to let the case rest till morning.

The case was to all appearances so decidedly an eye case that I was asked to see him the next morning to do an enucleation. A large, ragged wound, involving all the supra-orbital ridge on left side, was presented. The eye was pushed downwards and outwards and nearly out of the orbit. Enucleation was done, and there it was seen why the eye was so displaced and ruptured. The superior orbital plate was pushed down, and so filled the orbit that only the tip of my finger could enter it. Large fragments of bone were found loose in the orbit and wound; and only in search of these and examining the wound in the frontal bone more carefully was the full seriousness of the case disclosed. At the outer and upper angle of the wound, hidden under the swollen tissue, I found what I supposed at first was a small fragment of iron. But on attempting to remove it I found it firmly held and quite immovable. I made several attempts to dislodge it, and only after taking strong forceps, and racking up and down and from side to side, could I dislodge this mass, after having the forceps slip off several times. Finally this breech pin and screw (Fig. 1) were removed from the wound. It was followed by quite a good deal of soft brain matter and blood, but as no large blood vessels had been injured the hemorrhage soon

¹ Read before the Worcester District Medical Society, November 4, 1899.

subsided. After cleansing the wound as best I could in this soft brain substance, the edges were brought together in an imperfect manner, because of the loss of tissue and ragged edges, and a firm compress bandage applied.

The next day he had severe headache, but pulse was 72, and he was hyperesthetic over the whole body. He then settled down to a comparatively comfortable state, with pulse respirations and temperature nearly normal.

On December 4th (operation on November 21st), or two weeks after entering the hospital, the notes say: "He can move arms and legs equally; hyperesthesia wholly disappeared; no headache, and he is comfortable."

A few days after the operation a large pulsating tumor filled and projected from the wound in the frontal bone, but was easily held in bounds by a compression bandage. He kept his bed constantly.

December 11th. The report says: "Is slowly improving; feels very comfortable."

December 14th. "Has great headache and pain in back of neck; more restless. At 8 A.M. had a convulsion that lasted some minutes. At 2 P.M. passed into a state of stupor; respirations deep. In fifteen minutes more had a second convulsion. After this he was more restless and moving about.

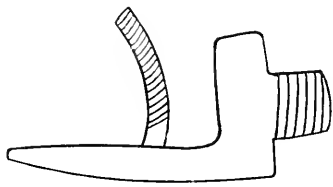


FIG. 1.

Temperature at one time was 102° , pulse from 80 to 160. Later, on same day, had a third convulsion, and more twitching of left arm and leg than of the right. Stupor continues. That evening temperature was 104° , pulse not changed."

December 15th. "No convulsions. More twitching of arm and leg; temperature and pulse unchanged."

December 16th. "All symptoms continue about the same; some movements of side of face; the left hand has a cyanotic tinge, and almost no movements in this limb. It seems paralyzed."

December 17th. "He is growing weaker; profuse perspiration on body; respirations deep and regular; temperature 104° ; pulse 130."

December 18th. "Remains about the same as yesterday."

December 19th. "At 7 A.M. he died, without any material change in his symptoms."

Subsequent to the operation he was under the care of Dr. E. H. Trowbridge, for the patient entered his service on coming into the hospital.

Fortunately a post-mortem examination was secured, and was performed by Doctor Baker, pathologist to the hospital, and Dr. Adolph Meyer, neurologist to the Worcester Insane Hospital.

There was found a large ragged opening, formed by the entire loss of the superior orbital plate and the supra-orbital part of the frontal bone. This opening had been filled by the pulsating brain mass. But now a large empty cavity was seen behind this opening, for the whole frontal lobe was practically destroyed by the original injury and the subsequent events. The remaining portion of the brain appeared quite healthy, except for evidences of a basilar meningitis and of the left ventricle. This lesion Doctor Meyer regarded as the sole cause of the fatal termination. The extent of the injury to the brain will be more readily understood when you see this drawing, showing the distance the breech pin entered the brain. I have taken the outline of the skull in the Medical Library, which I think corresponds closely to the size of this boy's skull. As the small end of the breech pin projected forward, the body must have taken about the position shown in the drawing. It turned through about half a circle from the gun stock to its final resting place, for the point which projects backward on the stock pointed forward in the wound. It is quite evident that part of this turning occurred after it struck the frontal bone; hence the large wound and destruction of the frontal lobe. It had entered the left ventricle, and the anterior part of the parietal lobe was wholly destroyed and disorganized. Pus was found in the left ventricle. On removing this rusty, dirty mass from the boy's brain, my first conclusion was that if he did not soon die from some meningeal hemorrhage or collapse, surely he would soon develop a severe meningitis and encephalitis that would speedily take him off. But not so, for as soon as he had recovered from shock of the operation he settled down to quite a comfortable existence for about four weeks, and then died suddenly. But why he did not develop severe meningitis rapidly, I do not yet quite understand, for I could not irrigate and cleanse the deep parts of this wound as I might almost any other tissue of the body. Possibly the soft brain substance and hemorrhage that came away removed the septic matter that was on the breech pin, for it will be remembered that this lay imbedded in the brain some eighteen hours.

The further pathological changes in this case I leave for Dr. Meyer to show and discuss. But I wish to supplement the report of this case by referring to some similar cases of severe traumatic injury to the frontal lobes, for it is only to this region of the brain that I shall refer.

The most remarkable of all these is the famous "crowbar case." In this case a bar of iron, $3\frac{1}{2}$ feet long and $1\frac{1}{4}$ inches in diameter, was driven through a man's brain, entering the side of the face just in front of the angle of the jaw, and coming out at the top of the frontal bone in the median line just in front of the coronal suture. He was stunned, but after a few hours recovered himself and conversed rationally. Two days later he was delirious, and in this state, and partially comatose, he remained for three weeks, and then

began to improve. In five weeks more he could walk about. In sixteen months he was in perfect health, but the mental faculties had for a time undergone a change. He became childish, wilful, fickle and restless, and suffered loss of intellectual power. Gradually, however, these symptoms disappeared. There was permanent loss of sight on the injured side. He lived for a little more than twelve years after the injury, and for a number of years was a stage driver.

Dr. H. D. Noyes, of New York, reports a case in which the breech pin of a gun was driven deep into the right orbit and projected far up into the right frontal lobe. The mass of iron was $4\frac{1}{2}$ inches long, and weighed $2\frac{1}{2}$ ounces. When seen by Dr. Noyes, five months after this injury, the parts had healed over so that only by chance, in the examination of the nasal cavities, with the intention of an operation to improve the man's personal appearance, was the body found deep in the orbit and brain. The patient, a strong young farmer, had completely recovered and showed no symptoms of brain injury. Only an ugly scar and a slight discharge troubled him, and Dr. Noyes says he might have lived for many years had no attempt been made to remove this large foreign body. But it was removed, and in two weeks' time symptoms of brain abscess appeared; later,

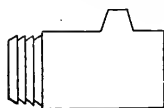


FIG. 2.

paralysis of the opposite arm and leg, and death followed, thirty-nine days after the operation.

Post mortem showed that the second and third frontal convolutions, and the orbital surface of the frontal lobe had been totally destroyed by the injury. And yet all this had given no mental sign of physical impairment in the five months this large mass of iron had remained imbedded here.

In another case a piece of iron from a shotgun was driven into a man's brain, entering the side of the face just above the centre of the zygomatic arch on the left side. The size and shape is shown in drawing (Fig. 2). In four months the man was up and about; in five months he was at work as a wood chopper in perfect health. No impairment of mental or nerve functions, only slight deafness on the same side as the injury. He then went on a spree, and while deeply intoxicated was taken over a rough road in a farm wagon for some miles. Next day he was taken with sudden and violent pain in the head and died in a few hours. The foreign body was found incysted in the anterior and inferior angle of the left middle lobe of the brain, in close proximity to the fissure of Sylvius, and the speech centre, and yet there had been no aphasia. There had been some discharge from the wound from the first. It is believed the jolting he received in this

rough ride dislodged the iron from its incysted location.

In another case a rapidly revolving wheel flew into fragments, and one of these struck a young man in the left frontal bone. He was unconscious and in about ten minutes violent muscular movements began. After eight large fragments of bone had been removed he became more quiet. The longitudinal sinus and a branch of the middle meningeal artery were lacerated and the hemorrhage was quite profuse. The wound extended from the base of the nose to the top of the frontal bone, and in all nineteen fragments of bone were removed. Some hours later he became conscious, and could answer questions. He slept well that night, and the next morning the temperature was normal. On the fifth day he was sitting up in a chair. He had no pain from the first, and only for a day or two did he have a temperature of 102° . For the first three days he had diplopia, but this passed off and his sight became normal and his mind clear, so he could easily add up a column of figures correctly. Subsequently he was a bookkeeper. Gradually the space in the frontal bone was filled in by new bone, and the patient entirely recovered.

I could go on giving histories of cases on record in medical literature similar to these, but that is uncalled for here. Thus, in Wheaton's paper, giving histories of patients who had received brain injuries and recovered from same, published in the *Medical Times*, July, 1879, there were 132 cases of injury to the frontal lobe or lobes, with 58 deaths and 74 recoveries. In cases where the foreign body entered the temporal bone there were 12 deaths and 19 recoveries in a total of 31 cases, while wounds through the orbit were by far the most fatal, for in a total of 18 of these there were 17 deaths and only 1 recovery. In the parietal region there were 58 cases, 27 deaths and 31 recoveries; in the occipital region 23 cases, 16 deaths and 7 recoveries. In Erickson's "surgery" the mortality for the various regions is given thus:

The frontal region	17%
" temporal "	15%
" parietal "	13%
" occipital "	9%

This, you see, makes injuries in the frontal region quite as fatal as any, while in the occipital they are least fatal of all. Wheaton gives a total of 316 cases of foreign bodies entering the brain. Of these, 212 were musket balls or shot. In 210 cases of the total 316 cases, no attempt was made to remove the foreign body. Of these 210 cases 88 recovered and 122 died. In 106 cases of the total 316 the foreign body was removed; recovery in 72, death 34. There were twice as many recoveries as deaths when the foreign body was removed.

The reason advanced to account for the great mortality of penetrating wounds through the orbit, is that the swollen and inflamed tissues in this bony case prevent free drainage; and again gravity is against it, as the patient lies on his back. In the crow-bar case referred to the attending

physician regarded the free drainage and gravity to aid it as the chief reason for recovery. But it should be remembered that after these cases have recovered, and very likely appear to be quite themselves for a time, later on some impairment of mind or body appears—incapacity for physical exertion, vertigo, epilepsy in some of its forms, paralysis, and possibly insanity. For example, one case on record: The musket ball entered just behind the outer angle of the left orbit, destroying the sight of the eye and lodging behind it. This was an insignificant injury compared with many others in this list, but strange to say, it was followed by almost complete loss of memory, which was permanent.

I had an almost identical case in the City Hospital a few years ago, in which a small pistol ball entered just back of the outer angle of right eye. It destroyed the sight in this eye, rupturing the choroid and retina, and injuring the optic nerve. I tried to find and remove the ball by going in behind the globe, but failed to find it. It is there today perfectly quiescent, and has left no mental impairment and no deformity. It is not safe to early predict what these injuries will leave in their wake, for trifling ones may be followed by strange results, while serious ones may leave but comparatively little change, either mental or physical.

In the discussion which followed this paper, Dr. E. R. Wheeler, of Spencer, Mass., presented a patient with a history that tallies very closely with those here referred to. This was the history of the case as Dr. Wheeler has kindly given it to me:

On January 28, 1899, a man, forty-four years of age, was sawing wood with a rapidly revolving circular saw. It broke into fragments, and one of these struck him in the forehead. It cut through the visor of his cap, through the frontal bone and orbit of the right eye, near the inner angle. This fragment of bone was pushed upwards and outwards so it stood fully $\frac{1}{4}$ inch higher than the remaining part of the skull. This elevation was permanent. A finger could be introduced between the edges of the bones from the orbit to the centre of the forehead. The fracture extended on to the vertex, and from here to the top of the ear, which perhaps followed the coronal suture. A small piece of the orbit was removed, and about a teaspoonful of brain substance came away.

At the time of the injury and for a few days following there were hallucinations on some subjects, but these symptoms soon passed off. He made an uninterrupted recovery, and in about three months resumed his work, apparently as well as ever.

In August 1899, about seven months after this injury, he had an epileptic attack; and at intervals of about once or twice a month these recurred. They became more frequent, until August 16, 1900, when he was found dead in bed, having probably had an attack in the night in which he died.

CONVULSIONS IN CHILDREN.¹

BY WILLIAM N. BULLARD, M.D., AND CHARLES W. TOWNSEND, M.D.,
BOSTON.

THE occurrence of a convulsion in a child is always a startling event; but it is often believed to be of little import, and due to some reflex irritation acting in the sensitive nervous organization of the child.

Of the recognized causes of convulsions in children, such as gastric irritation from improper food, the presence of worms, irritation of the ear, the onset of acute disease, all are of more or less frequent occurrence, and yet the majority of children do not respond by convulsive seizures to these irritations. It would seem, therefore, of interest to study the general condition, and after career, of those children in whom convulsions have occurred.

A certain proportion of cases of convulsions in early childhood are but the beginning of true epilepsy; and it may for a time be impossible to say in a given case whether the convulsions are reflex and temporary, or whether they will eventuate in permanent epilepsy.

We have examined all the out-patient records of the Boston Children's Hospital from the start, in 1883, to December 31, 1894, and, out of 7,189 cases in all, we have found 79 cases entered as eclampsia. Of these, 6 were manifestly cases of epilepsy with or without idiocy, leaving 73 cases of eclampsia, or 1% of the entire number of children. During these eleven years there were 51 cases recorded as epilepsy.

An examination of these records showed that 10 of these should be placed in the doubtful list, some being merely reflex and temporary, while of the 41 true epileptics 12 were also idiots. This does not include the epileptics who came to the special clinic for nervous diseases. Of these 73 cases of eclampsia, 24 have been seen or heard from lately. Six cases from private practice have been added, making 30 in all. It was thought best to investigate only those that had been seen for the first time at least five years ago. Some of them were seen as long ago as sixteen years. Of the 30 cases, 4 are dead. One of them continued to have frequent convulsions from the age of five years to his death, at ten, from pneumonia. Another continued to have convulsions from the age of two till five, when they ceased, and a year later he died of croup. A third, a child of five, who had had a few convulsions, believed to be due to worms, died six months later of tubercular meningitis. A fourth died three months after being seen at the hospital, of hemoptysis. Five more cases proved to be feeble-minded or epileptic, although the diagnosis was not made when first seen at the hospital. One of these children, seen first when seven years old, after a fit, thought to be brought on by eating sausage, continued to have fits till the age of thirteen. He is now seventeen years old, in poor general condition, and of poor mental calibre. Another patient was seen

¹ Read before the Clinical Section of the Suffolk District Medical Society, January 16, 1901.

at the hospital when ten years old, for occasional convulsions occurring without apparent cause during the preceding two months. These continued for a year, and were succeeded by slight attacks of petit mal. The boy, now fifteen years of age, appears bright and well, and is an elevator boy! The risk to himself and his passengers is evidently not understood.

Subtracting these 10 cases, we have 20 left that are living today and free from convulsive attacks; seventeen of these are bright and well, although one wets his bed, at ten years of age, every night, and another has had chorea. Three are very nervous, one being neurasthenic and despondent. All of the private cases are well and bright.

A study of the supposed reflex causes of the convulsions in these cases of temporary eclampsia may be interesting. In 6 the convulsions were traced to improper food, 5 of these at once ceasing to have convulsions when the diet was regulated. In 2 cases the exciting cause seemed to be a fright; in 1 a fall; in the other from being run over. In two, round worms were supposed to be the cause of the trouble; in one constipation. Two were cases of eclampsia occurring soon after instrumental labors. A few of these cases are worthy of special mention.

CASE I. A girl, seen at the age of four for two convulsions supposed to be due to worms. She is now twenty years of age and in excellent health, but her convulsions occurred every two or three months till she was sixteen years old, or *two years after the appearance of the catamenia*, when they ceased and have never recurred.

CASE II. A girl was brought to the hospital when two years old for convulsions, which began five weeks before. She is now thirteen years old, well and bright; the convulsions lasted for a year longer and were very numerous, sometimes as many as fifty in a day. When three years old she had measles, and has never had a convulsion since.

Of the 6 cases from private practise, 2 are cases of convulsions occurring during the first few days of life, following difficult labor in primiparae, with forceps extraction. One of these had several convulsions during the first twenty-four hours; recovered, and is a healthy boy of ten years today, never having had any more convulsions or any nervous diseases. The second, a girl, had convulsions at intervals of every hour for three days. She is now a healthy child of eight years, free from any nervous or cerebral trouble. A third case, seen in consultation with Dr. W. E. Boardman, had convulsions after a normal labor, from the end of the first week for two succeeding weeks, so numerous that seventy were counted in one day. They ceased abruptly after purgation by calomel, and the child, now three years old, is well and strong.

The three other cases are examples of reflex convulsions appearing in apparently healthy children, and not followed by any untoward consequences.

CASE I. A boy, age fifteen months, had eaten a piece of mince pie. Four hours later the child

went into a convulsion which lasted almost continuously for two hours. Two slight convulsions followed seven hours and nineteen hours later. The child, eleven years old today, has been free from convulsions since, and is well.

CASE II. A girl, three years and four months old in 1894, was discovered eating sugar out of a bowl with both hands. She vomited, was feverish, had a convulsion followed by a large, foul dejection. She has not had any convulsions since.

CASE III. A boy, twenty months old in 1895, had a convulsion lasting from one-half to three-quarters of an hour. His diet was simple, chiefly milk, oatmeal and bread, and there was very little chance of improper food having been given him. He was cutting his canines at the time. He is bright and well today and has not had any more convulsions.

To approach the subject in another way, and ascertain the relative frequency of temporary eclampsia in children, the parents of those from five to twelve years old were questioned at the Children's and Massachusetts General Hospitals as to the occurrence or non-occurrence of fits in these children, and the children were examined. Of 195 children examined in this way, 19, or 10%, had had one or more convulsions. Of these 19 children, 7 are strong and well, 9 are decidedly nervous, and 3 were considered not nervous but delicate. Three of these were troubled with enuresis, 2 with insomnia, and 1 with night terrors; none had had chorea. The supposed causes of convulsions in these cases were as follows: Onset of acute disease 4, in 1 case scarlet fever, in another empyema, and in 2 others measles; worms 1, teething 2, constipation 2, improper diet 3.

Our results may be summed up as follows: (1) One per cent. of the children applying for treatment at the Children's Hospital came for convulsions; (2) 10% of children between five and twelve years of age gave a history of convulsions; (3) cases that appear to be due to some manifest reflex cause may turn out to be true epilepsy; (4) other cases, where the attacks occur frequently and without apparent cause, may suddenly recover, at least, for a considerable period; (5) children who have had convulsions may be strong and free from nervous tendencies in later life, although the proportion who have nervous tendencies seems to be greater than in those who have not had convulsions.

THE SMALLPOX SITUATION IN CHICAGO. — It is reported according to the *Medical News* that only 17 new cases of smallpox have occurred during the past week. At the close of the previous week there were 44 cases in the isolation hospital; 17 were admitted during the week, and 23 discharged, with no death, 38 remaining under treatment. With one exception the cases are mild. It is announced that the stock of glycerinated vaccine lymph on hand has ripened sufficiently to make the resumption of vaccination safe.

Clinical Department.

ACUTE PANCREATITIS.¹

BY M. H. RICHARDSON, M.D., BOSTON.

THE subject of Dr. Lund's paper is one of great interest to me, and it has been presented in a most interesting manner. One can say nothing in the way of adverse criticism. Dr. Lund has had the fortunate experience of seeing one or two of these cases of acute pancreatitis recover. In all the cases that I have seen in which this diagnosis was confirmed death has followed. It seems as if the time had come when we ought not to content ourselves with leaving these cases to themselves. The occasional occurrence of disseminated areas of cicatrization in the peritoneum—the yellowish spots referred to by Dr. Lund, and which I think every abdominal surgeon not infrequently sees—seems to show that recovery follows mild cases of fat necrosis. The severe cases are essentially fatal, and are among the most terrible of abdominal emergencies. It is to be hoped that by earlier recognition, and by earlier and more thorough methods, we may reduce the almost prohibitory mortality of operations thus far performed.

I have seen a number of cases of suppuration in the epigastrium, in the lesser cavity of the omentum. My first case was one which Dr. Elliot thought had probably started from a suppurating pancreas. There was no reason to think it was the pancreas except that the woman had a large abscess in that region. She was a "fat old woman who may have had gall stones." We simply drained the abscess, and she made a good recovery. I have drained abscesses in the epigastrium in four or more instances, but I have attributed them to other causes than pancreatitis. One occurred in a girl who had been in the habit of swallowing rubber gum. I supposed that the gum had collected in the stomach and that a perigastritis had resulted. This was indeed the fact. In another case in which I operated for Dr. Dudley, of Abington, we found extensive retroperitoneal hemorrhage. The man died, and an autopsy was not obtained. I have operated in another instance for what I supposed was suppuration of the mesenteric lymph glands situated near the pancreas. The patient, a girl, recovered, but died later of pulmonary tuberculosis. I have used this case as an illustration of possible mesenteric tuberculosis and suppuration. One case was undoubtedly an acute hemorrhagic and suppurative pancreatitis. My patient was a girl of nineteen, who was apparently moribund. I thought at first that there would be no use in operating, but finally decided to open under cocaine the epigastrium where the guiding symptoms lay. We gave her chloroform finally. The wound gave exit to enormous quantities of bloody serum, and to masses supposed to be pancreatic fat. To my surprise,

the girl recovered from the operation and did well four weeks, toward the end of which time she began to cast off large masses of sloughing pancreatic tissue. She was doing fairly well, when suddenly she died. An autopsy was not obtained. On the same day a similar case was operated upon at the Massachusetts General Hospital. The patient, a man, also died at the end of about four weeks, after doing well.

I have listened to the paper with great attention and interest, and I think that the conclusions are warranted. In all obscure inflammations of the epigastrium, attended by acute sudden pain, we ought to explore. If we cannot do anything else we can at least drain. From the nature of things I do not suppose that we can save many cases. The frequency with which the diagnosis of pancreatitis has been made is suggestive. In all obscure cases of sharp pain high up in the abdomen the one who always says "acute pancreatitis" will sooner or later be right. I have said it many times, but never was right. The fact is, that the diagnosis of these obscure lesions is practically impossible unless time is taken for study, which the imperative call for operation forbids. The only case of mine in which this lesion was really found was one in which it had not been suspected. The last case in which this diagnosis was made was only two weeks ago. One of my assistants thought the lesion an acute pancreatitis; a consultant, intestinal obstruction; the rest of us made no diagnosis. Under either it was plainly an acute appendicitis—in other words, it proved to be what almost all obscure acute inflammations in the abdomen prove to be—an acute appendicitis with general peritonitis.

CASE OF RECOVERY AFTER OPERATION FOR ACUTE PANCREATITIS.¹

BY J. C. MUNRO, M.D., BOSTON.

The patient was under the care of Dr. Flanders, of Jamaica Plain, and was seen also by Dr. Jackson. When I saw her there was general abdominal pain, tenderness and spasm in both hypochondria and in the epigastrium, with a tumor in the latter region, extending into the left lumbar region. The diagnosis was some retroperitoneal infection. At that time Dr. Flanders thought of pancreatitis, but personally I did not give it much credence. There was a history of recurrent attacks of gall stone, and I thought it more likely that a large gall stone had perforated the posterior peritoneum and produced a retroperitoneal lymphangitis, extending across to the kidney. On the following day, March 8th, I operated, and found the omentum full of fat necrosis, and behind that a large tumor which increased in size towards the left. I introduced the fingers into the tumor and found that there was no pus, but that it broke up rather easily. With one finger

¹Contribution to the discussion of a paper on "Acute Hemorrhagic Pancreatitis," read by Dr. F. B. Lund before the Boston Society for Medical Improvement, November 26, 1900. See Journal, November 29, 1900.

¹Contribution to the discussion of a paper on "Acute Hemorrhagic Pancreatitis," read by Dr. F. B. Lund before the Boston Society for Medical Improvement, Nov. 26, 1900. See Journal, November 29, 1900.

as a guide I opened on the left side and thoroughly broke up the pancreas as much as I could, and then closed the first wound and drained through the second. The operation was not well borne; in fact, I thought she would die on the table. For some days she was very ill, and then discharged an enormous quantity of material resembling pea soup, with a sweet odor. She went along well for about a month, when suddenly the temperature rose to 104° or 105° F., and she again became very ill. I explored the sinus and opened into another large cavity which contained a similar material. She recovered from that, discharging a good deal of this material, but still she had not pulled up as much as she ought, and four days later I opened through the sinus into another cavity that went up behind the lesser peritoneal cavity. At the lowermost part of all these cavities a free opening was made in the loin. She continued to discharge the greyish material, for some time, but finally the sinus closed and she has been well ever since, except for one or two slight gall stone attacks. She has gained in weight, and apparently digests everything.

She was very, very ill, but to the good nursing and to the excellent care of Dr. Flanders I think she really owes her recovery. I drained with a glass tube and iodoform wicks, removing them in forty-eight hours, when there was this gush of material resembling pea soup.

Medical Progress.

RECENT PROGRESS IN THORACIC DISEASES.

BY GEORGE G. SEARS, M.D., AND JOHN W. BARTOL, M.D., BOSTON.

THE POSITION OF ACUTE PERICARDIAL EFFUSIONS.¹

As a result of experiments on the cadaver, Aporti and Figaroli¹ reach the following conclusions:

(1) Pericardial effusions can be demonstrated by percussion only when they exceed 150 or 200 cubic centimetres.

(2) Six hundred and fifty to 700 cubic centimetres is the maximum which the pericardium can contain. (This must refer to the maximum amount which can be injected after death, since clinical experience has shown that it may contain much larger amounts.)

(3) With the patient on his back, the cardiac dullness extends in all directions proportionally to the amount of exudate, while in the vertical position the dullness is more marked in the region of the apex beat and the cardiophatic angle. In the first instance the anterior surface of the heart is only partially, in the second it may finally become fully covered.

(4) In the horizontal posture the great vessels are surrounded by the exudate when present only in small amount, while in the erect position the

base of the heart remains free even in the presence of a large quantity of fluid.

CARDIOTOSIS.

Ferrannini² speaks of displacements of the heart which are secondary to changes in other organs, and then discusses the primary essential ptosis of the heart, which was first described by Rummo.

He refers to the various theories which have been formulated to account for entropotosis in general and cardiopotosis in particular, and reports 4 new cases of primary cardiac displacement. They occurred in adults between eighteen and thirty-four years of age, 2 men and 2 women, in none of whom was there any hereditary taint. All showed a marked epigastric pulsation. On percussion, the lower border of the heart extended 3½ to 4½ centimetres below the ensiform process, while above the relative dullness began as low as the third rib, the third interspace or even the lower border of the fourth rib. There could, therefore, be no doubt that he was dealing with a displacement of the organ and not an enlargement. Auscultation showed the presence of mitral stenosis in all cases. In all four patients certain abnormalities of development were found as shown by the disproportion between the face and the rest of the skull, the slender bones, the small stature, and the deformities of the thorax and extremities. In one there were pronounced mental defects.

"HILL HEART."

Campbell³ describes rather picturesquely the form of heart disease which he finds especially common in hilly districts. This is a degeneration of the muscle (with preceding hypertrophy) which, although not serious enough to prevent attendance on usual pursuits or produce symptoms of back pressure, offers a constant menace to the individual, because any extra strain may result in alarming and dangerous attacks; thus may arise marked distress (anginal), dyspnea, syncope or even apoplectic seizures, which not infrequently terminate in death. There is a report of cases which sufficiently support his description, and in closing, an explanation that the condition differs from the ordinary fatty degeneration in the existence of an antecedent hypertrophy and a consequent greater liability to the epileptiform or apoplectic attacks, which are associated with a temporary increase in the blood pressure, a forcible action of the heart indicated by excited tumultuous movements and anginal pain, these effects being increased by the upward pressure of a dilated stomach, which is very apt to be an accompaniment of the conditions.

DIASTOLIC EXPANSION MOVEMENT OF THE VENTRICLES A FACTOR IN COMPENSATION OF MITRAL DISEASES.

In a paper largely theoretical, and based chiefly on evidence of the cardiogram, Wilson⁴ attempts

¹ *Centr. f. Inn. Med.*, November 1, 1899.

² *Lancet*, September 8, 1900.

³ *British Medical Journal*, September 29, 1900.

⁴ *Centr. f. Inn. Med.*, July 21, 1900.

to prove that the heart has the power to enlarge its chambers by a true muscular expansion movement. The figures accompanying the paper are necessary for a clear understanding of the points in question.

ACTION OF THE HEART IN MITRAL STENOSIS.

Gibbes⁵ reopens the question of the origin of the presystolic murmur. He is opposed to the Ormand-Barclay theory, that it is a regurgitant murmur; and while holding with Gairdner that it occurs before contraction of the ventricle, he considers that it is composed of three different parts. (1) Audible right ventricular muscle vibrations. In consequence of the two ventricles not acting synchronously, a portion of the right ventricular systole takes place, and its muscle vibrations are heard, while the left ventricle is in diastole; (2) a murmur caused by the flow of blood from the left auricle into the left ventricle; (3) the slapping first sound; this is part and parcel of the murmur, and ought to be so considered."

His objections to Gairdner's conclusions are based on the recognized unreliability of cardiograms, a point which seems well taken, but his own explanation is also insufficiently supported by a single clinical case and theoretical reasoning based thereon. Further discussion of the same and allied points may be found in a suggestive paper by Ewart⁶ on Mechanism of the Heart and its Valves.

(To be continued.)

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOL- OGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting Wednesday, January 16, 1901,
DR. ARTHUR K. STONE in the chair.

DR. FRANKLIN W. WHITE and DR. MAYNARD
LADD read a paper on

WHEY CREAM MODIFICATIONS IN INFANT FEEDING,

of which the following are the conclusions:

(1) By the use of whey as a diluent of cream of various strengths, we are able to modify cow's milk so that its proportions of caseinogen and whey proteids will closely correspond to the proportions present in human milk. We thereby rendered it much more digestible and suitable for infant feeding.

(2) The best temperature for destroying the rennet enzyme in whey is 65.1°C. Whey or whey mixtures should not be heated above 69°C., in order to avoid the coagulation of the whey proteids. The percentage of whey proteids in the whey obtained by us was 1%; while in the analysis of the whole milk approximately three-fourths

of the total proteid was caseinogen and one-fourth was whey proteids.

(3) On the basis of the analysis we were able to obtain whey cream mixtures with a maximum of .90%, and a minimum of .25% of whey proteids in combination with percentages of caseinogen, varying from .25% to 1%; of the fats, from 1% to 4%; of milk sugar from 4% to 7%.

(4) The emulsion of fat in whey, barley water, gravity cream and centrifugal cream mixtures were the same, both in their macroscopic and microscopic appearances. The combination of heat and transportation, such as sometimes occurs in hot weather, partially destroys the emulsion in all forms of modified milk, but this disturbance can be prevented by the simple precaution of keeping the milk cool during delivery.

(5) Whey cream mixtures yield a much finer, less bulky and more digestible coagulum than plain modified mixtures with the same total proteids; the coagulum is equalled in fineness only by that of barley water mixtures. The coagulum yielded by gravity cream and centrifugal cream mixtures is the same in character.

DR. T. M. ROTCH: These experiments, on which Doctors White and Ladd have spent months, are very valuable to us who are engaged in infant feeding, and a great deal of credit is due to both of them. The chief points upon which they have thrown light are: (1) In regard to the globule of fat which appears on the top of the milk in certain cases. I think they have clearly shown from what it comes and how it can be obviated. It is also very satisfactory to know that this can be obviated apparently without militating against what we are trying to accomplish in modifying the milk, whether at home or by laboratory modification. (2) The clearing up of what has been said about barley water. Some of us supposed that barley water did not break up the curd, but I think the writers prove that it does. They have gone further. They have performed a series of experiments showing us how we can accomplish what we believe to be the rational feeding of infants, namely, by a nearer approach to human milk in regard to the proteids, making the amount more closely approximate that contained in human milk.

As soon as Doctor Westcott suggested to me that the total proteids in our modifications of cow's milk was very different from that of human milk, and that the amount might be made to approximate closely by using whey albumin and the proper proportions of caseinogen, I adopted this method clinically, and began to have infants so fed to see whether we could accomplish good results. I think it is yet too soon to say whether we are to have any especially brilliant results, but it seems to me it is a step in the right direction. I suppose what we all try to accomplish, when we cannot give human milk, is to copy human milk as closely as possible, and we meet with especial difficulties when we attempt to deal with the proteids. The total proteids in cow's

⁵ Edinburgh Medical Journal.

⁶ British Medical Journal, October 20, 1900.

milk differ from the total proteids in human milk, and, therefore, have to be modified. It has been shown in the paper that in using whey for the purpose of modifying the proteids it is possible to get almost 2% total proteids, and yet have two-thirds of that correspond to the whey albumin and one-third to caseinogen, which is the relative proportion of these elements in human milk. This is valuable in that you can still get such a high total proteid. Two per cent. of total proteids is something which we aim at getting, perhaps at the fourth or fifth month, but in many cases not until the sixth or seventh month. My idea is that we should aim not only to copy the human proteids but also to accustom the infant to take the total proteids of cow's milk by the end of the first year. This should be done very gradually. The low proteid per cent. obtained by using whey is well adapted to the young infant, and as the infant grows older and the higher total proteid per cents are indicated and the higher relative per cents of the whey albumen cannot be obtained, the infant has arrived at an age when it will be able to take a higher relative percentage of caseinogen of the cow's proteids.

In this way, by the end of the first year it has not only been accustomed to take the total proteids of cow's milk, but also to take that proportion of caseinogen — three-fourths caseinogen to one-fourth whey albumin, which is in the cow's proteids.

In regard to the clinical results: We must have a great many more cases before we can give a definite opinion. I have been using the whey for modification in quite a number of cases, and am so far well pleased with the results. Just as it often happens, when I am using a home modification, I find that I cannot get the percentages modified exactly and minutely enough, I have to give a laboratory modification until the infant can take a home modification; so I find the total proteids of cow's milk without this further subdivision with whey give me difficulties which can be obviated by giving the proper proportions of whey albumin.

This is a great step in advance in our system of modification for infant feeding. It is working on the right basis. This paper is an exceedingly valuable one, and the best that has appeared for years on the subject of infant feeding and modification.

DR. C. W. TOWNSEND: I congratulate Drs. White and Ladd on their careful work. It is very interesting to me. Two points they brought out especially are really old points. One is the use of whey and the other the use of barley water. Both of these were very strongly recommended in the textbooks fifteen or twenty years ago. Whey I have never used myself, but I have very often used barley water and oatmeal water, and always believed that clinically it did make a difference with the digestibility of the curd, and I am very glad to have this so thoroughly confirmed by these experiments.

The use of whey, though theoretically a good

thing, calls for a good deal more manipulation of the milk, and I cannot help feeling that the less manipulation we make of the constituents of milk, the better it is for the infant. Though, theoretically, it may be better to split up the albuminoids of the milk in this way and combine them again, still I believe that the less manipulation that is made the better. I have used a great deal the white of egg, which I believe corresponds very closely to lactalbumin, and which can be very easily added in home modifications. I very often use it where I have to begin with the weak albuminoids of twenty or forty or sixty hundredths of 1%, adding the white of one or two eggs to the mixture of twenty ounces, and in that way am able to increase the amount of albuminoid very much, and increase the nutritious quality of the milk without throwing too much stress on the digestive organs. Of course that is a familiar way, and it seems to me a practical way for home modifications until a simple way is found for using whey, and it seems to me it is a question then, whether it will be desirable to manipulate the milk to the extent necessary to get the whey — whey of a character we can be sure of, and which can be used in the modification of milk for infants.

DR. A. H. WESTWORTH: I wish to call attention to the fact that this method of preparing infants' food by the use of whey is not a new one. It was described by Professor Backhaus of Göttingen in 1896. The article appeared in two numbers of the *Allgemeine Med. Central Zeitung* in September, 1896. The method was found to be a practical one, and has been used in various European cities ever since. Favorable reports of results obtained by its use have been published. Biedest speaks well of it in his book published in 1897. Kolisko published an article in the *Archiv für Kinderheilkunde*, 1899, in which he gave the clinical histories of a number of infants fed in this way. The infants were much emaciated and his results were surprisingly good. It is only fair that the credit should be given to Backhaus and not to Westcott. Backhaus's work was carefully performed and controlled. Analysis of the various mixtures always gave the same results.

As to my own experience with this method of feeding, I have but little to say — I have used it in the hospital in a number of cases and once or twice in private practice.

In the hospital cases the results appeared to be about the same as when weak modifications of milk were used, so far as the dejections were concerned. It must be stated that the cases that were fed in this way had digestive disturbances for weeks or months; they were in bad general condition and much emaciated. Such cases do not do well in hospitals after two or three weeks in any treatment. As a rule all that is accomplished in hospitals in such cases is to relieve acute symptoms and to find a food that is more suitable than the old one. Not much improvement can be expected after two or three

weeks unless they obtain fresh air. I should not draw any conclusions from my experience thus far.

The good results obtained abroad in the *same class of cases* probably depends largely on the fact that they were out patients, and were not confined in a hospital. Many of Kolisko's cases were under observation for several months.

DR. E. M. BUCKINGHAM: I have only two things to say. One is to compliment the writers upon a valuable paper. The other is that, clinically, I have long been of the opinion that there is a tendency to reduce the albuminoids too much. Of course the reason for this is clear. Here is possibly a way in which such over-reduction may be sometimes avoided.

DR. MAYNARD LADD: There seems to be a slight misunderstanding in regard to the question of priority. We make no claims that this is a new method and take no credit upon ourselves for it. It is simply a development of the principle of using whey in order to raise the percentage of soluble proteids without increasing the caseinogen, and without altering the character of the proteids. Westcott, I think, was the first to call the attention of physicians in this country to the theoretical objections to the present method of dealing with the proteids by the simple reduction in the amount of total proteids, and he did this rather recently. I was not aware of the work done by Backhaus, but should judge from what Dr. Wentworth has said of it that it differed in many respects from our own. The chief point in our experimental work was to develop the system in order that physicians might be able to write for definite percentages of caseinogen and whey proteids, in combination with varying proportions of fats and sugars, at the milk laboratories. This has not previously been possible, and now can be done. We can write for percentages of fats, sugars, caseinogen and whey proteids in the proportions indicated on the board. This is not new, but only a development, just as the work of Backhaus was a development of the work of Monti and many others who preceded him in the use of whey. I am sure that there is no disposition to claim any priority over any one else's work, but simply to make the use of whey cream modifications practicable for use here in Boston and in other cities.

DR. F. W. WHITE: It is perfectly true that the method is not a new one, and that work on this subject has been done on the other side of the water. Monti has spoken many times of the value of mixtures of whey and cream in infant feeding. Our experiments were made in order to improve the method of making whey cream mixtures, and to render it more accurate if possible. We wished to apply it to American milk, and make it practicable in the milk laboratories.

DR. WENTWORTH: My remarks did not refer to the work of Drs. White and Ladd: I wished to make it clear that the credit of devising the method of feeding belongs to Backhaus, and not to Westcott.

In answer to a question by Dr. Rotch, Dr. Wentworth said that Backhaus had done the same work as Westcott. Had worked it out mathematically and tested it. He did not use so many combinations, because he believed that three or four would do—a weak one; stronger one, etc. The work was performed accurately, and control analysis yielded the same results as to the percentage of whey proteid, casein, sugar of milk, fat and solids. It was not simply a "whey mixture" with milk. A high fat was obtained by centrifugalizing the milk. The whey proteids were obtained from the milk by the action of rennet in the presence of telyhsin and bicarbonate of soda. Definite quantities of cream, milk sugar, whey and water were mixed together. The following mixtures are supplied to the public by a Vienna firm, namely:

	I	II	III
Fat, per cent	3.1	3.2	3.3
Milk sugar, per cent	6.0	5.4	4.8
Casein, per cent . . . . .	.5	1.8	3.0
Albumin, per cent	1.0	.3	.5
Salts . . . . .	.4	.4	.7

DRS. W. N. BULLARD and C. W. TOWNSEND read a paper entitled

CONVULSIONS IN CHILDREN.¹

DR. ROTCH: There is no question that in early life there is such a strong tendency to reflex nervous explosions that we have a very large number of these cases represented by convulsions. I have seen infants who have had forty to fifty convulsions in the twenty-four hours; proved to be dependent on an unusually high proteid in the mother's milk, the proteid per cent. running up to 3%, or even to the percentage of proteids in cow's milk. These are interesting cases, and get entirely well when the high proteid percentage is reduced, so that we should always be very guarded in making a diagnosis of epilepsy in such cases. A large number of cases diagnosed as epilepsies are eventually proved not to be epilepsies at all.

Recent Literature.

Bruce's Principles of Treatment. The Principles of Treatment and Their Application to the Practice of Medicine. By J. MITCHELL BRUCE, M.D., F. R. C. P., Lecturer on the Practice of Medicine in Charing-Cross Hospital, London; Examiner in Medicine, Royal College of Physicians, London. Revised to conform with the U. S. Pharmacopœia. By E. Q. THORNTON, M.D., Jefferson Medical College, Philadelphia. In one octavo volume of 625 pp. New York and Philadelphia: Lea Brothers & Co., 1900.

This book takes the place to the busy doctor of a friendly talk with an older or more experienced physician. It does not contain original ideas, nor are all its therapeutic hints up to the modern

¹ See page 233 of the Journal.

standard, but it does offer a wealth of suggestions which are conservative and practical.

The first part of the book (267 pages) deals with the Principles of Treatment, while the remaining portion is devoted to the illustration of these principles in chapters on the treatment of the more important diseases. The general plan of procedure is illustrated in the chapter on pneumonia. First comes a resumé of the disease from the therapeutic standpoint. This is followed by short sections on the Etiological Indications, Pathological Indications, Clinical Indications comprising the chief part of the chapter, and, finally, Indications from the Course. Then come two to three pages on the Outline of Practice. This portion is divided into the commencement and progress of the case, with various sub-topics, such as At First Visit, General Management and Nursing Diet, Local Measure, Medicines; At the Second Visit, At the Crisis, In the Post-critical Stage, In Convalescence.

The book is pleasantly written, but the first part is rather long drawn out.

The Treatment of Pelvic Inflammation Through the Vagina. By WILLIAM R. PRYOR, M.D., Professor of Gynecology, New York Polyclinic; Consulting Surgeon, City (Charity) Hospital; Visiting Surgeon, St. Elizabeth Hospital, New York City. With 110 illustrations. Philadelphia: W. B. Saunders. 1899.

This book is the result of the author's desire to popularize the vaginal methods of dealing with acute pelvic inflammation. He is inclined to believe that these operations are within the powers of the general practitioner, and that the attempt to refer them to specialists leads to unnecessary delay. Whether one agrees with him in this, or believes on the other hand that an inefficient performance of a specially difficult operation would be worse than the delay involved in sending for a qualified operator, one must at least grant that Dr. Pryor's book is admirably calculated to do all that any printed work can do to teach the general practitioner vaginal surgery.

The first half of the book is devoted to a lucid and thoroughly up-to-date statement of the pathology of pelvic infection, treated from the bacteriological as well as anatomical standpoint. The remainder is made up of an exposition of the methods of operating carried out in the most minute detail.

LEPROSY IN CANADA.—The extent of leprosy in Canada, as stated in the *Philadelphia Medical Journal*, is shown in the last annual report of the Minister of Agriculture. In this appears a sub-report from the medical superintendent of the Lazaretto at Tracadie, N. B., Dr. A. C. Smith, for the twelve months ending the 31st of October, 1900. There are 20 inmates at the Lazaretto, 13 males and 7 females. Their ages range from nineteen to sixty-four years; and 7 of the inmates may be classified as being in the first stage, 12 in the second, and 1 in the final stage of the malady.

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DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.

A HOSPITAL FOR TUBERCULOSIS IN BOSTON.

THE urgent need of a hospital under the jurisdiction of the city, for persons suffering from tuberculosis has increased with the growth of the population and the crowding which is its inevitable result. The State has made partial provision, at least, for the consumptive poor, but the centres of population are still without proper means of caring for this increasingly large number of dependents. It is eminently natural and proper, therefore, that public spirited persons should take up the question, bring it before the appointed authorities, and inaugurate such reforms as the situation demands. The need is apparent; the best method of meeting it demands careful and far-reaching consideration.

It is no doubt generally known to our readers in this vicinity that a petition to the city government has been drawn up, and signed by a large number of prominent physicians and others, requesting that measures be taken for the establishment within the city limits of a suitable hospital for the care of persons ill with tuberculosis. The wording of the petition is as follows:

TO THE HONORABLE, THE MAYOR AND THE CITY COUNCIL OF THE CITY OF BOSTON:

The undersigned citizens and taxpayers of this city respectfully represent that the Board of Health herein established has by a regulation issued May 1, 1900, included consumption, called in said regulation pulmonary and laryngeal tuberculosis, in the list of diseases requiring compulsory notification, and after the removal or death of the patient disinfection of the premises.

That such cases of consumption constantly and frequently occur in families of the poor living within the city limits in places where the danger of contagion or infection is always great, while no means of providing for their special care and treatment here exists, although the proper protection of the public health so requires.

Wherefore your petitioners pray that by establishing a hospital and appropriating money therefor, or by

such other method as upon due consideration may seem best, the city provide for the special care and treatment of consumptive patients who, by reason of their condition in life, are unable to procure the same.

Signed: FREDERICK I. KNIGHT, M. D.,
EDWARD O. OTIS, M. D.,
B. S. LADD,
MARY MORTON KEHEW,
AGNES VIETOR, M. D.,
A. K. STONE, M. D.

It has furthermore been recommended, but from what source we do not know, that the Marcella Street Home, in the Roxbury District, be transferred to the Board of Health, to be used for such a hospital. This proposition has already met with a certain amount of objection from one branch of the city government, and also from the residents of the neighborhood in question. How strong these objections may prove to be, we have no present means of knowing. If sufficiently strong pressure be brought to bear they may, no doubt, be overruled; in the meantime, however, it is desirable to consider both the disadvantages and the advantages of this site for such a hospital, and also to see if there is any other feasible alternative for the care of the city's consumptive poor.

The disadvantages of the Marcella Street Home are sufficiently apparent. It is an old building; it is not provided with extensive grounds; it is situated in a considerably settled neighborhood, the population of which is likely to increase. The recognized attributes of a hospital for tuberculosis, uncontaminated air and space, are not likely to be attained by the conversion of this building into a hospital. Furthermore it must be borne in mind that the opening of such an institution immediately necessitates its proper maintenance. This means the appointment of a superintendent, resident medical officers, and a nursing staff, not to speak of the many incidentals which the conduct of an independent institution demands. All this should be considered before final steps are taken in so important a movement as this appears to be. We do not question that the signers of the petition to which we have alluded had these objections more or less in mind; their general attitude no doubt was, that it is desirable to take some decided step in the matter, even if the conditions are far removed from what they might wish. In lieu of a better building and site, it is well, for the present, to take advantage of what we have, and start the hospital for tuberculosis at the Marcella Street Home. With this line of argument we have no quarrel; it is the one which in the face of existing political conditions must be used. There is, nevertheless, one other alternative, which has apparently not received the serious consideration it deserves, and that is, the possibility of the establishment of such a hospital on Long Island in Boston Harbor. The advantages of the site in

Roxbury are, that the building is already erected, that it lies within the city limits, and that with it no unpleasant associations are connected. Within the last few years a modern hospital, in the best sense of the word, for chronic disease has been in operation on Long Island; through an unfortunate terminology this has been known as the Almshouse Hospital, entrance to which requires the formal declaration of pauperism. The injustice of this is apparent, a fact which will no doubt in due time be recognized by the law as well as by individuals. In the meantime it should be understood that it is proposed to treat essentially the same class of patients at the new hospital as are now being treated in considerable numbers at Long Island. The distinction of social status is a purely artificial one, and one which should wholly lapse when illness of any sort is under consideration. Long Island has possibilities for an almost ideal hospital of the proposed sort. There is fresh air in abundance, sun the entire day, adequate space for recreation and exercise; no infringement on the rights of neighbors, with consequent diminution in the value of real estate. More than this, there is already a hospital on the island, well equipped, with competent physicians and nurses, and the accessories which hospitals are more and more requiring. A new ward, primarily for the accommodation of tuberculous patients is about to be erected, on account of the increasing number of such patients who are calling for treatment. The natural query therefore comes: why not develop what we already have, rather than unnecessarily, as it would seem, multiply charitable institutions? Especially would this appear a wise policy in view of the manifest disadvantages of the Marcella Street Home, and the equally manifest advantages of Long Island. We have no desire, at this time, to discuss details; our purpose merely is, to direct attention to an institution and to a location which must not be ignored in the final determination of so important a question as the ultimate disposition of the city's indigent consumptives.

It is perfectly clear that provision for tuberculous patients everywhere, and particularly for those in an advanced stage of the disease, must be made in the immediate future. The question is one of national as well as local interest, and in the present state of the public mind we may look for a very marked general improvement in the care of these cases during the next decade.

How this is to be brought about, and how the problem as it applies to different localities is to be solved, experience must show. There can, however, be no doubt that the ravages of tuberculosis may be very materially checked by the establishment of suitable hospitals.

REPORT OF THE NEW YORK TENEMENT HOUSE COMMISSION.

THE report of the Tenement House Commission appointed last year, which was submitted to the legislature, with a special message by the Governor, on February 25th, is, as was to be expected from the fitness of the men composing the commission, a document characterized by ability, moderation and practicality. The most serious evils met with in the investigation, the report states, were insufficiency of light and air, due to narrow courts and airshafts, to undue height of houses, and to the occupation of too great a proportion of lot area, danger from fire, lack of separate water-closet and washing facilities, overcrowding and foul cellars and courts. With all the remedial legislation and regulation since the enactment of the first tenement house law in 1867, the present type of tenement house—the six-story “double-decker”—occupying 75% of a 25 foot lot, with four families on a floor, gives to its occupants less light and less comfortable surroundings than the average tenement of fifty years ago. The commission recommends that the narrow so-called airshaft be absolutely prohibited in all future tenement houses, that proper courts, sufficiently large to secure adequate light and ventilation, be required, and that the height of non-fireproof tenements, except where the building has a width of 40 feet or more, be limited to five stories.

The present tenement house laws are very inadequately enforced, as is shown by the fact that out of 330 tenements in course of construction in the Borough of Manhattan, inspected by the commission, only 15 were found in which there were no violations of the law. In the other boroughs there was no such house found. This state of affairs is largely due to the fact that the enforcement of the different laws in relation to tenements is divided among the four departments: Health, Building, Fire and Police. The commission is, therefore, of the opinion that the best solution of the present and future tenement house problem will come through the creation of a separate department, charged with no duty except the supervision of tenements, in which there should be various bureaus with specific functions. In one of the bills accompanying the report it is provided that the proposed department shall have at its head a single commissioner, who shall have entire control of its management and be held individually responsible for any violation of the tenement house laws. The opinion is expressed, furthermore, that a requirement to the effect that no tenement house shall be occupied for living purposes until a certificate for its completion in compliance with the law be issued, will not only enforce obedience to law in the simplest manner,

but will do away with the present cumbersome system of threatening prosecution and the dragging on of long legal proceedings in civil actions.

The three bureaus recommended for the new department are those of building, of sanitary inspection, and of records. The object of the last named would be to keep the records of every tenement house in such a way that the commissioner could ascertain at any time all the facts in reference to any one house. In reference to the desirability of such a bureau the report says: “The commission finds that there are a number of houses in the city which are permanently infected with tuberculosis, and that families moving into such houses without knowing these facts have become infected with the disease. Dr. Biggs, of the Department of Health, shows in a special report on this subject, which forms part of the report, that in one block in one part of the city there are at least three tenement houses in which have occurred twenty-two cases of tuberculosis in each house within five years.” In regard to baths, the commission states that ordinary commercial considerations are likely to settle this question in the near future, as an inspection of new tenement houses has shown that a large percentage of them have a private bath for each apartment. The report recommends that streets in tenement districts should be paved with asphalt, on account of the facility with which they can be kept clean, and suggests that small parks in such districts could be obtained at comparatively little expense by taking only the interior of a block and permitting the erection of model tenements upon the two exterior strips abutting on the streets. By adopting this plan the city would be able to obtain needed parks and recreation grounds, and new tenements could be constructed to accommodate, at remunerative rents, quite as many persons as are now inadequately housed by old tenements on the old area.

MEDICAL NOTES

PLAGUE AT CAPE TOWN.—Plague has definitely appeared at Cape Town, and a considerable number of cases have been reported. The *Medical Press* comments on the situation, as alluded, namely, that the plague had broken out allows: “The sinister rumor to which we have in South Africa, has proved only too well founded. Should the disease be conveyed to the front the results may be of a terrible nature. The heavy mortality from enteric fever shows that the sanitary environment of the troops must be utterly defective in the elementary points of wholesomeness. If enteric fever can play such havoc, what

may we expect from plague? Both maladies are "filth diseases," and the bad sanitation that fosters the one will extend an equal shelter to the other. The difficulties of the situation, indeed, appear to be increased a hundredfold by the invasion of the Asiatic pest. Should the plague have already broken out among the British troops it is to be hoped that the home authorities will lose no time in announcing the fact. The news that the disease had reached South Africa came to London first by way of the newspapers of Paris and Berlin. That information has now proved correct, and there is no particular reason, so far as can be seen, why the War Office should not confirm or deny the further Continental rumor that the pest has already killed a number of our soldiers. What is to be gained by silence? Has the War Office taken any steps to furnish ample supplies of plague serum in case of such an outbreak at the front?

IN UNION IS PROSPERITY.—It is reported that surgeons at Vienna had made preparations to operate upon and separate Barnum's Siamese twins—thirteen-year-old boys—exhibited there, when relatives interfered. They claimed that the twins were prosperous together; apart they would be penniless.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, March 6, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 89, scarlatina 33, measles 50, typhoid fever 3.

GROWTH OF THE CHILDREN'S HOSPITAL, BOSTON.—The following statistics from the recent Children's Hospital report are of interest in showing the remarkable development of the institution: In 1890 the number of patients treated in the wards was 442, and in 1900 it was 1,394. In 1890 the new cases in the Out-Patient Department were 1,712, and in 1900 2,586. In 1890 the visits to the Out-Patient Department were 7,291 and in 1900 21,436, while of visits for out-door relief there were none in 1890, but in 1900, the value of this extension of the hospital service having been fully proved, there were 1,828 home visits made by members of the hospital staff and nurses. In 1889 the Convalescent Home, at Wellesley, cared for 104 patients, and in 1900 for 440 patients. In 1890 the number of nurses in the hospital was only 10, while in 1900 the average number has been 35.

STATISTICS OF BUTLER HOSPITAL, PROVIDENCE, R. I.—According to the recently issued report of the Butler Hospital for the Insane, at Providence, R. I., on January 1, 1901, there were in the hos-

pital 186 patients, 92 men and 94 women. There were admitted during the year 63 patients, 29 men and 34 women. The whole number of patients under treatment during the year was, therefore, 249. The daily average population was 174. There were discharged 78 patients, 40 men and 38 women. Of this number 13 had recovered, 14 had improved, 22 were unimproved, 4 were not insane, and 25 died. There remained at the close of the year 171 patients, 81 men and 90 women.

HOUSE OF THE GOOD SAMARITAN, BOSTON.—During the past year this hospital has received and cared for 241 patients, of whom 73 were children.

A CASE OF SMALLPOX IN SOMERVILLE, MASS.—It is reported that a case of smallpox has been discovered in Somerville, Mass. The patient is said to have come from Cleveland, Ohio, during the active stage of the disease. The Board of Health has urged immediate general vaccination.

A SMALLPOX HOSPITAL IN NEW HAMPSHIRE.—Owing to the prevalence of smallpox in and about Concord, N. H., the State Board of Health has opened a special hospital for the care of patients suffering with the disease at Harrisville.

NEW HOSPITAL FOR LYNN, MASS.—The Union Hospital of Lynn has bought an estate in that city consisting of a house containing twenty rooms, and a lot of land with an area of 25,000 square feet. The building is in condition for immediate occupancy, but improvements will be made before patients are received. Forty patients can be cared for in the several private rooms and the two large wards. An Out-Patient Department is part of the plan of work, which will probably be located in the centre of the city.

NEW YORK.

HEARING ON THE SEYMOUR BILL FAVORING OSTEOPATHY.—On February 27th there was a hearing before the Assembly Committee on Public Health on the Seymour bill conferring on osteopaths the same privileges now possessed by licensed physicians, and among those who spoke in favor of it was Mark Twain, who made a long address in behalf of what he called "personal liberty." Among those who argued against it were Dr. Didama of Syracuse and Drs. Van Fleet and Robert T. Morris of New York. Dr. Van Fleet contended that the enactment of such a measure would flood the State of New York with quacks and incompetent practitioners, and would be both a gross injustice to licensed physicians and a discrimination against the regularly incorporated medical colleges of the State. No one, he said, would care to take a four years' course at a medical college if he could go to some

Western osteopathic school, and in that way gain the right to practice medicine in New York. Dr. Morris gave the osteopaths some rather hard raps. In the course of his remarks he read from one of their authorities the treatment prescribed for felon which consisted in moving the muscles of the affected finger. "The value of that treatment will be readily appreciated," said he, "when I tell you that there are no muscles in the fingers." Later on he quoted from the osteopathic treatment of locomotor ataxia, which embraced the manipulation of bones claimed to be out of place. At this point Dr. Morris produced the spine of a child, and, taking hold of one of the vertebrae, challenged any one of the osteopaths present to move a part of the bone the fraction of an inch. "Now, there are the gloves, gentlemen," he exclaimed, "come, put them on, and give us an exhibition of your professed skill." The challenge, it is needless to say, was not taken up.

A WEDDING BY PHONOGRAPH.—A novel wedding recently took place in the town of Union, near Binghamton, N. Y., where the difficulties of a strict quarantine were ingeniously overcome, and, notwithstanding the illness of the bride, the ceremony was performed on the day originally set for it. Miss Rockfellow of Chicago, and H. A. Bush of West Point, Ky., had planned to be married at the home of the former's sister in New York, but while on her way East the bride was attacked with diphtheria at Union, where she had stopped for a brief visit with friends. The bridegroom was summoned, and he conceived the idea of a phonographic wedding. Two phonographs were procured, and in one of these the clergyman's questions and Mr. Bush's answers were recorded. The cylinders were then transferred and the machines sent to the bride in her sick chamber. When they were set in motion she answered the questions asked through one machine into the mouthpiece of the other.

THE ANOMALIES OF CHRISTIAN SCIENCE.—The *New York Herald* is authority for the statement that the husband of Mrs. Augusta Stetson, the leader of the Christian Scientists in New York (who is second in authority and influence in the sect only to Mrs. Eddy, and who derives an income from "healing" and instructing others variously estimated at from \$10,000 to \$100,000 a year), draws from the government, as a Civil War pensioner, a monthly stipend of \$72 "for rheumatism and paralysis." According to the newspaper account, the husband is a helpless invalid, confined to the house, and in the same residence is Mrs. Stetson's mother, who is also a sufferer from rheumatism and attended by a trained nurse.

ACQUITTAL OF BELLEVUE HOSPITAL NURSE.—Jesse Davis, the pupil nurse charged with causing

the death of Louis Hilliard in the insane wards of Bellevue Hospital, was acquitted on February 28th, after a trial lasting three weeks. The principal witness for the prosecution, Minnock, a reporter who feigned insanity in order to gain admission to the wards, gave his evidence in such a way that even the prosecuting attorney discredited it, and two other witnesses were insane patients, whose testimony was necessarily open to doubt. It is said that the indictments against the other two nurses charged with the same offense will now be dismissed.

POLLUTION OF BROOKLYN WATER SUPPLY.—At the annual meeting of the Medical Society of the County of Kings, held February 25th, the Committee on Public Health, of which Dr. E. H. Bartley is chairman, reported that a portion of the water supply system of Brooklyn is polluted, and resolutions offered by the committee were adopted, urging upon the Health and Water Departments the necessity of the sanitary patrol of the entire water-shed, as provided for by the city charter, and of the early construction of a grand filtration plant for filtering the whole supply.

SMALLPOX.—During the month of February there were reported in the boroughs of Manhattan and the Bronx 97 cases of smallpox, against 59 in January. In Brooklyn, also, the disease has been increasing. On February 27th 8 cases were discovered in three adjoining tenement houses, and on March 1st 11 cases occurred in a single large house.

APPOINTMENT OF STATE HEALTH COMMISSIONER.—Governor Odell has appointed Dr. Daniel Lewis, of New York, State Health Commissioner, to serve until December 31, 1904. The functions of the commissioner are the same as those of the recent State Board of Health, of which Dr. Lewis has been president since 1895.

GIFT TO POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.—The Post-Graduate Medical School and Hospital has received an anonymous gift of \$15,000, from a friend of the institution, for the purpose of supporting in perpetuity three beds in the babies' wards of the hospital.

Miscellany.

INFORMATION FOR CANDIDATES SEEKING EMPLOYMENT IN THE ARMY.

As a result of the reorganization of the Army by Act of Congress approved February 2, 1901, there are 129 original vacancies as assistant surgeon to be filled.

The prescribed age limit of candidates will be

rigidly adhered to, and it will be useless for those who are more than twenty-nine years of age to apply, unless they have had previous service as mentioned in the circular. The requirement of hospital experience or its equivalent in private practice will also be insisted upon. Hospital work as a student will not be regarded as fulfilling this requirement; experience as a physician after graduation is what is meant. Two years of private practice will be considered an equivalent of one year's hospital experience.

Army medical boards will be convened at an early day in Washington and in San Francisco, and examinations will be begun as soon as possible.

Copies of a "Circular of Information" may be obtained upon application to War Department, Surgeon General's Office, Washington.

The Medical Corps of the Army, as increased from a total of 192 to 321 medical officers by recent Congressional action, consists of a surgeon general with the rank of brigadier general, 8 assistant surgeons general with the rank of colonel, 12 deputy surgeons general with the rank of lieutenant colonel, 60 surgeons with the rank of major, and 240 assistant surgeons with the rank of first lieutenant, mounted, for the first five years, and the rank of captain, mounted, thereafter, until promoted to major.

Section 1172, Revised Statutes of the United States, provides that "No person shall receive the appointment of assistant surgeon unless he shall have been examined and approved by an army medical board, consisting of three surgeons or assistant surgeons, designated by the Secretary of War; and no person shall receive the appointment of surgeon unless he shall have served at least five years as an assistant surgeon in the regular army, and shall have been examined and approved by an army medical board, consisting of not less than three surgeons, designated as aforesaid." The act to increase the efficiency of the military establishment of the United States, recently approved, further provides "that the period during which any assistant surgeon shall have served as a surgeon or assistant surgeon in the Volunteer Army during the war with Spain or since shall be counted as a portion of the five years' service required to entitle him to the rank of captain.

All vacancies are filled by appointment to the junior grade (first lieutenant). Promotion through the intermediate grades of rank from that of captain to that of colonel is by seniority, but there is an examination for the rank of captain and another for that of major, to ascertain the fitness of the officer for promotion. Advancement to lieutenant colonel and colonel takes place without further examination. The surgeon general is selected by the President from among the members of the corps.

The physical examination comes first in order, and must be thorough. Candidates who fall below sixty-four inches in height will be rejected. Each candidate is also required to certify "that he labors under no mental or physical infirmity or

disability which can interfere with the efficient discharge of any duty which may be required." Errors of refraction, when not excessive, and not accompanied by ocular disease, and when correctable by appropriate glasses, are not causes for rejection.

The professional examinations are conducted by both written and oral questions, upon anatomy, physiology, chemistry, hygiene, pathology and bacteriology, therapeutics and materia medica, surgery, practice of medicine, obstetrics and the diseases of women and children. Examinations are also conducted at the bedside in clinical medicine and surgery, and operations and demonstrations are required to be made by the candidate upon the cadaver.

Hospital training and practical experience in the practice of medicine, surgery, and obstetrics are essential to candidates seeking admission to the Medical Corps of the Army, who will be expected to present evidence that they have had at least one year's hospital experience, or the equivalent of this in practice.

Obituary.

GEORGE H. BIXBY, M. D.

DR. GEORGE HOLMES BIXBY died in Boston, February 26th. He was born in 1837 at Parimariño, S. A., where his father was United States Consul. He received his education at Williams College and at the Dartmouth and Harvard Medical Schools. He also studied in Vienna and Paris. He served in various capacities throughout the Civil War. Later he took up gynecology as a specialty and was associate founder and editor with Dr. Horatio R. Storer of the *Gynecological Journal*, was a member of various medical societies and contributed many articles to medical journals. His later years were spent in a condition of invalidism, which prevented the active practice of his profession. He leaves one daughter.

Correspondence.

AN EXPLANATION FROM THE MASSACHUSETTS GENERAL HOSPITAL.

BOSTON, March 4, 1901.

MR. EDITOR:—In your issue of February 28th you published a communication entitled "Should a Hospital Charge for Information about Patients?"

For the benefit of your readers, I wish to say that the Massachusetts General Hospital does not plead guilty to the charge of receiving money for giving information about patients to the physicians who send them here.

If a physician has asked for a full copy of the record of a patient, a charge has sometimes been made for making the copy. Your correspondent did not ask for a full copy and the bill was sent to him through a clerical error. If the same thing has ever happened to any other member of the profession, I shall be glad to have him communicate with me on the subject.

Very sincerely yours,

HERBERT B. HOWARD,
Resident Physician.

METEOROLOGICAL RECORD.

For the week ending February 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Barometer Daily mean.	Thermometer. Daily mean. Maximum. Minimum.	Relative humidity. 8.00 A. M. 8.00 P. M.	Direction of wind. Daily mean.	Velocity of Wind. 8.00 A. M. 8.00 P. M.	Weather. 8.00 A. M. 8.00 P. M.	Rainfall in inches.
S., 17	29.60	32 36 29	75 63	N.W.	9	C.	T
M., 18	29.62	34 40 27	72 62	N.W.	6	C.	T
T., 19	29.55	34 40 27	76 58	N.W.	10	C.	T
W., 20	29.45	36 35 22	72 64	W.	11	C.	O.
Th., 21	29.53	37 17 34	65 54	W.	12	O.	T
F., 22	29.81	39 30 16	64 54	N.	9	C.	T
S., 23	29.97	39 30 14	64 50	N.E.	11	C.	T
Σ	20.89	34 22	63				

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
Σ = Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 23, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,292	1,511	392	22.45	15.16	1.75	—	2.69
Chicago	1,098,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	—	—	—	—	—	—	—
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	223	15	14.49	21.54	.45	.45	1.33
Cleveland	341,508	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,016	133	46	32.50	19.52	—	8.13	.81
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	78	18	18.92	27.52	—	—	3.44
Boston	560,892	258	79	23.70	19.94	2.94	.42	7.14
Worcester	118,421	32	9	15.00	28.00	—	2.12	2.71
Fall River	101,863	32	9	27.00	19.00	—	—	2.71
Lowell	94,993	41	11	7.32	21.96	—	2.44	2.44
Cambridge	90,886	26	8	19.23	34.03	—	3.81	7.68
Lynn	68,713	31	5	19.35	12.90	—	—	3.23
Lawrence	62,559	33	9	17.36	4.34	—	—	—
New Bedford	62,442	35	15	22.88	37.18	5.72	—	2.86
Springfield	62,059	24	3	4.16	24.96	4.17	—	—
Somerville	61,643	24	1	33.78	14.59	—	—	12.16
Holyoke	45,712	19	9	24.56	15.78	—	—	—
Brookton	40,993	14	3	7.14	42.84	—	—	—
Haverhill	37,175	11	1	28.96	21.42	—	7.14	—
Salem	35,596	25	6	32.50	24.00	—	—	—
Chelsea	34,072	—	—	—	—	—	—	—
Malden	33,664	11	3	—	36.36	—	—	—
Newton	33,587	8	1	—	25.00	—	—	—
Fitchburg	31,741	1	1	28.56	14.29	—	—	—
Taunton	31,036	15	6	13.33	19.98	6.66	—	—
Glooucester	26,121	10	1	—	20.00	—	—	—
Everett	24,236	6	1	—	16.67	—	—	—
North Adams	21,390	9	2	14.28	22.22	—	—	—
Quincy	20,899	9	2	33.33	11.11	—	—	—
Waltham	24,181	7	2	42.84	14.29	—	—	—
Pittsfield	21,566	—	—	—	—	—	—	—
Brookline	19,935	6	3	33.33	16.67	—	—	—
Chester	19,167	3	1	—	—	—	—	—
Medford	18,244	7	1	—	28.56	—	—	—
Newburyport	14,478	6	1	—	50.00	—	—	—
Melrose	12,962	3	1	—	—	—	—	—

Deaths reported 2,181; under five years of age 702; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 585; acute lung diseases 157; consumption 283; diphtheria and croup 72; diarrheal diseases 44; scarlet fever 36; influenza 27; typhoid fever 9; whooping cough 11; measles 11; cerebrospinal meningitis 12; smallpox 9.

From whooping cough New York 3, Pittsburg 1, Providence, Boston, Somerville and Holyoke 1 each. From

cerebrospinal meningitis Worcester 4, Lynn 2, Boston, Somerville, Gloucester, Lawrence, Brookline and Fitchburg 1 each. From scarlet fever New York 21, Boston 7, New Bedford 2, Baltimore, Springfield and Taunton 1 each. From typhoid fever New York 5, Baltimore, Boston, Cambridge and Haverhill 1 each. From measles New York and Pittsburg 5 each, Boston 4. From smallpox 9 cases in New York City.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,780,000 for the week ending February 9th, the death rate was 19.8. Deaths reported 6908; acute diseases of the respiratory organs, (London) 387; whooping cough 129, diphtheria 101, measles 57, fever 44, diarrheal 40, scarlet fever 26.

The death rates ranged from 12.3 in Cardiff to 29.5 in Norwich; Birkenhead 17.5, Birmingham 20.2, Blackburn 18.4, Bolton 15.1, Bradford 15.1, Brighton 24.2, Bristol 22.5, Burnley 18.6, Croydon 12.4, Derby 17.5, Gateshead 20.4, Halifax 20.0, Leeds 19.6, Leicester 16.2, Liverpool 27.9, London 18.7, Manchester 24.7, Nottingham 21.4, Plymouth 22.6, Sheffield 20.0, Swansea 21.4, West Ham 14.4, Wolverhampton 19.6.

RECENT DEATHS.

THOMAS RILEY, M.D., M.M.S.S., of Adams, died March 4, 1901, aged fifty-seven years.

THEODORE GIBBINGS, M.D., M.M.S.S., died in Housatonic, December 28, 1900, aged sixty-four years.

FREDERICK LYMAN THAYER, M.D., M.M.S.S., died in West Newton, March 4, 1901, aged fifty-three years.

DR. ARNOLD HODGMAN, of New York, died on February 25, from cardiac disease, in the sixty-ninth year of his age. He was born in West Townsend, Mass., on November 15, 1832. He studied for a time at the Dartmouth Medical College, and was graduated from the Medical Department of the University of the City of New York in 1858. In 1859 he was attached to the hospital staff on Blackwell's Island, and afterwards was in charge for eight years of the Medical Department of the city's prisons. He had practiced in New York for over forty years.

BOOKS AND PAMPHLETS RECEIVED.

Malaria and Mosquitoes on the West Coast of Africa. By Dr. H. A. Ziemann, Staff Surgeon, late Government Physician in Cameroons. Reprint, 1901.

A Medical-Legal Manual. By William W. Keyser, Lecturer on Medical Jurisprudence in the Omaha Medical College, etc. Omaha: Burkley Printing Company, 1901.

State Laboratories as Aids to Sanitary Work. By Samuel W. Abbott, M.D., Secretary of the Massachusetts State Board of Health. Portland, Me.: Marks Printing House, 1901.

Notes on some Affections of the Heart Substance, with Illustrative Cases. By Thomas E. Satterthwaite, M.D., Consulting Physician to the Post-Graduate Hospital. Reprint, 1901.

New Points in the Anatomy, Histology and Pathology of the Rectum and Colon. By J. Rawson Pennington, M.D., Professor of Rectal Diseases, Chicago Polyclinic, Chicago. Reprint, 1901.

The Prognosis of Various Types of Albuminuria. By Talbot Jones, M.D., St. Paul, Minn., Visiting Physician to the City and County, St. Luke's and Bethesda Hospitals, etc. Reprint, 1900.

Resultate der Bottini'schen Operation bei Prostatahyperplasia. Demonstration eines gemeinsam mit Dr. Bierhoff konstruirten Kystoskopischen Prostata-Incisors. By Dr. Albert Freudenberg, Berlin. Reprint, 1901.

Asthenic Bulbar Palsy. By Charles W. Burr, M.D., Neurologist to the Philadelphia Hospital, and D. J. McCarthy, M.D., Associate in Medicine in the William Pepper Laboratory of Clinical Medicine. Reprint, 1901.

An Atypical Case of Multiple Sclerosis. By Charles W. Burr, M.D., Neurologist to the Philadelphia Hospital, and D. J. McCarthy, M.D., Associate in Medicine in the William Pepper Clinical Laboratory of the University of Pennsylvania. Reprint, 1900.

Medical and Surgical Experiences in the South African War. By Lieut.-Col. G. Sterling Ryerson, M.D., lately British and Canadian Red Cross Commissioner with Lord Roberts' Headquarters in South Africa. St. Louis: Lambert Pharmaceutical Co. 1901.

Address.

THE STORY OF THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.¹

BY J. G. MUMFORD, M.D., BOSTON.

THE story of the Society for Medical Improvement is not so much a history as it is a series of biographies. As a history, it is commonplace enough, and interests us because it runs back nearly three-quarters of a century, and contains the names of a good many well-known men. Indeed, we may divide its life into three generations. To do so gives it a rather personal and family interest. A number of us can actually point to a grandfather among the early members. It is none the better for this, perhaps, but it is better than most societies, I believe, and I hope to show some reason for this belief. Its history has been sketched briefly more than once before. They used to have anniversary dinners in the old days, when men would talk, sing songs and poetize. The story of the founders was often told. On the fortieth anniversary, Dr. Spooner, a surviving founder, wrote a letter about it. That we have. In 1880 Dr. J. C. White made a careful and concise statement of the aims and the work accomplished; and in 1894 again there was an overhauling of accounts, when the Observation Society joined us; but now we are at the beginning of a century, and setting up in a beautiful new hall, so that I am moved to write down in some sort of order the tale of the years that are past, and of the men who lived through them.

It is easy to think of the life of this society as composed of three generations, and it is a rather striking fact that with the passing of each generation there does indeed appear a new era. First there were those ancient men, our professional grandfathers, with their limited ideas of science as we know it; their strenuous gropings in the dark; their earnestness in small things; their blind pathology; their empirical therapeutics; their almost pathetic struggling toward the light. Then there came the second generation, growing out of this first one, the adolescence, the development of it, as it were. The sudden leap forward is amazing, even to one reading these stately old Records of ours. In ten years' time, from 1845, a whole new vocabulary appears. First there came statistics. Then there came the microscope; then there came ether; then there came a burst of scientific enthusiasm and progress such as, up to that time, the world had never seen. This second period, the period of our fathers, extended down to our own time. It saw the development of anesthetics, and of the new pathology. It lived through the Civil War. It reaped the benefit of the great forces which made neighbors of the most distant scientific communities, and stimulated the expansion of modern knowledge.

And so we come down to our own era. What shall we call it? Many great names claim it—Listerism or Pasteurism; or the Age of Antisepsities; or Bacteriology—whatever else it may be, it is certainly the age of surgical expansion. And to no age has belonged more pre-eminent the motto, *Magnum est veritas et prevalebit*. It is through all this, as it was manifested here in Boston, that the Records of the Improvement Society lead us.

There is no mystery or tradition about the beginnings of this society. It started in full-fledged, with a beautifully-written constitution and by-laws, on the 19th of February, 1828. There were eleven members. They met at the house of Dr. John P. Spooner, and they proceeded to organize themselves into a society with as much solemnity and earnestness as the Federal delegates from the thirteen States. Years afterwards Dr. Spooner used to say that he started the society. At any rate, it was a Boston affair, pure and simple. It was not the outgrowth of French ideas, as was the Observation Society, started later. Eleven young gentlemen, recently established in the practice of medicine, (on the suggestion of Drs. Spooner and John Ware) thought they would meet together on a sort of medico-social basis twice a month. These gentlemen were Zabidiel B. Adams, John P. Spooner, George W. Otis, Jr., Joshua H. Hayward, D. Humphreys Storer, Horatio Robinson, James M. Whittemore, J. G. Stevenson, Joseph W. McKean, Enoch Hale and John Ware. To this company were added fourteen others in the course of the year. So with a membership of 25 the society began its career. James M. Whittemore was the secretary, and his beautifully kept records run through the early months of the society's life. In those days the proceedings were delightfully informal, as one would expect. The men were mostly young and well known to each other; there was no president, or permanent chairman. There were no regular written papers, as has been the custom for so long now. When the members met together, each apparently bursting with his desire to impart knowledge, they were called on in alphabetical order for their communications; and to judge from the written record, each man availed himself of his opportunity.

The first regular meeting for the discussion of medical topics was held on the 10th of March, 1828, and Dr. James D. Stevenson opened the highly important proceedings of this society, which have gone on for seventy-three years.

Dr. Stevenson's proposition was this: In the case of a child born while the mother is in a standing position, with rupture of the cord, "Is there any special danger to mother or child?" They began by having a regularly appointed subject for discussion, in addition to the more informal communication, and the first important topic was, "What are the earliest diagnostic symptoms of croup?" And these two topics, the one obstetrical, the other dealing with infectious diseases, have been always the leading topics of

¹Being the Story of the Society, read January 21, 1901; the occasion, the opening of Sprague Hall in the new Medical Library Building, The Fenway.

discussion throughout the life of the society. On this first evening the conclusions were that the croup subject was an interesting one, and that it should be continued at the next meeting. Out of this custom of calling on members alphabetically grew the practice of recording accurately the attendance at each meeting; so that to this day the actual attendance at every individual meeting for seventy-three years is on record.

Two other events of interest connected with the society occurred in this year of 1828: The starting of the Anatomical Cabinet by the society, and the founding of the *Boston Medical and Surgical Journal* by gentlemen who were members of the society. The cabinet was an ambitious project. It continued to grow for many years. It was fostered mostly by the enthusiasm of one man; it published a printed catalogue; and it lies buried in the Warren Museum of the Harvard Medical School. The *Boston Medical and Surgical Journal* was not an original endeavor. It arose out of two other journals—the *New England Journal of Medicine and Surgery* (1811), and the *Boston Medical Intelligencer* (1823), which were consolidated under its name; and it owed its initial success to the editorial endeavors of Walter Channing, J. C. Warren and John Ware.

During those early years members of this society met at each other's houses, and owing to this agreeable arrangement, doubtless, I find that the total expenses of the society for the first year were \$7.50. It soon became evident to our progenitors that a more systematic method of work would improve the meetings; and with that in view, standing committees were appointed, whose duties were to present reports on divers topics of medical interest. In the same year of 1829 the society resolved to publish Transactions. These ambitious extensions in no long time brought about the necessity for larger accommodations. Therefore, in 1830, two years after the founding, a room was hired for the meetings, and for the cabinet, over the shop of Smith & Clark, druggists, on Washington Street, the price paid being \$25 a year. In those new surroundings there seems to have been the same difficulty in finding readers of formal papers that we sometimes experience now; so that it was even found necessary to impose a fine of \$2.00 for failure to read.

As one plunges through the sea of old Records one is constantly tempted to seize upon some fine old medical name, bring it to the surface and exploit it. One could gossip for days about those old times and men and things. I will mention a few of the men in their order. There were those who founded the society, whom I have named. Then in 1829 came John Homans, Sr., John D. Fisher and Francis G. Higginson; 1831, John B. S. Jackson; 1832, Charles T. Jackson and Joseph Roby; 1833, Charles G. Putnam and John C. Hayden; 1834, Henry I. Bowditch; 1835, Henry G. Clark and J. Mason Warren; 1836, George C. Shattuck, Jr., Oliver Wendell Holmes and George H. Bethune. In 1837 this society of young men took unto itself as honorary members three dis-

tinguished gentlemen of a former generation: George C. Shattuck, Sr., James Jackson, Sr., and J. C. Warren; in 1838, Jacob Bigelow as a regular member, and Edward Reynolds, S. D. Townsend and Jeffries Wyman; in 1839, Samuel Parkman. I believe every one of these names is well known to all of us, and to the older members of the society must call up a flood of interesting reminiscence and anecdote. Now there is a curious thing about the steady, undeviating progress of this association of ours—it is ever unemotional, unruffled by stirring events and men. Though Charles T. Jackson and J. C. Warren and Henry J. Bigelow were members, the discovery of ether raised scarce a ripple in their debates. These men themselves, and their sons and brothers, went into the army and navy in war times. Yet this is all the official note we see, written three months after the fall of Sumter, that, "owing to the disturbed political condition of the country, the society judges it wise that the meeting of the American Medical Association be postponed for one year." And through all this time, in its quiet way, the machinery of the society and its habits and its traditions were gradually crystalizing. The first prudential committee is mentioned as a creation of 1837. It consisted of Messrs. Ware, Fisher, Gould, Palmer and Roby—five in all; a committee of five it has remained ever since. For more than forty years its duties seem to have been largely perfunctory, certainly not onerous, consisting for the most part in approving the names of candidates for membership. And during all those former years it was composed of some of the oldest members of the society—Dr. Jacob Bigelow and Dr. D. H. Storer served until extreme old age; also Dr. Ware and Dr. Gould for many years.

Dr. Jacob Bigelow was constant in his attendance at the society meetings. Already of mature age, vast experience and deeply learned in the natural sciences, his presence was a great stimulus to his younger companions; and, unlike his distinguished son, he elicited, rather than depressed discussion. In that first era, which for convenience is limited to the years before 1846, one of the most conspicuous figures was Dr. Oliver Wendell Holmes. For two years he was secretary, and the volume of his records, in his beautifully precise, feminine handwriting, makes glad the eye of the reader as much as his quaintly delicious phraseology warms and uplifts the heart.

I suppose that to the older members among us the name of Dr. J. B. S. Jackson, more than that of any one man, stands for the work of this society. Elected to membership three years after the small beginnings of 1828, he continued active in his interest until 1879, only twenty-two years ago, and during all these forty-eight years his enthusiasm in the study of morbid anatomy seems never to have flagged. Wherever one opens the old Records, there will be found a paragraph devoted to Dr. J. B. S. Jackson and his unflinching specimen. And, especially in the first twenty years

of the society's life, his enthusiasm for the autopsy room might be described in the gamin language of today as something fierce. Of course, in those days, pathological surgery supplied little material, and it is a curious commentary that when one reads in the Records of one day some surgeon's clinical account of a desperate case, one may expect to find in a subsequent Record *not* the story of the operation, but Dr. J. B. S. Jackson's account of the autopsy. Indeed, in those early years, the number of morbid specimens shown was astonishing.

The vigorous growth of the young society suffered little abatement up to the time of the Civil War. It was small, as we reckon figures; it was somewhat exclusive; it was composed of busy workers in all fields of medicine; it afforded them all their equal and almost their only opportunity for speaking and publishing. It printed "transactions," it represented teachers, practitioners and hospital staffs; and in a very real sense it controlled the practice and the medical fortunes of this community. In the very early years, social features of these meetings were not lacking. The members celebrated an anniversary day in February; and annually, for about twelve years, dined together at each others' houses. Here is Dr. Holmes' account of one of these gatherings: "The Anniversary Meeting of February 7th, 1838, Dr. Ware in the chair. At 7 o'clock the society disposed itself at table, animated by the presence of the dinner, which, by its outward arrangement and intrinsic excellence, did honor to the taste and judgment of its providers. Dr. Roby favored the society with an ingenious, pointed and witty address, touching the peculiar disposition of the mind required on entering on the study of medicine, and the effects which the practice of this society exercises upon our intellectual and social condition." Dr. Holmes then read a poem. "No incident occurred to interrupt the festivities of the evening, with the exception that a couple of our most efficient members were interrupted for a short time by accidents too frequent on these occasions. An amiable indiscretion, dating undoubtedly from some bright May morning, was visited upon the heads of Drs. Ware and Adams, by a midnight call into the midst of a February snow storm. The hilarity of the company was temporarily diminished, and the census of the city permanently increased during their absence."

So the society was small, more like a club. Of the 35 members, usually 25 attended. Admission to membership was difficult. All were friends. The minutes, written with the greatest care and detail, covering sometimes eight or ten pages of a large sheet, give an idea of the daily life, pursuits and purposes of the various members; allowing, of course, for the point of view of the individual reporter. But there is no disguising that ancient courtesy of the formal type, which we expect and which still lingers obscurely among us; known better, perhaps, to our profession than to others. The spirit of these ancient times still

pervades the pages, and as one reads, the men themselves become very real and present.

These social features and small friendly gatherings did not last many years. After 1840 the record of anniversary dinners ceases, though an occasional sporadic festivity occurred from time to time thereafter. The nineteenth anniversary of the founding was celebrated at the house of Dr. Reynolds, and a poem was read by Dr. Holmes. And again, more than twenty years later, on the fortieth anniversary of the founding, a very real and serious jubilation took place. Dr. D. Humphries Storer, an original member, and now growing old, entertained the society at his house. Doubtless some of our present members recall the occasion. A delightful account of the evening is given in the Records, and a copy of a letter from Dr. Spooner, then living, in which he tells the story of the founding. But after all, social matters have concerned us little for the last sixty years. It was toward the end of this first period in our history, August 14, 1843, that a gentleman was elected who is now, and has been for many years, the Nestor of this society, Dr. Samuel L. Abbott. His sponsor was Dr. Storer. Dr. Samuel Cabot, Dr. G. Wiley and Dr. William S. Coale were elected in the same year, and their names seem to carry us back to a very early era. Besides being a scientific and social society, this organization attempted to meet other needs in those early days. It was a journal club. It started a library. It collected a museum. And in other ways that I have named, it flourished as a centre of medical life in Boston.

The second era or generation in the life of our society is so full of interest, and to many of us is so familiar, either by experience or story, that it is not easy to condense it into a few dry words. I have characterized it as the age of ether. It was that; it was much more. Strong names blazon its course, many of them coming down through the years. At the very beginning of it, and perhaps more conspicuous than any other one man, comes Henry J. Bigelow — leaping upon the stage, as it were. That capital piece of memoir writing, I think the very best medical biography known to me, Hodges' Life of his great colleague, has reached us recently, and the tale he tells of Bigelow's career renders futile my feeble words here. But there were others: Samuel Cabot, Jeffries Wyman, Clark, Lyman, Townsend, Gay, Derby, Minot, Williams, Thorndike, Homans (John and Charles), Hodges, Borland, Reynolds, White, Green, Blake, Channing, Cheever, and more if one were so minded; for who may say what name will live through this and future generations? Certain names, then, and certain events dominate the Record: following the years, one sees a man's entrance, his feeble beginnings, and his increase in force and courage. Then his youthful modesty thrown aside, his earnest setting forth, his dominating tone; and then suddenly, mostly, he disappears from our pages. In the first era it was Storer and Ware, James Jackson,

J. C. Warren, Jacob Bigelow who successively engrossed us. Now these names cease mostly, and Henry J. Bigelow, J. Mason Warren, Cotting, Calvin Ellis, George C. Shattuck and their like hold the stage. And through it all, year in and year out, generation after generation, sounds the steady, persuasive voice of J. B. S. Jackson—pathologist, scholar, teacher. Through many of these years, the clerly hand of William M. Morland traces the Record—a name now only to most of us; notable to me for the scolding given him by Henry Bigelow, asserting that his part in the discussions was constantly inadequately reported; the careful scribe, himself, bearing witness to the chastisement. Thereafter Dr. Bigelow's words were most faithfully and accurately recorded.

I have mentioned the all-embracing functions of the society. Until near the beginning of this era it was the only one of its kind. The programme of each evening we should consider enormous in variety and extent. Here is a sample day, taken from the Records of 1848. In addition to numbers of pathological specimens, presided over by J. B. S. Jackson, the programme read: (1) "Oil from Fatty Liver," (2) "Frogs with Additional Extremities," (3) "Diverticulum from Small Intestine," (4) "Intestinal Calculus from a Horse," (5) "Cast of Thorax to show Cardiac Enlargement," (6) "Necrosis after Amputation," (7) "Compound Fracture of Thigh," (8) "Cauterization in Croup" (oral), (9) "Double Urethra," (10) "Convulsions in Typhoid," (11) "Fatal Hemorrhage in Dysentery," (12) "Abscess of the Ear," (13) "Asiatic Cholera."

Now, as early as 1845, Henry J. Bigelow's voice was heard in this assembly, and the next year he began to publish that series of papers on ether, scarcely mentioned here, which gained him so great a notoriety. Other gentlemen, conspicuous in the ether controversy, were members of this society at the time; notably, J. C. Warren and Charles T. Jackson. Of them we hear not at all on this subject. George C. Shattuck was secretary then, and a careful reading of his elaborate Minutes gives no inkling of the raging of the etherial storm. In November, 1846, it is recorded that "Dr. H. J. Bigelow read a paper on the recent discovery and practice of the inhalation of a vapor so as to produce insensibility during the performance of surgical operations and the extraction of teeth." The amazing fact in regard to this famous communication is not a rising storm of criticism and interest, or any slightest evidence of appreciation of what it all meant, but that the communication was dismissed with a few languid comments by Drs. Hayward and Hale on the propriety of hospital surgeons using a secret remedy, as Morton's "letheon" then was.

After Henry Bigelow and J. B. S. Jackson, the most conspicuous contributor to the meetings of this middle era was J. Mason Warren. His remarks were nearly always on surgical cases—many of them of great interest thoughtfully and

forcefully presented. To judge from the accounts in the Records, Dr. Warren must have taken a keen interest in curious and unusual subjects; freaks of Nature, monstrosities and the like, were collected and reported by him. He showed the society the Scotch Giant and the Aztec Children, and among other surprising cases, reported at length this one of extraordinary fecundity: A woman living at 100 West 27th Street, New York City, gave birth in 1858 to a boy; July 30, 1859, boy and girl; March 29, 1860, boy and girl; March 1, 1861, two boys and one girl; February 13, 1862, two boys and two girls—twelve children within five years; and they all lived.

It would be extremely interesting to take any single subject, or series of cases, and trace it through these eighteen volumes of Records: Erysipelas, puerperal fever, the radical cure of hernia, the treatment of ovarian tumors occupied successively the attention of the society, and as men and methods changed, came to be looked upon very differently, as we may suppose.

It is interesting, too, to note the repeated demonstration of the well-known medical truism that rare cases seldom come singly: Dr. Jacob Bigelow shows a thoracic aneurism; at the next meeting, Dr. Jackson shows two. Dr. Samuel Cabot reports a foreign body in the trachea; at the next meeting, Dr. Henry J. Bigelow reports another. Dr. Warren reports a death from chloroform; Dr. Bethune reports a second. Then there are to us the provokingly suggestive discussions hovering around some subject now made complete by scientific demonstration. The beginnings of bacteriology flash upon us as out of the Middle Ages; to be succeeded only by guesswork and darkness. In 1862, for instance, Dr. Jeffries Wyman reported observations on dust, and pointed out its composition as shown by the microscope; spores, hairs, minute eggs, pus corpuscles. And Dr. J. C. White said that while in Germany he had seen pus corpuscles from the air caught on plates in the hospitals. Then about the same time, the frightful extent of hospital gangrene in army hospitals exercised the profession, and the almost intelligent use of antiseptic dressings became especially noticeable. So it was with the recollection of these frightful surgical conditions fresh upon them, that American surgeons welcomed the principles of Lister, even more eagerly than did their European colleagues. The early carbolic method was urgently advocated in 1867 by Drs. George Derby, J. C. White and Upham; and Dr. John Homans spoke of the common use of permanganate of potash in the maternity wards at Vienna in 1865. Curiously enough, as illustrating the familiar scepticism, born of sad experience, Dr. Hodges heard with incredulity their enthusiastic claims. The inception, too, of many medical and surgical methods for long years familiar to us is seen to grow out of these debates: Dr. Samuel Cabot was the first to point out and insist upon the value of ether in the diagnosis of obscure abdominal tumors. Dr. J. B. S. Jackson repeatedly asserted the identity of diphtheria with

membranous croup? Dr. Jacob Bigelow showed the value of the clinical thermometer in estimating the range and course of the temperature in typhoid fever. Dr. Coolidge urged the importance of carbolic acid and glycerine for preserving dissecting-room subjects. Dr. Fifield pointed out that a twisted ovarian tumor may be the cause of an acute peritonitis. And on January 11, 1864, Dr. H. G. Clark reported a successful case of ovariectomy with recovery of the patient. On the other hand, many of our younger members of the profession are apt to forget how extremely recent are some of our most important therapeutic agents. Thus in 1870, Dr. Francis Minot stated that the treatment for rheumatism was colchicum; the salicyllates being unknown; and in 1884 anti-pyrene and cocaine were suggested for the sake of their now familiar properties. What we call "teno-synovitis" is a condition in the daily experience of every out-patient surgeon; yet thirty-five years ago Dr. Fifield reported a case of painful crepitus in the tendons, and inquired into its cause and treatment. I suppose that no one surgical subject, after the discovery of ether, has attracted more wide-spread interest and controversy in our community than the disease which Dr. Fitz has called "appendicitis"—and the interest in this condition is by no means recent. Cases of typhlo-enteritis appear on our Records so long ago as 1836. And towards the end of the second era in the life of the society Dr. J. B. S. Jackson presented a communication on the prevalence of this disease from 1840-1867. It had been asserted that the condition was more common in ancient times, but Dr. Jackson found in our Records the reports of 16 cases quite evenly distributed, and covering a period of twenty-seven years, an average of less than 5 a year.

Now, the two great events of this second era were the introduction of ether, and the Civil War. Their effect upon the lives and practice of our fathers must have been enormous; and if one could blot out this era, skipping from the year 1845 to the year 1868, the advance of Science in the interval would seem to us still more startling. Yet those two great events, as I have said, are little more than touched upon in the Records. Their overwhelming presence seems to have been so great, and their importance so obvious, that secretaries referred to them no more than they would have referred to the changes of the seasons.

Indirectly, however, the presence of war and the use of ether had their bearing on the type of subjects discussed. Matters pertaining to surgery and to camp sanitation had a large prominence; while certain other subjects were conspicuously lacking: Thus the great class which we include under the names neurasthenia, neuroses, hysteria, and the various forms of mental disease were rarely mentioned.

Noticeable, too, is the influx of new words—diagnostic and therapeutic—which flood the Records at definite periods, corresponding to the introduction of new members to the society. The resounding terms of dermatology come promi-

nently to the fore with the return of Dr. J. C. White from Europe; and speculation as to the causes of infectious processes becomes rife after the Civil War. Many of our members, more especially Henry J. Bigelow, R. M. Hodges and George H. Gay, bestirred themselves actively as surgical advisers and hospital inspectors at the front, and their published reports are full of interest to us in these days of renewed warfare.

The limits of time and space prohibit my more than referring to the numberless interesting cases and discussions which fill the Records and measure the progress of advancing Science: the early operations on the ovaries; for abdominal abscess; for hernia; the diagnosis and treatment of pelvic disease; operations on the joints; paracentesis; orthopedic surgery; operations on the eye; hygiene; statistical reports; public health—all these, and a hundred kindred matters, occupied earnestly the men of that time, and their discussions developed always more and more on lines with which we are today familiar.

During the past seventy-three years, we have had many domiciles. At first the members met in each others' houses. Then they met in the Washington Street rooms, over Smith and Clark's drug store; then they met in the Tremont Street rooms, over Burnett's (or Metcalf's) shop; then in Temple Place; after the removal of the Medical Library to Boylston Place they followed it there; and now to this distant Fenway.

For the beginning of the third era in the life of the society, I have chosen the year 1868. This was the fortieth anniversary. It marked approximately our first appreciation of aseptic surgery and bacteriological studies. And beginning with this year, there came to join the society a number of those men who now, in their very prime, we recognize as our most conspicuous representatives. It is for this very reason, because this third era is our own era, that one must limit oneself to brief and formal words in dealing with it. Even the naming of names is invidious, except so far as, from time to time, they conspicuously cumber the Records.

However, early in this era, coincident with changes in our personnel, there began one of those declines which every generation has known. The old men ceased to speak; for a time their juniors failed to take their places. And this has always been noticeable to me, that the modest, rising practitioner will surely restrain himself until increase of stored-up knowledge bursts forth to the enlightenment of his fellows. So these men, now our seniors, then young, appear seldom upon our Minutes, and for a space of several years an apparent pause came over our discussions. Yet those were not inactive days. Many men, fresh from the universities of Europe, were developing our laboratories; a new impetus was given to therapeutics and surgical endeavor; Bigelow was perfecting and publishing the two works which especially have made him famous, on the "hip" and "stone"; hospitals were growing; the university was expanding; and new methods of

teaching were absorbing the profession. It seemed almost as if men were too busy to attend meetings so largely clinical as ours. So it came about that in 1880 the society found itself in a condition of semi-decline, and a strenuous effort was made to re-establish it in its ancient vigor. The man of the hour was our distinguished friend and first president, Dr. James C. White. Dr. White had been a member of the society for twenty-one years. He had known well most of its older members. Its objects and traditions and successes were familiar to him, and the authorities therefore resolved to invest him with the office of permanent chairman or president.

Thus, for the first time, the society became possessed of a responsible head. On taking the chair, Dr. White addressed to the meeting a few pithy, statistical words. He reviewed briefly the history of our organization. He showed the work done in former years, as measured by printed pages of Transactions, and the recent work. He called to the attention of members how great had been their influence upon practice, teaching, study and writing; and how deterioration had come with time. Not that work done was less or of poorer quality, but that less eagerly was it given to a listening world. And he enjoined them to reassert themselves, to publish again the results of their labors, and again to push to the fore the position of Boston medicine.

COPY OF DR. J. C. WHITE'S ADDRESS GIVEN IN 1880.

Gentlemen of the Improvement Society:—At your last meeting you honored me with the chairmanship of the society until 1881. Permit me to thank you for it sincerely, and to assure you that I accept the position with full consciousness of the character of its duties. I accept it because I have entire confidence in the success of the plan you have adopted for the improvement of the society, knowing that it is upon your efforts, and not upon my own, that its future depends.

I have thought that the following brief historical data may be of interest at this time.

The society was founded in 1828, and incorporated in 1839. During its first year it had 25 members of whom but 1, I believe,—one still active and honored among us—survives. At the publication of its first catalogue in 1853 the number of members had increased to 60, of whom 3 were honorary and 5 associates. In 1876, the date of our last publication, the regular members had increased to 79.

The immediate roll of the society is: Active members 91, associates 8, total 99; number of new members elected in the last two years, 23.

The first published records of the society appeared in the *American Journal of Medical Sciences* in October, 1848, during the secretaryship of Samuel Parkman, the twelfth in succession in that office. In January, 1855, their publication was transferred to the *Boston Medical and Surgical Journal*, with which it has remained.

	Pages.	Papers.	Pages.
1853, Vol. I. 1848-1853, Transactions,	358		
1856, " II. 1853-1856, " "	354		
1859, " III. 1856-1859, " "	313	21	292
1862, " IV. 1859-1861, " "	258	31	250
1865, " V. 1861-1866, " "	242	41	311
1876, " VI. 1866-1871, " "	292	25	168
	1817	141	940

The current volume, beginning in 1874, amounts at present to 150 pages of Transactions and 80 pages of paper. The first two volumes contain simply the records of cases presented and the discussions thereon. The subsequent volumes contain not only such extracts

from the Records, but in supplement form also the papers read before the society, and published in the *Boston Journal* and elsewhere. The above synopsis of the publications will show the comparative activity of the society in various periods of its existence.

But this society, which bears upon its rolls the names of the most honored physicians of our city within the present century; which has done so much for the advance of pathology and practical medicine, of which its extensive museum and valuable publications are permanent mementoes; the membership of which has been regarded throughout its fifty years as a high honor by the profession, young and old; whose meetings were long so full of interest and instruction—why is it that this society seems about to perish of its own will? Why is it that in the decade, 1856-1866 the Transactions covered 813 pages, papers 116=772 pages? While in the thirteen years which have since elapsed, 1866-1879, Transactions only 442 pages and papers but 318 pages, the publications of the last thirteen years not amounting to one-half of those of the preceding ten years.

Certainly the days of usefulness of such societies have not passed away. In all our large cities, centres of medical learning and seats of instruction, we find them in active and successful operation—nurseries of the most valuable scientific and practical contribution to our literature, arenas of truth-searching discussions. National and international societies, too, of the most important specialties, as well as general in character, have been organized within the last few years, and have contributed greatly to medical improvement, and have excited a good wide interest. All these bodies we find are incentive to the highest professional work, most useful stimulants to progress. In a neighboring city, in a select society like our own, the communications and discussions which characterize its meetings are of the highest excellence in points of originality and research, and exert a wide influence. Why is it that we in this society, its peer in quality of membership we ought to say, occupy a position so far, far behind? Is it indeed, as one of the leading Western journals has recently said, because we really are their inferiors, and in doing almost nothing are doing our best? It is true we are open to the reproach of being a very silent set here in Boston. We are not book makers, and those who know anything of the management of our journal will bear witness how difficult it has always been to obtain anything like a fair proportion even of papers from the local district it represents. But such reticence is only a fashion for which no better reason than influence of descent exists. It can be corrected not only for our own but for the world's good. Boston has, as she has always had, admirable physicians, who have no right to keep their stores of experience and learning locked up in miserly silence; who would find eager listeners anywhere. They are members of this society, and their eminence should not be confined to its consciousness. I am happy to be able to announce that I have met with the most hearty response from all with whom I have spoken of the claims of the society upon their tongues and pens. It signifies the sincere and active interest which still exists in it. It is this which places the success of the new departure beyond a doubt.

Let me state the plan of conduct of the meetings which it is my purpose to observe, if agreeable to you. At present the order of business is strictly fixed in accordance with the printed programme. I desire the liberty of changing this arrangement to suit the character of the communications as they may present themselves, that written or oral communications may take precedence at any time according to their respective importance. It is my intention that two communications shall ordinarily be presented, which shall be announced in the regular notices of the meetings; that these subjects shall be first discussed by one or two members whom I shall especially call upon, and that then they shall be open for general debate. Afterwards the reader will have opportunity of reply. In this way there will always be valuable matter

before the society, and assurance that communications will receive proper attention. Such special discussions will add greatly to the interest of the meetings and to the development of truth. They will be conducted, it need not be said, with that observance of courtesy and mutual consideration which have always characterized the proceedings of this society. It will assist the chairman greatly in the arrangement of business if gentlemen will inform him at the earliest moment of their intention to make communications, or to exhibit specimens of importance, and of course it is not intended that formal papers and discussions shall prevent the freest presentation of incidental communications and general debate. I would suggest, finally, the propriety of changing the hour of meeting hereafter to 7.30 o'clock.

These words were spoken twenty-one years ago. The burst of scientific enthusiasm, the enormous progress in all branches of medical work which have occupied the last two decades here in Boston, tell their own tale.

Unfortunately, perhaps, for the completeness of our Records, much of the best work done in Boston in recent years does not appear in our Transactions. The rise of new societies, local and national, has drawn away from us numbers of epoch-making papers. But many remain to illustrate our annals. Here are a few, hastily gleaned from the Records: In 1873 Dr. Cheever showed how the knee-joint may be opened for a loose body. In 1874 Dr. Thomas Dwight described his well-known method of freezing sections. In 1880 Dr. Hodges read his classical monograph on pilonidal sinus. In this year, also, Dr. Whittemore read a most valuable article on dispensary abuse—the first one published among us. In 1881 Dr. John Homans read his first series of ovariectomies, Dr. James J. Putnam his well-known article on locomotor-ataxia, and Dr. Hodges on railway spine. In this year, also, Dr. Calvin Ellis made his last public communication, "On the significance of albuminuria as a symptom." During these years of the early eighties Dr. Homans constantly addressed the society on the subject of abdominal surgery, and illustrated the feasibility of laparotomy for other than ovarian disease. In 1887 Dr. Ernst's paper on "rabies" is conspicuous. In 1889 Dr. Henry J. Bigelow appeared for the last time before the society to read an account of his identification of the famous Paré portrait. The extremely interesting series of debates on appendicitis began in 1887, and has lasted even to the present time, the early participants being Drs. Fitz, Cabot, Porter, Warren, Gay, Richardson, Homans, Elliot, Watson, and many others. Perhaps the most interesting and conspicuous meeting of the period was that of November 19, 1890, a memorial to Henry J. Bigelow. The profession gathered *en masse* to honor that distinguished man, then recently dead; addresses were made by R. M. Hodges, O. W. Holmes, Henry Lee, D. W. Cheever, Hasket Derby; and letters were read from R. H. Fitz and A. T. Cabot.

Thus we come down to the last event of importance which concerns us as a society—the uniting with the Boston Society for Medical Observation in 1894. Perhaps many of us have

already forgotten the existence of that most useful organization. Founded in 1835, by the younger members of the profession, it continued in active, separate existence for almost sixty years; until, finally, its objects, practices and membership became so nearly identical with those of the Improvement Society that it was deemed best to unite the two under the title of the older organization. And we now here represent these two famous institutions.

So much for our story as I read it in our Records. Eighteen manuscript volumes; numberless printed transactions and papers, taken from the *American Journal of the Medical Sciences*, and the *Boston Medical and Surgical Journal*, tell it in exhaustive detail. Its rolls are adorned with famous names. Its purposes have been of the highest. Its vigor has been wonderfully maintained throughout the years. In this society alone is there room for many men of many minds. Here all branches of medical science may be disensed and special research popularized. Here are brought the questions of broadest interest; public hygiene, medical education, medical and surgical advance in diagnosis and treatment, and numerous other matters in which every educated physician should take an active interest.

With such a past, then, and such evidence of present vigor, let us believe that the Improvement Society may impress itself on the future and the coming century.

Original Articles.

NOTES FROM THE NEUROLOGICAL DEPARTMENT OF THE MASSACHUSETTS GENERAL HOSPITAL.

SUDDEN (APOPLECTIFORM) BULBAR PARALYSIS;
HEMIPLEGIA; ASTEREOGNOSIS.

BY W. E. FAY, M.D., BOSTON.

LOUISA H., fifty-one years old, came to the clinic in Dr. Walton's service. Eleven years ago she was suddenly unable to talk, but in a brief time the disability disappeared, leaving no traces of the attack. A year later, when the patient was forty-one years of age, speech was arrested in the middle of a sentence, she felt dizzy, and the left arm became numb and powerless. Consciousness was retained, vision was not disturbed and there was no vomiting. She could not talk plainly, and was unable to whistle. There was drooling, and on one or two occasions liquids returned through the nose. The left arm continued numb but gradually regained power. At the end of three months she was up and about with some improvement in all her symptoms. At no time have the symptoms grown worse.

Today, ten years after the attack, she talks in a mumbling fashion, unable to enunciate clearly any word in her ordinary speech. She cannot whistle, and she drools on her pillow at night.

There is no regurgitation of liquids through the nose. The left arm feels somewhat numb, dead-like, and the left hand cannot be used in buttoning, lacing shoes, or for the finer manipulations. There is no history of involvement of cranial nerves other than the hypoglossal and facial, nor was any history of impairment of motion of the left leg obtained, though the examination indicated some lessening of sensation of the sole.

Examination.—She was well nourished, ruddy, and clear in mind. There was typical bulbar speech; at rest the lips appeared flaccid; and puckering, compression, and separation of the lips were impossible except in very slight degree. The risorius muscles, the zygomatici, and other muscles supplied by the seventh nerves were normal on both sides. The tongue could be protruded without deviation a little beyond the lower lip, but the tip could not be directed toward the upper teeth or palate. It was impossible to groove the tongue. The palate reflex was normal; and no sensory disturbance could be discovered in the cranial nerves. The left hand could not make fine movements but the grasp seemed as strong as on the right. Tactile sensation was slightly blunted over the hand and fore-arm; at least the answer always was that the horse-hair and wisp of cotton felt plainer on the right. Pain sense (the skin was pinched) was decidedly blunted over the left hand, arm, shoulder and side of the neck, though not lost. The warm and cold test tubes were correctly named each time. Space sense was not lost, but it was impaired, as the points used required wider separation to be recognized as two on the left palm and dorsum; and the answers were less prompt. Pressure sense was altered as metallic substances were called soft. There was preservation of muscle sense, and localization of areas touched was perfect. Objects—a fifty-cent piece, a key, a knife—were unrecognized in the left hand, but were accurately named when in the right hand. The shape of a round tape measure and a fifty-cent coin could not be described, and both were called soft when placed in the left palm. Fibrillation was absent; and atrophy in moderate degree was observed only in the lips and tongue. The knee jerks were normal, there was no ankle clonus, the plantar reflex was absent in both feet, but the stimulation was not felt as plainly on the left sole as the right; the pupils were equal and reacted to light and accommodation. The visual fields were not limited. Nothing abnormal appeared in the examination of the heart and urine. The arteries were not remarkable.

The symptoms of this case, apart from the paralysis of the arm, are those of ordinary bulbar paralysis; the peculiarity, on account of which the case is put on record, lies in the mode of onset. The most common type of bulbar palsy is of insidious origin and gradual progression; next in frequency comes the so-called poliomyelitis inferior, which may be acute or subacute, and either come to a stand-still or progress; of great rarity are the

cases of apoplectic onset and bilateral lesion in which the palsy may progress or become stationary after more or less improvement. The case reported falls in the last category, and gives no history of change in the bulbar symptoms after the improvement in the first two months of the palsy. The danger of the future, however, lies in the possibility of further degenerative changes, which may begin at any time.

The nerve supply of the orbicularis oris is derived from the facial, but there is good reason to believe the nuclear origin of this supply is from the hypoglossal, either by fibres going to the facial nucleus or entering the facial nerve. "The transverse fibres of the tongue and the orbicularis oris can only contract together."¹ Further, "the orbicularis is always involved in degenerative disease of the hypoglossal nucleus, and escapes in disease of the chief nucleus of the facial."²

The labiolingual paralysis in the case reported may perhaps best be interpreted as depending solely on a lesion of the hypoglossal nuclei. It is difficult otherwise to account for the limited facial paralysis.

In the examination the sole of the left foot was much less sensitive to stimulation than the right, an indication that the lower extremity was affected by the original lesion, though no motor loss exists in the leg at the present time. The left arm recovered in large measure from the initial paralysis, but objects are unrecognized when placed in the hand. The existence of hemiplegia and astereognosis are complications of the bulbar palsy difficult to explain in a consideration of the pathology. Gowers³ states that "These cases of sudden bulbar paralysis, it is probable, depend on softening from vascular occlusion," and adds, "There may be weakness of the limbs or an affection of sensibility, usually in the form of subjective sensations, rarely actual anesthesia." He does not, however, describe a case the parallel of the one under consideration in motor loss and sensory disturbance. It would seem that the lesion extended to the median fillet and pyramidal tract of the right side of the medulla.

INTESTINAL ANASTOMOSIS.

BY CHARLES G. CUMBERSON, M.D., BOSTON.

THE question of intestinal anastomosis being a subject of great importance and interest to modern surgeons, it may not be a loss of time to examine the work done in this line by the older surgeons.

In reading a work of great merit, well worthy of the attention of surgeons of the present enlightened times, by the famous Ambroise Bertrandi, entitled "*Traité des Opérations de Chirurgie*," published in Paris in 1769, I was much interested in his really remarkable chapter on hernia.

In it he says, in speaking of the manner of

¹ Gowers' Diseases of the Nervous System, Vol. II, p. 50.

² *Ibid.*, Vol. II, p. 563.

³ Diseases of the Nervous System, Vol. II, p. 574.

dealing with gangrenous intestine, that, in the third volume of the "Mémoires de l'Académie Royale de Chirurgie," on page 188, is to be found the following case: "A man, age fifty years, had a gangrenous hernia; it was necessary to resect about two inches of intestine. The surgeon then introduced into the gut a piece of calve's trachea, which had just been dried, then softened in hot alcohol, and then covered with Peruvian balsam. It was provided with five sutures, placed in it at equal distances. The operator then pulled the divided ends of the intestine over it and brought them into contact, and then with two needles he made three points of suture, introduced at a little distance from the edges of the cut bowel. The first of these was inserted on the upper, the second on the under side of the gut, while the third one was placed in the anterior part of the intestine. They were then tied and the gut was dropped back into the abdomen, its walls (of the intestine) supported by the convexity of this piece of calve's trachea, and was abandoned to nature. On the twentieth day a ring of the trachea was found in the feces, and on the fortieth the patient was completely cured." (Literal translation.)

I would here remark that this method of intestinal anastomosis was an old one, even in Bertrandi's day. Pierre d'Argellata speaks of it as follows: "Alii, ut quatuor Magistri ponunt tracheam arteriam alicujus animalis, diende funt vulnus, et natura postea illos expellit canales." I cannot find the names of the four surgeons mentioned in the above quotation, but it is certain that they practiced in Paris at the end of the thirteenth century.

In Chapter XXVI of his work, Fabricius d'Aquapendente also states that some surgeons employ cylinders of elder wood or the trachea of certain animals, but he condemns the use of these materials in intestinal anastomosis.

In the work already mentioned, Bertrandi reports a case of hernia of the appendix, the organ extending into the scrotum, while a portion of the cecum occluded the external inguinal ring.

The Cesarean section, having been of late advocated and performed in cases of placenta previa, it is with much interest that I find in Chapter V of Bertrandi's work the following indications for the performance of this operation, which I will translate: "When the fetus is contained in the womb, and it absolutely cannot make its exit on account of some of the obstacles of which we have already spoken, one should in this case perform the Cesarean operation before the mother and the fetus perish by the violence of the pains, *from hemorrhage, convulsions, etc.*"

The first case of operation for extra-uterine pregnancy that I am aware of is to be found reported in Bertrandi's work, and due to a surgeon by the name of Govei: "A young lady of twenty-one years had a tumor in the groin, which was first mistaken for an epiplocele, but arterial pulsations could be made out in it. At the end of two months and a half the tumor had attained the

size of a one-pound loaf of bread. Govei opened the tumor on the pressing demand of the patient. He first discovered a kind of membranous sac, from which a certain amount of quite limpid fluid came away. He dilated the sac and found a male fetus, one-half foot in length and proportionately large. It was living, and was baptized. After having ligated the umbilical cord, the placenta was found attached behind the ring, of the muscles of the lower abdomen and to the neighboring parts, but it was separated from these with ease."

Clinical Department.

A CASE OF CESARIAN SECTION.

BY HERBERT J. KEENAN, M. D., BOSTON.

IN view of the fact that a number of successful Cesarean sections have been recently done for minor pelves, previa, etc., I deem it my duty, in the interest of statistics on this instructive and useful operation, to report a case done by me some time since.

Mrs. W., thirty-eight years, multipara, was delivered of five dead children. The fifth was the larger one of twins, which preceded the case noted here. Ether, forceps and long lying-in period concluded the above cases, after a tiresome labor of two to four days.

The case was seen shortly after midnight, March 10, 1899, and the following conditions found: Membranes ruptured, os two-thirds dilated, a foot and leg presenting. The anteroposterior diameter was much shortened, owing to a marked projection of the sacral promontory. Pains good, patient's general condition excellent. Considering the previous history, short anteroposterior diameter, and parents' desire to get a living child, a consultation was held with three physicians besides myself to determine the best method of procedure. Three inclined to a Cesarean, one to symphysiotomy. All agreed that it would be impossible to get a live child by dragging it through the shortened diameter. The nature and possible result of a section was explained to the parents, and they consented.

The surroundings were those of the poorer sections of South Boston. An oil lamp on the wall supplied light. The instruments used were those of the ordinary pocket case. The patient was etherized and field of operation made aseptic. An incision was made in the median line; the uterus coming into view, it was next incised in the median line, the membranes torn, the child delivered, the cord tied, and placenta extracted in order. Very little bleeding, only one snap being used. The uterus was then closed with interrupted silk sutures, and replaced; omentum drawn down and abdominal wound closed with silkworm gut sutures. Sterile dressings were applied, and the patient put to bed in good condition. She was given injections of strychnia, brandy and ergotine.

The time of operation was 4.15 A.M. The child and placenta were delivered in a few minutes, less than five; the abdominal wound closed, and the patient in bed in fifty minutes. The child was a girl, eight and a quarter pounds.

The post-operative period was unimportant till the sixth day, when, after a fit of conghing, the wound was opened its entire length, with the escape of intestines. Under chloroform the bowel was replaced, edges of the wound brought together and again closed. Mother and child did well subsequently. Valuable assistance was rendered at the time by Drs. J. B. Lyons, R. N. Daly and J. A. Cronin.

Medical Progress.

RECENT PROGRESS IN THORACIC DISEASES.

BY GEORGE G. SEARS, M.D., AND JOHN W. BARTOL, M.D., BOSTON.

(Concluded from No. 10, p. 237.)

DISEASE OF THE MYOCARDIUM IN CONGENITAL SYPHILIS.⁷

It is not yet sufficiently well known that congenital syphilis may produce grave vascular disease in children. G. Berghinz records in the *Gazzetta degli Ospedali*, of June 24th, 2 interesting cases which throw light on the arterial and vascular lesions which may be produced in infants, and which may result in death in the midst of apparent health. One case is that of an infant eighteen months old, who, while seemingly well, suddenly developed a paroxysmal dyspnea with cough and intense cyanosis, symptoms which possibly pointed to edema of the lungs. There were no symptoms, however, of fever, renal disease, epilepsy, laryngeal spasm, or status thymicus, and the case ended fatally. The post-mortem examination disclosed syphilitic vascular lesions of a characteristic sort (arteriosclerosis) such as occur in the subjects of congenital syphilis, and affecting especially the myocardium. No syphilitic history was ascertained in the parents, but in the second case, in which the same group of symptoms occurred in a child and ended fatally, inquiry revealed an undoubted syphilitic history in the father. Berghinz refers also to an article in the *Centralblatt für Kinderheilkunde* for June, containing a summary of the post-mortem appearances in 22 cases of hereditary syphilis, in which it appeared that syphilis affected the ganglia of the heart and gave rise to a proliferation of the perivascular connective tissue of the blood vessels in the cardiac walls, which eventually resulted in arteriosclerosis and death. It is clear, therefore, that arterial disease due to congenital syphilis, and affecting the coronary arteries and nutrient vessels of the heart, may result in sudden and rapid death, when symptoms of dyspnea and cyanosis supervene in a child otherwise apparently healthy.

It is also interesting to note that many forms of cerebral palsy (hemiplegia and monoplegia) may likewise be the outcome of cerebral arteriosclerosis when the latter occurs in the fetus in utero or in infancy, the results appearing in various forms of paralytic idiocy and imbecility.

PATHOLOGY AND TREATMENT OF ANGINA PECTORIS.

Schott,⁸ with a prelude on the pathology in which he supports the well-known "Parry-Stokes" theory, that the stenocardiac crisis "is a sort of syncope, with a preceding strong oppression or pain in or near the heart, the consequence of an organic lesion, the effects of which are brought into evidence by a lowering of the heart power and an accumulation of blood in the cardiac cavities," leads up to a recommendation of the Nauheim treatment for properly selected cases; that is, cases in which arteriosclerosis has not made such progress that the danger of embolism or apoplexy is to be apprehended. Such treatment is more lasting than the usual medicinal one of reducing blood pressure and consequently the work of the heart, because the heart's muscle is strengthened and the cardiac nerves acted upon. The result of his experience has been that "the treatment by baths and exercises has proved to be of signal success, even in cases in which the nitrites, and principally nitro-glycerine, had more or less failed.

DISTURBANCES IN THE BRACHIAL PLEXUS IN ANGINA PECTORIS.

Loewenfeld⁹ has studied the relation of the "brachial symptoms" in anginal attacks, and divides disturbances of the plexus into three groups: (1) of sensation; (2) of motility; (3) vasomotor disturbances. (1) The pain (in rare instances extending also to right arm) is distributed chiefly in the regions supplied by the external cutaneous, the greater internal cutaneous, and the ulnar nerves. It varies in degree from slight prickings to the most intense forms; paresthesia is often an accompaniment. He found that in the severe cases pressure on the plexus above the clavicle evoked pain in the region of the heart, as well as in the arm. The same was true of active or passive movements of the arm. (2) The motor disturbances occurred only in severe cases, and consisted in weakness of the entire arm, including shoulder, or in some cases was confined more especially to the forearm. (3) Of vasomotor disturbances in "organic" angina pectoris, he has observed simply coldness and pallor of the left hand in connection with pain.

Brachial symptoms show in different cases quite varying relationship to the cardiac, thus: (1) There may be attacks of stenocardia, even severe ones, in which brachial disturbances are entirely absent. (2) They do, however, occur in most cases, and very often are severe in proportion to the severity of the cardiac symptoms; but not rarely there is a striking disproportion, and either group of symptoms takes the foreground as the

⁷The Lancet, August 25, 1900.

⁸The Lancet, September 8, 1900.

⁹Muench. Med. Woch., August 1, 1900.

case may be. (3) The brachial symptoms may be the first sign of the disease. (4) Pain and weakness of the arm may endure much longer than the heart pang; and in periods *between attacks* light brachial neuralgia may exist by itself, or in connection with slight heart pains.

The theory for the origin of these various manifestations on the part of the brachial nerves is a more or less complicated one. In the ordinary type of case the old theory that the brachial symptoms are due to stimulation passing from the cardiac plexus by the two lower cervical ganglia to the spinal cord, is considered sufficient. Based on Head's localization of the origin of the sensory nerves of the heart in that region of the cord covered by the last two cervical segments and the first eight dorsal segments, corresponding thus to a part of the origin of the brachial plexus, this transfer of neuralgic pains seems not difficult to understand; but for those cases in which the paroxysm is ushered in by the arm pain, or those in which the latter takes the first place in acuteness, it must be further assumed that there exists a hyper-irritability of the centre of origin of the brachial plexus; causes for such hyper-irritability the author thinks he has shown in a reported case of angina pectoris with pre-existing brachial neuralgia, and he also instances the occasional association of valvular disease of the heart with brachial neuralgia as a further proof of the possibility of intimate relationship between heart and plexus. Finally, in such cases as combine the independent existence of both brachial neuralgia and angina pectoris, he concludes that they must react unfavorably on one another.

INTERMITTENT PULSE.

As a result of his experiments, Cushny¹⁰ makes an important differentiation in the varieties of intermittent pulse, and intimates that it is possible and valuable to determine the variety in individual cases. He classifies them as follows: (1) True ventricular intermissions, in which the pause is exactly equal to two pulse intervals, and during which there is no cardiac sound. (2) True auricular intermissions, in which the pause is shorter than two pulse intervals and during which there is no cardiac sound; seen often in healthy persons, and then probably due to excessive inhibition; other cases may be due to auricular disease. (3) False ventricular intermissions, in which the pause is equal to two pulse intervals, but is often interrupted by a slight elevation. In every case a first heart sound can be heard during the intermission. This form appears to be caused by excessive irritability of the ventricle leading to a premature systole. (4) False auricular intermissions, in which the pause is shorter than two pulse intervals. There is often a slight elevation of the pulse during the intermission, and the stethoscope reveals a systolic sound very soon after the last regular pulse elevation. (5) Another variety described by Wenckebach, and not yet studied by Cushny.

¹⁰ British Medical Journal, September 29, 1900.

If the intermissions be of the true variety, some stimulant like caffeine or digitalis would appear to be indicated, while if the intermission is caused by excessive irritability, a drug like aconite acting on inhibitory mechanism might be tried.

SUBCUTANEOUS SALINE INJECTIONS IN PNEUMONIA.

Penrose's¹¹ statistics as to the favorable effect of the subcutaneous injection of normal salt solution in pneumonia were so favorable that the method was tried by Drs. Ewart and Beaumont in 6 cases under their care. The cases selected were those occurring in unhealthy and debilitated persons, where the disease seemed likely to be severe. The first case was of a severe type in a debilitated female, aged thirty-seven years. One pint of the solution was injected into the subcutaneous tissue of the right subclavian region. Next day the same amount was injected into a similar situation on the left side at 11 A.M., and again at 6 P.M. Altogether there were four such injections alternately on the left and right sides. The patient recovered. The other 5 cases, 1 of which was ordinary pneumonia, 2 double, 1 complicated with empyema, and 1 case of pneumo-typhoid fever, all died. Grey hepatization had appeared in some. The results were disappointing. All but 1 were fatal, but it might be said that the proceeding caused no unfavorable symptoms, and in one or two seemed to have delayed the fatal issue. It did no further good, neither did it promote death. It was not resented by the patients, and the reporters thought it might be given a further trial.

INTRAPLEURAL INJECTIONS OF NITROGEN GAS IN TUBERCULOSIS.

H. P. Loomis¹² speaks of the occasional arrest of a tubercular process in a lung, compressed either by effusion or by a pneumothorax, which from the enforced rest seems to favor a cicatrization of the tuberculous foci. The same effect can be produced artificially by the injection of nitrogen gas, and in the present article he gives his personal experiences with the method. He says that the more he has used it the more he has been tempted to apply it in advanced and hopeless cases, since it relieves the patient and stops many of the distressing symptoms. It cannot, however, always be employed because of the inability to force the gas into the pleural cavity in many cases on account of adhesions, but its impracticability can only be demonstrated by an actual test.

An analysis of his cases shows that the total number in which it was tried was 18, 8 of which were instances of pulmonary hemorrhage which was stopped at once. It was given for its effect on the lungs in 10 cases, in the majority of whom the physical signs remained the same, but pleurisy was controlled at once. Sixteen cases gained in weight on an average of $7\frac{1}{2}$ pounds. None lost. Twenty-nine injections in all were given, the average amount of gas used being 107 cubic centime-

¹¹ The Lancet, August 18, 1900.

¹² New York Med. Rec., September 29, 1900.

tres. In 13 cases cough improved, 3 slightly and temporarily. The expectoration diminished in 11 cases, and in 4 the fever was lessened. In 8 the injections were tried and failed, owing to the inability to introduce the gas.

He sums up the method as follows:

(1) It is a treatment that has a future; I would advise its more extended use. Only in this way can we ascertain the kinds of cases to which it is best applied.

(2) I have never seen any bad results or even unpleasant effects following the injections.

(3) I have seen no cases result in absolute cure of the disease.

(4) I have certainly seen the apparent arrest of the disease in 2 cases, and the disappearance of such constitutional symptoms as expectoration, fever and cough in a number more. Sufficient time has not yet elapsed to say whether in even the most favorable cases the activity of the disease may not return.

(5) The local improvement is not so apparent as the constitutional.

(6) A marked gain in weight is found in every case injected. This is so universal as to be astonishing, especially as the cases have had no other treatment and many of them have been in hospital wards and under antihygienic surroundings; yet the gain in weight has followed almost immediately after injections, and when a patient had been losing weight before the injections he suddenly began to gain. It is very difficult to explain this effect, except by the marked effect upon the pulmonary lesion.

(7) That this method of treatment will stop pulmonary hemorrhages I am thoroughly convinced. I have never known it to fail, even in one of the most desperate cases upon which it was tried. If these nitrogen-gas injections have no other place in the treatment of pulmonary tuberculosis, it seems to me that their ability to arrest pulmonary hemorrhage gives them a place which no other method we have at the present time can occupy.

THE BRONCHIAL MUSCLES AND ASTHMA.

Aufrecht¹³ says that he is in full accord with the majority of authors who accept the theory that asthma is the result of a reflex spasm of the bronchial muscles, but apart from this nervous influence catarrh of the bronchi must also be recognized as a factor in the production of the disease. For the latter no complete explanation has ever been possible. Encouraged by his discovery that longitudinal as well as circular muscle fibers exist in the finer bronchial tubes of rabbits, he has succeeded in showing that a powerful layer of circular and a much weaker layer of longitudinal fibres exist in man. This anatomical fact explains the occurrence of asthma in inflammatory conditions of the bronchial mucous membrane. Here the muscular fibres become edematous, but the function of the circular owing to their greater strength, is less interfered with than the longitudinal, so

that a narrowing of the bronchi results, the former being no longer opposed by the latter. In his experience, asthmatic attacks, which result from catarrhal conditions, never become so severe and threatening as those of reflex origin, which is readily explained by the fact that they are not due to spasm, but to an increased contraction of the circular fibre from the absence of their longitudinal antagonists. Owing to the retained secretions and the damming up of the asthma crystals and Curschmann's spirals, bronchial catarrh follows the reflex spasm and may prolong the asthmatic attack for days.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

REGULAR meeting, Monday, January 21, 1901, Dr. E. H. BRADFORD in the chair.

Dr. BRADFORD: The committee in charge has considered it advisable now that we have entered upon a new era to vary the usual programme of our medical society and look a little to the past. We are beginning a new century, and before laying out our course it seemed wise to examine our chart to take an observation. The committee has, therefore, invited a gentleman to address you, who has not only interested himself very actively in the work of this society the last few years, but one who will also speak to you tonight not in the spirit of a *laudator temporis acti*, but as a historical student telling us the record of the Society for Medical Improvement. I take pleasure in presenting to you Dr. James G. Mumford.

Dr. MUMFORD's subject was

THE STORY OF THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.¹

Dr. BRADFORD: As Dr. Mumford has said, the society at one period was in a condition of lethargy, and it was necessary for its good work that it should be revived. At that time the society needed a tonic, and found it in the influence of one who has given new life to this organization. When we read of the names of the past leaders in Boston medicine it sometimes seems to us that the type has changed, but we have in our midst one who, if he had lived in the early part of the 19th century, would have been a leader in the broad field of general medicine. Circumstances channeled his career differently, and you will now be addressed by one who is universally respected as the foremost specialist of America, Dr. James C. White.

Dr. WHITE: We have had the pleasure of listening to a full and admirable narration of the past of this society, and yet I may be permitted, Mr. President, in compliance with your complimen-

¹ Deutsch. arch. f. klin. Med., 1899, Bd. 67.

¹ See page 247 of the Journal.

tary request, to express some opinion with regard to its future, to cast still a brief glance backwards and recall a few personal impressions of its character during my forty years connection with it. Reminiscence, sir, for one of my age is a surer field than prophecy.

When I first joined it in 1859 it might well have been called a small, select and delightful pathological club. Membership was regarded as a high honor, but it was all too exclusive. Three negative votes excluded a candidate, and as personal feelings sometimes found expression through the ballot box, several of the most able physicians of that day, who would have been an honor and strength to it, were denied admission. The meetings were held in the valuable museum of the society, and the seats were arranged around three sides of a large table, which was generally covered by recent pathological specimens. There Dr. J. B. S. Jackson made his inimitable and instructive demonstrations each evening, and although every member present was called upon to make some oral report of cases, they were chiefly those connected with the subsequent exhibition of specimens. Papers on general medical questions were exceptional. Its proceedings at that time were in marked contrast to those of the Medical Observation Society, where clinical medicine was cultivated by younger physicians mostly, in a manner most critical and instructive.

It was truthfully said that the medical profession of Boston of those days lacked ambition. They were content to keep their knowledge to themselves, and to use it for their patients alone, or give expression to it through the restricted circles of these two small societies. They rarely published a book, or lecture, or paper, and thus, with all the varied learning which some of them possessed in eminent degree, they held an inferior position to the physicians of other large cities of the country in the estimation of the medical world. I was for several years, 1863-1866, a co-editor of the *Boston Medical and Surgical Journal*, and remember the great difficulty it had in obtaining original articles from members of the profession here. It was this spirit of reticence or indifference to medical progress through contributions of personal experience which led, I think, to the gradual decline of this society of that epoch. Its brilliant renaissance in 1880 was due to the determined efforts of some of its members to rouse the profession from this apathy and force it to give public expression to its long-retained stores of knowledge.

How different it all is now you all know, but how great the change from then only the oldest members can appreciate. Now the books published by our members are numerous and world known. Papers in every department and of the highest merit are most abundant. The papers presented to this society, and the discussions they call forth, are habitually excellent, and deserve the recognition and support of a large audience. This they do not always receive. The average attendance at the meetings, I am told, is about thirty,

whilst the membership is two hundred and fifty. How is this general lack of interest in the society to be explained, and how may it be corrected? These are questions which vitally affect its continued existence and future success. In my opinion there can be but one answer to the former. We have far too many medical associations. Permit me to enumerate:

Our Suffolk District Society, in addition to its general sessions, was subdivided a few years ago into eight sections, some of which are in active operation. Then there are the various special societies, namely: The Obstetrical, Gynecological, Ophthalmological, Medical Psychological, Dermatological, the Medical Sciences, the Warren Club, the Thorndike Club, the Clinical Club of Jamaica Plain, of Roxbury, of Dorchester, of the City Hospital, of the Massachusetts General Hospital, also those of towns immediately adjoining Boston, and possibly others I do not know, all in more or less active operation. Besides there are the State and many national societies, general and special, and several international congresses.

Now it is evidently impossible, with all these varied and many interests making constant demands upon thoughts and time, that men can have much of either for any individual society. Some of them must be slighted, and naturally the best thoughts and most time will be at the disposal of that or those in which the individual takes the greatest interest. It is hardly to be expected that any of these associations will obliterate or concentrate themselves for the good of this older and more general society, yet something might be accomplished with advantage in this direction. I have no doubt that an appeal to its members, both old and young, to give it a more earnest and constant support by attendance and voluntary contributions would do much to make its future more assured. I would suggest that but one set paper be presented at any meeting, and that more time be allowed for general discussion and criticism; so that if any member desires to speak upon the subject of the evening he shall not perhaps feel that he is encroaching upon the time allotted for the succeeding paper. Possibly the old custom of assigning an hour for oral presentation of cases or other subjects might be revived with benefit. Finally, I should regret to feel that one meeting a month might come to be regarded as a last resource.

By some such measures as I have thus hastily ventured to suggest, I should hope that the large body of able and energetic young physicians, of which the society may well feel proud, will make of it a vigorous, flourishing and attractive association, devoted to the best interests of clinical and public medicine, which shall long continue to be an honor to the profession of greater Boston.

DR. BRADFORD: In listening to Dr. Mumford's account, the thought suggests itself that the great men of the medical past were of different fashion from that of today. The great practitioner of those days was a man of force, who was broad in his range, earnest, energetic, in sympathy with

the spirit of science, a clear reasoner, a keen observer, sound in judgment, and yet often flavored with the grace of the humanities. To find this valued combination of qualities in life and active in vigor we turn to our revered colleague, Dr. Morrill Wyman.

Dr. WYMAN: I have very little to say upon the subject suggested. I will say a word or two in regard to a very early matter, and that is the diagnosis of croup. We owe the first clear diagnosis of croup to a governor of Massachusetts, Gov. Dr. John Brooks. In the Revolution he was colonel of a Massachusetts regiment, and led it in the Battle of Saratoga and the capture of General Burgoyne. The war ended, he came home and resumed the practice of medicine in Medford, where my instructor, Dr. William J. Walker, of Charlestown, became his pupil. Dr. Brooks solved one of the first questions of diagnosis when he demonstrated conclusively the presence of a false membrane in the throat in croup. He was able from this to distinguish clearly true membranous croup from false croup, so called, a disease which in some respects much resembled the other form and the differential diagnosis of which had tested the skill of most practitioners in early medical life; a peculiar "hoarse cold," as it might be called, which is, probably, more closely connected with the nervous system than the mucous, attacking suddenly children in apparently good health after their first sleep at night, producing a more noisy cough, more difficulty in breathing and more alarm, for a short time, than true croup, and yet very seldom proving fatal. Dr. Brooks taught that true croup came on slowly, after two or three days of sickness; difficult breathing was developed suddenly, with a hoarse, peculiar and alarming cough. It was in this form that Dr. Brooks discovered a false membrane in the pharynx which repeated experience proved to him was diagnostic of a very fatal form of croup quite different from the other form with which it had, hitherto, been confounded. This most valuable history Dr. Walker transmitted to his pupils and confirmed its truth by examinations post mortem whenever opportunity offered; in this he was very careful that both the fauces and trachea should be removed and studied. In 1842 Dr. John Ware, in his excellent essay on "The History and Diagnosis of Croup," says, "This circumstance (the false membrane) in the history of croup has been for many years impressed upon my mind by Dr. Walker."

Correct diagnosis brought with it improved treatment—warm applications to the neck and mild narcotics like Dover's Powder, which are uniformly successful in false croup, displacing a needless and sometimes an injurious activity often resorted to under the impression that a fatal disease is impending. I had myself an unexpected result of the application of my knowledge of the distinctive diagnosis I had received from my instructor. I had been, a short time only, a physician in Cambridge, when I was suddenly called to a child with croup coming on after its first sleep.

As I had been taught, candle and spoon in hand, I examined the throat carefully, saw there was no false membrane, and complacently told the friends that their child would be better in the morning, and they need not be much alarmed, and gave my directions and prescribed Dover's Powder, saying, as I took my leave, "I will see the child early in the morning." When I called in the morning the door was opened about six inches wide, and I was told that the child was alive; that their doctor had been there all night and had given his *own* medicines steadily. In much alarm I hastened to Dr. Walker and told him I had seen a case where there was no false membrane, and yet the child was dying from croup. He said, "Doctor, the baby will, probably, not die; but I think you were rather unfortunate in telling them so." The patient got well. I was comforted after a time by the opinion of my friends, that of the children I was called to with croup, most were soon relieved—perhaps because they were not first made very sick.

I wish to say that this most important observation in the differential diagnosis of these two diseases we owe to Dr. John Brooks, a president of the Massachusetts Medical Society.

Dr. BRADFORD: We have among our ex-presidents one to whom you will all be ready to lend your ears, for he can both tune and charm them—Dr. Clarence J. Blake.

Dr. BLAKE: It was a long, low room, brilliantly lighted from near its centre, the confines of the room hidden somewhat in obscurity, not so much so, however, but that there could be seen books upon shelves and the glint of light upon glass cases; a little toward one side of the room a table, covered with a worn cloth of dubious appearance and character unknown, until on closer examination it was found to be broadcloth, apparently, from which the nap had in the course of time been removed, the removal of the nap sometimes carrying portions of the original cloth with it; on this table two or three large metal trays, one of them holding a sponge, another scissors, forceps, knife, a basin, with ewer and towels, a pitcher, presumably filled with water, and two or three glass tumblers; around the table a few horse-hair covered chairs, away from the table and about the walls, wooden seats, chairs and two or three benches. Into such a room there came, with a sense of awe, as if approaching a holy-of-holies, two medical students to whom there had been accorded the high honor of being asked to be present at a meeting of the Boston Society for Medical Improvement. There were but two persons present in the room. One, seated in a chair near the table, was poring over something held between his hands. A seemingly tall, rather gaunt figure, clad in a coat with long coat-tails; one of the coat-tails hung down over the edge of the chair and bulged considerably. The bulge of the outline of the coat-tail did not indicate a round, but a square body. Presently, hearing footsteps on the floor, this man turned his head, showing a rather long, lean face, dark, penetrating

eyes under bushy eyebrows, a somewhat prominent nose, well-defined mouth, the kind of mouth that keeps itself curled up at the corners, reminiscent of the Cupid's bow of childhood. The whole expression of the face turned toward the young man was a most kindly one, its look was accompanied by a welcoming wave of the hand and the words, "Come in and sit down." The other man, standing by the table, leaning over and looking at the object which the other man held, was of shorter stature, and his smiling face, fresh and clear in color, seconded without speaking the welcome to the two medical students, who thus encouraged found their way between the benches and the rows of chairs and took two seats at the back of the room against the glistening portion of the wall which they found to be a series of shelves fronted with glass, and behind this glass numbers of bottles containing preparations, some dried specimens and specimens of bone. Shortly other members of the society filed in and took their places. Simple, friendly greetings, the greetings of men who met every day in their affairs of life, and who now came together with a sense that the day's labor was possibly over, and that here there was to be refreshment for the mind and rest in companionship.

The presiding officer, after calling the meeting to order and going through the business of the day, made the announcement of the papers to be read and communications to be made, and called for them. The first paper was the report of a case; its character I do not remember. The second was the presentation of a second case; then followed the reading of a short paper with its discussion, also short; the third communication included the presentation of a specimen. During the reading of the papers an explanation was found for the presence of the pile of palm-leaf fans which formed a part of the table furniture — palm-leaf fans in the middle of the winter. The tall man whom we had first seen and who had so kindly welcomed us presently reached forward and seizing one of the palm-leaf fans held it over his forehead to shade his eyes from the light which shone downward upon the table. One after another of the members of the society also seized palm-leaf fans to protect their eyes. During the reading of the papers the tall gentleman with the palm-leaf fan was still, but the moment the specimen was brought forward and put upon the table he became instantly eagerly alert. The palm-leaf fan was not abandoned, but simply cocked farther upon the top of his head as he stretched himself forward to catch a clear view of that which was being emptied from a cloth into the platter before him. Then came the reading of the case, a description of the specimen and a discussion of the report, and a demonstration of the specimen, which was passed from hand to hand, followed always sharply and eagerly, as it circulated through the assemblage, by the eyes of the tall man. The specimen came back to the table and the concluding remarks were made by the man who had presented it. He had no more than fin-

ished when a hand was put upon his arm: "You don't want that specimen? I thank you." And then we saw the reason for the bulge in the coat-tail, for out there came a square, wide-mouthed bottle; a pair of forceps was drawn from an inside pocket with the speed with which one might draw a stiletto, the specimen was grasped and popped quickly into the bottle and the cover clapped on. With another "Thank you" the tall gentleman retired to a remote part of the room with his prize and the discussion of subjects and the reading of papers went on. The memory picture of that first view of the Improvement Society with the men who made the strength of the profession of that day has remained as an impression of what is best in the medical profession, — skill, training of purpose, intelligence, and immense earnestness. That impression has remained and strengthened through all the years which have followed the acquisition of that very high honor, so esteemed then among the younger medical men, so justly esteemed today, membership in the Boston Society for Medical Improvement.

As the reader who reviewed the society's history has said, the work of this society stands single and alone in many ways, and as one of its presidents has said, other societies have grown up about it and are taking their places in special lines of work. However much other lines of medical activity may be fostered, in the medical community life this society holds a distinctive place. It is preëminently the society through which all that broadly concerns the medical profession as a part of the community whole may most readily be brought before both the profession and the public. It has been, it should continue to be, a rallying point for the consideration of what may be called the sociological obligations of the medical profession, and looking into the future of this society, its past indicates its possibilities in this line of service; it should represent the medical profession as a whole and it should give the medical profession the opportunity to represent itself as a whole in matters of community welfare. Moreover we are coming, in the multiplication of our special societies, to need more and more some one medical organization which shall be a centre for them all. Apparently, with the heritage of its past, to take the initiatory step in the formation of that organization is not only the duty but the great opportunity and privilege of this.

Dr. BRADFORD: Generations of civilized men have been born, lived and died, and it remained for a member of this society to show that every human being carried inside his abdominal cavity a dynamite cartridge ready to explode. He not only demonstrated this, but indicated the cure. The surgical world owes Dr. Fitz a debt of gratitude for unfolding to it a resource more inexhaustible than the mines of Golconda, but humanity owes him a greater debt, for he has wrested an implement from death.

Dr. R. H. FITZ: Those of us who recall to mind the Medical Improvement Society of thirty years ago realize that a marked and undesirable

change has taken place in its spirit. The society was established for the improvement of its members at a time when medical progress was slow and medical centres were widely separated, if not in distance, certainly in the interchange of ideas. The relatively few members who had enjoyed superior advantages in the acquisition of knowledge and experience were called upon to advise and assist the less fortunate. The meetings were largely attended by the leaders of the profession. Communications of interest and of value frequently were presented and decided importance was attached to the early and complete publication of the proceedings. So much care was taken in the selection of members that those young in the profession generally regarded it as an honor to be enrolled and thus to be brought into more intimate personal relation with those whose example was a constant inspiration. Above all it had an eminent man untiring in his devotion to its interests, the late J. B. S. Jackson, first Professor of Pathological Anatomy in Harvard University.

In the meantime a revolution has taken place in medical progress and a retrocession in the importance of the society. The latter has not occurred without reason and the causes are not concealed. Medical specialization has been the chief means of disturbing the activity and influence of the society, although it should have proved the main source of strength.

As specialty after specialty became represented in the membership a growing number of communications of interest to the few only were presented. Attendance at regular meetings thus was limited to an increasing minority of members subject to constant change in its composition. As the specialists became more numerous special societies were formed and the oculist and aurist, the dermatologist and neurologist, the gynecologist and obstetrician gradually withdrew in greater or less numbers from active participation in our meetings. The establishment of National Associations of physicians of constantly narrowing interests has resulted frequently in the reservation for these of the best productions of our members even when they were admirably adapted for home use.

The officers of these associations, far in advance of the date of the meeting, have appealed, often with conspicuous success, for contributions from our members and the interest of the meetings of our society has suffered in consequence.

Now we are led to the thought that the Boston Society for Medical Improvement may have outgrown its usefulness and should retire in a dignified manner before evidences of decay become painfully apparent.

We must remember, however, that all physicians are not specialists, that the leaders in medical specialties are those whose training in medicine has been the broadest, and that the ideal association of physicians in communities of sufficient size is that which includes the representative men of each and all departments of medicine. Any association which can bring these together and hold

them together always is needed. If this cannot be the function of our society we may rest assured that a society will arise to fill this need. We know that such organizations exist elsewhere and are time-honored. Dr. H. C. Wood, in his remarks prepared for the recent dedication of the new building of the Boston Medical Library, has called attention to the leading functions of the venerable College of Physicians of Philadelphia. He stated that it increased personal friendship and amity, stimulated zeal in study and the acquirement of knowledge, and gave weighty opinions in medical matters of public concern.

Dr. J. R. Chadwick, the librarian of the Boston Medical Library, at the occasion mentioned, suggested that it is for the Medical Library to assume these functions of a medical society and to play the part of the New York Academy of Medicine and of the Philadelphia College of Physicians. He did not, however, give due credit to our society as a source of authority. It is to be remembered that when Boston was threatened with an epidemic of cholera, Mayor O'Brien appointed, on recommendation of Dr. John G. Blake, an advisory committee wholly composed of members of this society—to aid the City Board of Health and to inspire the public with confidence.

It may be that the future of the Medical Improvement Society will bring forth a fusion with the Boston Medical Library since the aspirations of the latter may trench upon the functions of the former. In this event it might be well that a new title should be devised to indicate for each a wider sphere of usefulness than the existing designations suggest.

Were this to result the "Boston Academy of Medicine" might open its library to all but its membership to those only whose association would prove mutually beneficial.

Admitting the necessity of the existence of an organization like our own it is evident that its success must depend upon the general recognition of its functions and a zealous effort to increase its usefulness. As at present its membership must consist of all whose work is earnest and honest and whose example may safely be followed. The wisdom of the elders will be welcome to the juniors whose superior training and enthusiasm will prove a constant source of admiration. To secure such membership subjects rather of general than special interest should be selected for treatment and discussion. Especial effort should be made to obtain the best work of the leading and most active members. Interest in live topics should be stimulated by inviting from elsewhere readers who have distinguished themselves by investigations or experience in matters of novelty or importance. Meetings should be social as well as medical and the largest possible use should be made of the various means of illustration. To carry out these measures the Standing Committee, enlarged if necessary, should hold frequent conferences and should be changed often enough to receive at least one new member in each year.

In conclusion, I would say that the function of

our society now, as heretofore, is to improve the knowledge, power and influence of its members; that its opportunities never have been greater and that it is the duty of us all to avail ourselves of them.

DR. BRADFORD: The task of making bricks without straw we know from biblical information is a difficult one. It promoted a rebellion centuries ago, but one gentleman—meeker than Moses, shall we say?—has carried out this task without inciting a revolution. We are not all of us at all times thoroughly satisfied with the brick, but Dr. Shattuck also can complain of the scarcity of the straw. What he has done for our society, what he has done for medical writers in our community, no one knows but himself. The pains he has taken to satisfy the unsatisfied cannot be told. Whatever may be said of our *Boston Medical and Surgical Journal*, it is certainly most independent, most free from servitude to improper influences, and we all know that in the editorial department the *Boston Medical and Surgical Journal* is unsurpassed.

DR. GEORGE B. SHATTUCK: As I have been sitting here this evening I have been gradually coming to an entirely different view with regard to the piety and character of a Methodist bishop, of whom I lately heard a story which ran somewhat thus: During a period of the late exciting election there was to be a rally somewhere in New York, and the managers had selected some very suitable people to address the meeting, and, among others, they had secured a Methodist bishop who was well known for his eloquence and persuasiveness. The list and order of the speakers had been made out, and his was not the first name on the list, but the first name was that of an eminent lawyer. Before the meeting was called to order the bishop arrived, and immediately on arriving he said to the chairman, "Mr. Chairman, I am to speak first." The chairman said, "No sir, I am sorry, but you are not to speak first. The committee have made out the order of the exercises, and Mr. S., a lawyer, is to speak first. You will speak second." The bishop said, "No, sir. I shall not speak second; I shall speak first." The chairman said, "No; I am very sorry, your reverence, but you will speak second." "Well," said the bishop, "I will either speak first or I won't speak at all." "Well," said the chairman, "then, sir, if you feel that way about the matter, you will have to settle it with Mr. S., the lawyer, who is there, and I will be guided by the decision which you may come to." So the bishop went to the lawyer, and they had it out, and the lawyer said he would speak first and the bishop said that he would speak first; and thus it kept on until the hour for calling the meeting to order arrived, and the chairman said, "Now, gentlemen, have you settled this matter? And which of you is to speak first?" And the bishop said, "I am to speak first." And the lawyer said, "No; I am to speak first." Then the chairman said, "If you cannot settle it, I shall go ahead and follow my list." Then the bishop seized his hat and coat

and was about to go out of the room when his sponsor caught him by the coat and pulled him down into a chair, and the lawyer went on with his speech. By the time he had got to the middle of it a bit of paper was passed to the chairman, who opened it and found it came from the bishop's sponsor and read thus: "For God's sake choke him off. The bishop is playing hell here." (Laughter.) Now, Mr. Chairman, when I heard that story I confess my sympathies were not with the bishop. It seemed that his behavior was marked by impropriety (laughter), but as I have sat here this evening I have gradually come to have rather a keen sympathy with the bishop, and felt that he knew what he was about (laughter).

You were good enough, sir, a little while ago to bid me to come to this meeting—and I always do what you tell me—and you suggested that you desired that I should make a few remarks with regard to the future of this excellent organization. About the day I received this missive from you I happened to dine with Dr. Blake, and after dinner Dr. Blake said, "Are you going to the commemorative meeting of the Medical Improvement Society?" And I said, "Yes. I have got to go. Are you going?" He said, "Yes. I have got to go." "Why have you got to go?" "Well," he said, "I have got to go because I have to speak in regard to the future of the society." "Well," I said, "thunder, but that is just what I am told to do myself. (Laughter.) Now, what I want to know is how big the future of that society is going to be if so many people will have to speak in regard to it." Well, we wrangled over this a little bit, but were not quite as stiff with each other as the bishop and the lawyer, and finally recognizing that I was neither a prophet nor son of a prophet, I said, "All right, you take the future and I will take the *preterit aorist*." So we settled it in that way, and the rest of the dinner passed off amicably, and I went home and spent most of my time after that formulating some remarks in regard to the *preterit aorist* of this society, which I felt much competence to do because although not the son of a prophet I happen to be the son of a former secretary of the society, and I was going on pretty well in that direction when I received a summons from you, Mr. President, by telephone, and you informed me you heard there was the devil and all to pay in the society, that somebody had told you so, because you had asked two gentlemen to speak about the future of this society. "Well," I said, "I have not heard of any real trouble," informing you how it was settled. You said, "Well, you shan't speak about that. You will have to speak about an entirely different subject. What you will have to speak about is the prudential committee of the society." (Laughter.) "Well," I said, "all right. I am much interested in the welfare of the society and having harmony reign here. I will speak about the prudential committee." So I began to think about the prudential committee, and the more I thought about it the more it seemed to me eminently just and meet and right that somebody should say some-

thing about the prudential committee of this society, because it is an extremely important component part of this society, and my impression is that there was a prudential committee long before there was any such thing as a president, and that is another reason why, it seems to me, I ought to have spoken first. (Laughter.) But the prudential committee gets very little recognition. I was in hopes it would receive more recognition in the historical paper we have listened to this evening. If there were no prudential committee there could be no presidents and no secretaries and nothing else. It is really this prudential committee which fecundates the society and prepares the way for the gestation and parturition which eventuate in a president and a secretary. (Laughter.) And really, Mr. President, I think that the prudential committee can regard all these presidents as their children, and a nice little family it is. I have grown gray in the service of the society, working on this prudential committee (laughter), and this is the first occasion when any opportunity has been given for any sort of recognition of the labors of the committee. (Laughter.) Indeed, we teach the president to walk and when his young feet have a tendency to err from the right path we lead them back, and when the secretary is wabbling and demoralized, does not know what to do, and there is no straw, he calls a meeting of the prudential committee and regards it as a practitioner does his hypodermic syringe (laughter) and there is immediately as it were a thirtieth of a grain of strychnia coursing through the veins of the society, and the whole thing is again vivified and reanimated. In various ways, as you indicated, Mr. President, there is much to tell that nobody knows except myself, and I am not going to tell it all. I have told some of it.

I was interested in Dr. White's prognostications with reference to the possible slow decline of this society and how it might be arrested. I was very glad that, although suggesting other measures of arrest, he did not fall back upon that last resort of an inanimate and degenerate society—food and drink and tobacco. That I should consider the last stage of decadence. That is something which is reserved for less zealous and less scientific organizations than ours. (Laughter.) Of course once in a period of seventy-two years it does very well. Seriously speaking, Mr. President, I do think that there is every reason why this society should continue to be vigorous and to grow and to be active and to be useful. As a general rallying ground, as a sort of medical clearing house for all the other societies, whether they be as numerous as now or more numerous or less so, I think that this society will always find an extremely useful place.

Dr. BRYDGER: None of us know whether this century is to be an iconoclastic one or not, whether it is to look upon the work of the nineteenth century as an entertaining diversion simply, or whether it is to respect and draw inspiration from the recent past. We have come here into our new home, and you see we have brought with us our

Lares and Penates, our family pictures; perhaps it may be interesting to some of you to call up the traditions that these portraits present, or at least to have a suggestion of what can be learned from them. The first is the portrait of an unknown gentleman, not Ambrose Paré, as was once thought, but a Monsieur François Hérard, a bourgeois of Paris. He evidently belonged not to the barber-surgeon but to the surgeon-barber company—to the long-cloaked and not to the short-cloaked surgeons, a mighty difference in those days. The groups contended for centuries, and the contest perpetuated itself and was immortalized by the great Molière, and from the wrangle and the discussion of those centuries came forth the great School of *Médecine de France*. M. Hérard does not look like a great man, but he must have been a man of leadership in his day, as the picture is an admirable one, and was copied in an engraving to be found today in the *Bibliothèque Nationale* of Paris.

We next turn to the prehistoric Boston medical past in an admirable portrait of Dr. Danforth, known as Dr. "Danfurth." It is a most excellent portrait by Stuart—our Boston Van Dyck, may we call him?—and tells us of one of whom little is known. Dr. Holmes has said that he was a man whose language frequently resembled the speech of the English army in Flanders. (Laughter.) He had violent prejudices. He contended with the amiable and noted James Jackson, was much respected by his *clients* and stands to us as an epitome of dignity and common sense. He is known to have been one of the first to upset the ridiculous practice of excessive bloodletting. He speaks to us of what is gone, with an air of something we would like to have, namely, dignity.

And here is a living portrait of the great surgeon who will stand in the memories of all who knew him, who sat as pupils under him, or who served under him, as a foremost mind. Probably he could marshal more cerebral intellectual force for or against any problem before him than any man of his time in our community. His achievements were great but it always seemed to us, and I think it seemed to him, that they were never up to his rare ability, that he never was pushed to his utmost endeavor. Nor did they equal those of his greater father, but perhaps it was because the circumstances of his life did not bring them out, for his mind and his force and his intellect were peerless.

In the corner is an excellent portrait of what may be called the Genius of this Society—Dr. James B. S. Jackson, the Cruveilhier, the Rokitsansky, almost the John Hunter and Bichat of Boston. What he did is found in the Warren Museum. What he was has been lost except in the memory of his contemporaries. If he has missed that universal immortality which was his due it is because the community in which he lived were too ignorant to appreciate the wonderfully high quality of his endeavor.

And on the other side is the great master of enthusiasm who brought to medicine the zeal of a

crusader, the fervor of a covenanter, who believed himself, as every practitioner, to be the viceregent of the Almighty on earth. Of his manifold efforts and of his earnest teaching there remains a monumental work on Consumption and the great impulse which has placed sanitation in our community foremost in the world. We not only could admire his ability, but he was a man who could be loved for his strong human sympathy.

And above him stands the teacher, the gentleman, the scholar, whose interest in medicine began when he sat at the feet of Louis and brought to Boston the teachings of that great school of French medicine. He was the first, I believe,—Dr. Wyman will correct me if I am in error—but I think he was the first to bring to us clearly the difference between typhus and typhoid. His influence has extended to our generation and will live longer, as long as this society clings to the traditions of the past.

And last is the portrait, the excellent portrait, of the young medical scholar who was spared to us too short a time to bring to us the whole influence of his traits. Whatever he did brought with it the scholarship and finish that is an inspiration to every one who knew him. He was the scholar filled with the finish of perfected study.

These pictures may be thought to present to us the spirit that should rule this society's councils; they are the true "genii loci." The work that the society has done, excellent as it has been, should be only the beginning. This society has a place in the community as a focus, the academy, the centre, the place from which should radiate much that is useful in stimulus and in effort towards the best medical thought. This will be its future if the gentlemen who are now members recognize the opportunity and equal it in their endeavor. (Applause.) Motion by Dr. C. J. Blake.

DR. BRADFORD: Before adjourning it is but proper that we should pay our tribute of respect to two of the older members of the society who have asked that they should not be requested to speak. Their labors in the society have been so active and so useful that it is but proper that this wish of theirs should be respected. We all of us owe the greatest tribute to the Nestor of the society, Dr. Abbott, and to Dr. Ingalls, whose surgery goes back to the days before antiseptics, and who at the age of eighty performed at the City Hospital, where he has been a surgeon since its establishment, a difficult operation with his usual clear judgment, steady hand, and courteous and careful consideration of his assistants and of his patient.

DR. INGALLS: Before I received the printed notice of this meeting, I had a courteous and therefore kindly invitation from your secretary, intimating a reminiscent gathering. Fearing I might be called upon to say something, I was about to decline, but I did not; for I thought that as, in accord with nature, I am approaching the vale, I might offer a valedictory. The second half of the 19th century has recently been pretty well sifted by divers writers and speakers; I should like to take

you and my friendly audience back almost to the beginning of it, but not quite, however, for thirteen years of it elapsed before I was born; the dedication of this superb building took place on my last birthday. There was a time, within my knowledge, when it was difficult to find subjects for the study and demonstration of human anatomy, and the expedients resorted to for furnishing the imperative necessity required the wit, labor and secrecy of certain Jerry Crunchers. If I relate one or two anecdotes in this line I think an arrest from Chief Wade need not be apprehended at this late day. Between my sixth and eighth years of life these events took place. My father was professor of anatomy in Brown University, and had transferred his lectures to Boston in the uppermost story of Number 30 Market Street, now Cornhill. Our house was Number 4 School Street, and the two large rooms of the highest story were devoted, one a dissecting room, the other for preparations; there were several students, among them Sam. G. Howe, Lowell, who afterwards became surgeon-general of the army, Dr. George Capron and Daniel Ingalls. The last named, upon entering the dissecting room one evening, was informed of a "find"; how to get it down to Number 30 was the problem. (*Man crying "Oysters, buy my oysters,"* bag on back. Subject from neighboring town.)

Now I was very friendly with the students and several times they took me down to Number 30 to hear a lecture; and once the lecturer called me from the seat to hold an arm for demonstration; I was the greatest man in the kingdom!

I skip my school days and pass on to 1832, having been one year in Harvard. In 1836 I received my diploma, having studied chiefly under Dr. Charles Harrison Stedman. I must be allowed to recall the names of the professors of my early years; I have ever held them in the highest veneration. Dr. J. C. W. Alway seemed to me to be filled with care; I honored him from a distance; Dr. James Jackson, so kind and gracious to me as to cause me to feel almost on an equality with him; Dr. John Ware, who helped me with some cases, for although I was at that age when I "knew it all" I was always glad of help; I noted his manner with patients, with what gentle forbearance he drew forth from the sick everything he desired to know. I learned much from him. Dr. Jacob Bigelow did me the honor to consult with me twice. He caused me to feel as though I was the principal in the consultation, and there were others, learned, skillful gentlemen.

In 1839 I went out to Louisiana, and one of the plantations which fell under my care was owned by Zachary Taylor, in Mississippi, just above the State line. Soon after Christmas time the General called upon me; now, I had two bull-dogs, Vengeance and Fury. I heard a low, short growl, and immediately I sprang through the door and beheld a nice looking elderly gentleman within the gate, looking down upon Vengeance, who had the skirt of his surtout in his teeth, the stranger saying,

"Hi! hi!" — Of course there was sudden release.

Returning in 1847, by advice of friends I settled in Winchester, a family doctor, ready for anything under the sun; but I chiefly ran to midwifery, which is now called obstetrics. I have sometimes thought I was born too early; for just think of how one must manage events at the present time, and how adroitly he used to carry himself in those days or nights. For time favored me, for there are even now many grandmothers who were subjects of my helping hand. It seems to me that, generally speaking, neatness is a special characteristic of the profession, and next in importance to the antiseptic.

I would like to speak of my service in the Boston City Hospital from 1870 to 1885, but I have not words warm enough and earnest enough to express my admiration of the character and skill and the friendly Christian bearing of each to all, and, for the most part, the students, in time, seemed to imbibe their modes and bearings from the staff and to do their best. Some of my most ardent and enduring friendships were formed during this service.

Recent Literature.

The Syphilis of Children in Everyday Practice. By GEORGE CARPENTER, M.D. (Lond.), Physician to the Evelina Hospital for Sick Children (Lond.). New York: William Wood & Co., 1901.

This little book of 110 pages, 28 cuts, and a short but sufficient index is "based upon a study of several hundred cases of congenital syphilis, met with in private practice and in work at the Evelina Hospital for Sick Children." After a short chapter introducing the subject of congenital syphilis, the next three-quarters of the book is devoted to a consideration of the manifestations of the disease in the different regions and organs of the body, beginning with the skin. There follows a chapter on the clinical history of the disease illustrated by reports of 18 carefully selected cases, and the book ends with two or three pages devoted to "Prognosis" and half a dozen more on the "Treatment" of the disease.

In speaking of the length of time mercurials should be continued, the writer says that he "treats his cases with mercurials for at least a year, and has seen nothing but good accrue from their continuation for two years."

The book presents in a few pages the essential facts of our knowledge of this disease in a practical way and with the author's personal experience as a basis of the work. The illustrations are, many of them, reproductions of sketches made "on the spot" to illustrate the writer's clinical notes of cases, and the book is so simply and attractively written that any student or physician who consults its pages will be tempted to read on, to his further profit.

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TOPOGRAPHY OF THE LATERAL VENTRICLES.

WHATEVER the future of cerebral surgery may prove to be, it is clear that it is desirable that we should have ready and accurate means of determining the relations of various parts of the skull to the surface of the brain, and also to its interior. The relations of the bone to the more important localizing fissures and convolutions have been carefully mapped out, so that, with care and sufficient preliminary measurements, there is small possibility of error. As a matter of fact, a surface growth or hemorrhage is rarely so accurately localized that trephining half an inch one way or the other is a matter of great moment. With the larger skull openings, which may now be made without material added risk to the patient, it is evident that a preliminary error may easily be rectified. There is, however, a very strong possibility that, with increasing accuracy of diagnosis, operations on tumors underlying the cortex may in time be successfully performed. In such cases it will become a matter of growing importance to spare the patient any unnecessary shock, and to this end to cultivate the greatest possible accuracy not only in localizing the position in the brain of the growth, but also to determine with precision the relations of skull and brain. It can hardly be questioned that certain lives might have been spared, and more brilliant operations performed on deep-seated tumors, had we the requisite topographical knowledge.

A further question of cerebral topography which has been curiously neglected is the relations of the lateral ventricles to the surface of the brain and cranium. This has recently been made the subject of an investigation by Edward H. Spitzka of New York, his preliminary paper appearing in the *New York Medical Journal* for February 2d. Tapping the lateral ventricles has

for a period of about twenty years been accepted if not very frequently performed surgical procedure. It is likely that the operation will be performed more often in the future than in the past, possibly as a ready means of directly reaching the nervous system, as, for example, in the injection of antitetanus serum, or probably more often as a palliative measure in the treatment of extreme degrees of intracranial pressure. In either case, it is extremely essential that the operator should be able quickly and deftly to reach the ventricle through a small cranial opening and with the minimum of risk of injuring various brain structures. An unskilled man may most easily fail entirely to reach the cavity of the ventricle, or he may injure, more or less severely, important structures lying in its immediate neighborhood, like the caudate nucleus or the optic thalamus. Tapping of the ventricle should therefore not be a matter of guess-work, but should be wholly dependent upon an accurate knowledge of the relation of this rather small cavity to the cerebrum and skull. To make this possible is the object of Spitzka's work. Good plates are lacking, with the exception of Fraser's.

In his preliminary work, Spitzka has dissected the heads of two adults. His method of procedure was, in general, as follows: Preliminary arterial injection, skull trephined and lateral ventricles injected with a 10% formaldehyde solution, immersion of entire head in 5% formaldehyde. After one month's hardening the skull was cleansed and drawings and measurements made. Finally the skull was opened and the brain removed, which was carefully measured and drawn. The brain was then cut into sections about a quarter of an inch in thickness. By the aid of tracings and various appliances, the outlines of the ventricles were then projected upon the surface of the cerebrum and skull. The results are figured in a series of excellent diagrams, in which the relations of the ventricles to the brain surface and skull are accurately given. Spitzka points out the fact that a large number of such measurements must be made in persons of varying age and race before a general rule of value may be formulated. There will always be certain sources of error, depending upon individual variations in skull and brain form, as well as upon certain varieties of form and anomalies of the ventricles themselves. Such sources of error may, of course, be minimized by a sufficiently large number of carefully made observations. We hope Spitzka may continue this work, which promises a considerable practical as well as theoretic result. Any investigation which conduces toward the speed and accuracy with which surgical procedures on the brain may be undertaken deserves the warmest encouragement.

IS APPENDICITIS INCREASING?

It is a popular idea, frequently expressed, that certain diseases are increasing in frequency. No doubt the fallacy of such a point of view lies in the fact that as knowledge advances affections once rarely recognized are now easily diagnosed, with a consequent apparent effect upon statistics. In no condition is this more true than in what we now call appendicitis. The confusion of a few years ago has given place to a remarkable accuracy in the diagnosis and treatment of this disease, and it is therefore quite natural that an appearance of an increasing prevalence should exist. That such is actually the case, however, had not occurred to us before reading certain comments of Dr. Lucas-Championnière given at the last meeting of the French Academy of Medicine, and alluded to in the *Medical Press*. In this surgeon's experience, as shown by an analysis of his own cases, appendicitis is distinctly increasing in frequency. This he believes due to an increase in the sources of intestinal infection, particularly observable in those people, like Americans and English, who eat large amounts of meat. He furthermore thinks that the comparative neglect of more or less frequent free purgation is having a bad effect by permitting the multiplication of organisms of infection in the intestinal tract. If it is true, as has been claimed, that appendicitis occurs more frequently in persons who suffer from habitual constipation, and also in persons given to a meat diet, we may possibly see a means of prophylaxis. Statistics in such a question are of exceedingly questionable value, but whether or not this now so popular disease is actually increasing or not, it appears both reasonable and wise from various points of view to argue that an occasional vigorous cleansing of the intestinal tract is a safe practice to pursue. The meat question is one more difficult to be dogmatic about, but here again no doubt a golden mean is the best policy to adopt. In spite of the fact that appendicitis has been robbed of many of its terrors by the surgeon's skill, it behooves us none the less to be on our guard, particularly when such simple means of prevention may prove efficacious.

MEDICAL NOTES.

UNIVERSITY OF PENNSYLVANIA MEDICAL BULLETIN.—The changes in the *University Medical Magazine*, which were announced in February, appear with the March issue. The title has been changed to read *University of Pennsylvania Medical Bulletin*. The reading matter is printed in double instead of single column, and all advertising matter has been excluded. The

policy and scope of the publication are in no way affected by these changes, since it still continues to be the official organ of the Medical Department of the University of Pennsylvania.

PLAGUE IN SOUTH AFRICA.—Plague continues to spread at Cape Town, South Africa. On March 9th there were 69 patients suffering from the disease in the various hospitals. Europeans are not exempt. At a meeting of the advisory board the government physician is said to have announced that the provisions made by the Town Council for fighting the plague were quite insufficient. Fifteen new cases were reported March 11, and 97 other persons were isolated because of having come in contact with the persons suffering from the affection. The disease is said to be reaching the more prosperous classes.

SMALLPOX IN GLASGOW.—On March 6th, 42 new cases of smallpox were reported, making the total number of patients in hospital 435. This was the worst report up to that date.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, March 13, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 88, scarlatina 31, measles 64, typhoid fever 7.

BOSTON MORTALITY REPORT.—The number of deaths reported to the Board of Health for the week ending March 9th was 238, as against 280 the corresponding week last year, showing a decrease of 42 deaths, and making the death rate for the week 22.14. The deaths from consumption were 22; pneumonia, 39; whooping cough, 2; heart disease, 24; bronchitis, 13; marasmus, 4. There were 3 deaths from violent causes. The number of children who died under one year was 41; under 5 years, 68; of persons more than sixty years, 60; deaths in public institutions, 58.

SCARLET FEVER AT KEENE, NEW HAMPSHIRE.—A somewhat alarming epidemic of scarlet fever is reported from Keene. Some days ago 11 deaths had been announced, with less than 100 cases. The disease has spread to various sections of the city and a number of churches have been closed; the trustees have also voted to close the library building. Rigid quarantine measures are necessary to bring the disease under control.

INTERCOLLEGIATE STRENGTH RECORD AGAIN BROKEN.—A first year student of law at Harvard, Charles G. Herbert, has recently broken all intercollegiate strength records by attaining a maximum of 1,869 points. H. F. Coehems, also of Harvard, previously held the record with 1,809

points. Herbert is said to be a man of small stature, weighing 145 pounds.

DIPHTHERIA IN WALTHAM, MASS.—Diphtheria is reported to have again appeared in Waltham, with 1 death. Some of the cases reported have been sent to the contagious hospital, and the Board of Health is taking precautions to prevent the spread of the disease.

NEW YORK.

AN INCIDENT OF A VACCINATING TOUR.—An amusing incident occurred last week in a large apartment house in the borough of the Bronx, which had been quarantined on account of a case of smallpox. While the inspectors of the Board of Health were making a vaccinating tour of the premises they came across a sneak-thief in one of the flats who, not appalled by the danger of infection, had taken advantage of the confusion of the occasion to slip in and help himself to such valuables as could conveniently be appropriated. He represented, however, that he was "the son of the lady of the house," and, at the request of the inspectors, obligingly offered his arm for vaccination. Soon afterward "the lady of the house" herself appeared, and as she promptly stated that she had no son, the fellow was arrested, when a number of rings and other pieces of jewelry were found in his pockets.

ATTEMPT TO BURN A SMALLPOX HOSPITAL.—On March 9th a mob of about three hundred men, mostly Italians, attempted to burn a small frame isolation hospital in course of construction by the Board of Health at Orange, N. J., and it was necessary to invoke the assistance of the fire and police departments to put out the flames and protect the premises. The hospital is designed for the accommodation of smallpox patients, and there are at present two cases of the disease in the care of the health authorities.

A COMMON AND EXCUSABLE ERROR.—A man was severely injured by being dragged for a considerable distance by a trolley car. On making an examination, the ambulance surgeon of Bellevue Hospital expressed the opinion that because the pupil of the right eye was somewhat more dilated than that of the left, there was concussion of the brain present. "O doctor," said the patient, "you needn't mind the appearance of that eye. It's a glass one."

A LIBRARY BEQUEATHED TO THE ACADEMY OF MEDICINE.—By the will of Dr. Abbott Hodgman, who died in February, his extensive library is bequeathed to the New York Academy of Medicine.

AN AGED JEWESS.—On February 24th there was reported at the Registrar's office, New York

Health Department, the death of Leah Abrams, a Russian Jewess, at the extraordinary age of 114 years.

Miscellany.

APPEAL TO THE MEDICAL PROFESSION OF THE UNITED STATES.

THE undersigned constitute a committee similar to those formed in several European countries for the purpose of receiving subscriptions for a monument commemorative of the distinguished scientific services of Prof. Leopold Ollier. Among the members of these committees are Lord Lister, Professors Von Bergmann, Czerny, Durante and other leading men. The municipality of the city of Lyons has dedicated an open space, adjacent to quarters of the various academic faculties on the border of the Rhone, named in his honor "Place Leopold Ollier."

The profession of this country is well aware of the great services rendered by Professor Ollier, especially in the domain of plastic and osseous surgery. His labors have been most fruitful in the domains of surgery, of physiology and of pathology.

The committee hopes to raise not less than \$1,000 as a testimonial from the profession of America. Checks should be forwarded to W. W. Keen, 1729 Chestnut Street, Philadelphia, Pa., at as early a date as possible.

Committee.—Robert Abbe, New York; William T. Bull, New York; P. S. Conner, Cincinnati; A. T. Cabot, Boston; Howard A. Kelley, Baltimore; W. W. Keen, Philadelphia; Rudolph Matas, New Orleans; William J. Mayo, Rochester; W. F. McNutt, San Francisco; Roswell Park, Buffalo; Clayton Parkhill, Denver; Maurice H. Richardson, Boston; Nicholas Senn, Chicago.

RESOLUTIONS ON THE DEATH OF FREDERICK LYMAN THAYER, M.D.

At a meeting of the staff of the Newton Hospital on March 5, 1901, the following resolutions were unanimously adopted:

WHEREAS, The staff of the Newton Hospital hears with deep regret of the loss of one of its oldest and most honored members by death, and

WHEREAS, The profession of medicine throughout the city loses a valuable associate and wise counsellor, and many a poor family will keenly feel his absence when affliction is upon them, therefore it is

Resolved, That in the death of Dr. Thayer the hospital loses one who, from the opening of the institution, took an active and self-sacrificing part in the practical duties at the bedside. His daily visits were greeted by many who looked to him for sympathy and encouragement. His social and official methods in behalf of the institution will

long be remembered and cherished as among the helpful things that have brought it to its present prosperity. By his judgment much that might have embarrassed the government in its developmental workings was avoided.

Resolved, That we extend to his family our heartfelt sympathy, and that we attend the funeral in a body.

Resolved, That a copy of these resolutions be sent to his wife, that they be printed in the city papers and the *Boston Medical and Surgical Journal*, and spread upon the records of the Newton Hospital.

GEORGE L. WEST,
Secretary.

EDWARD P. SCALES, *President*.

FRANCIS E. PORTER,

FRANCIS GEORGE CURTIS,

GEORGE E. MAY,

Committee on Resolutions.

Obituary.

RICHARD J. DUNGLISON, M.D.

DR. RICHARD J. DUNGLISON, a well-known editor and author of many medical works, died last week in Philadelphia. Dr. Dunglison was a son of Professor Robley Dunglison of Jefferson Medical College, Philadelphia, and studied medicine under his father's direction. He was one of the originators of the *Philadelphia Medical Times*, and was the author of "Dunglison's Medical Dictionary," for which alone he will long be held in remembrance, and "Dunglison's History of Medicine." He was in the Federal service from 1862 to 1865, as acting assistant surgeon. He was assistant secretary of the International Medical Congress, 1876, and corresponding secretary of the Centennial Medical Commission, 1876; he was also secretary of the executive committee of the Ninth International Medical Congress at Washington, D. C., September, 1887, and chairman of the finance committee of that congress. Within a few months has appeared the twenty-second edition of his "Dictionary of Medical Science," which stands pre-eminent among books of this sort.

Correspondence.

NOTES ON X-LIGHT: AN UNPUBLISHED METHOD OF DOWERING THE RESISTANCE OF AN X-LIGHT TUBE.

MR. EDITOR:—If the target of an x-light tube is made of sufficient size and thickness it may be used as a reservoir from which gas can be drawn when it is desired to lower the resistance of a tube. In my notes in the *American Journal of Science* I showed that in a properly constructed tube the target must be placed at the real focus of the cathode stream instead of at the centre of curvature of the cathode as recommended by Crookes, Roentgen, E. Thomson and others. When properly placed the surface of the target struck by the cathode stream is an oval spot about two millimetres long. By means of a magnet the point of impact can be shifted to any other part of the face of the target, thus liberating gas from the metal and lowering the resistance of the tube.

Truly yours,
WILLIAM ROLLINS.

METEOROLOGICAL RECORD.

For the week ending March 24, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Baro- meter	Ther- mometer	Relative humidity	Direction of wind.	Velocity of Wind.	Wet'th'r °	Rainfall in inches.
Daily mean.	Daily mean.	Maximum. Minimum.	8.00 A. M. 4.00 P. M.	Daily mean.	8.00 A. M. 4.00 P. M.	8.00 A. M. 4.00 P. M.	8.00 P. M.
March 24	29.67	36 42	17 84	48 66	S.W. W.	14 12	O. C. 14
" 23	29.95	36 42	14 57	56 56	S.W. W.	13 15	O. O. 11
" 22	29.73	36 47	25 55	52 S.W.	W.	14 14	O. O. 11
" 21	29.35	34 29	19 56	52 W.	W.	11 15	C. C. 11
" 20	29.19	30 42	13 46	45 46	W. W.	11 15	C. C. 11
" 19	29.91	30 42	19 51	58 S.W.	S.W.	12 24	F. O. 11
" 18	29.76	38 45	30 63	70 66	S.W. N.	8 14	O. O. 12
Mean	29.58	37 20	57				

O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threatening; N, snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 2, 1901.

CITIES.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.
New York	3,437,202	1,410	400	22.33	20.06	2.13	.78	2.65
Chicago	1,698,575	575	161	20.83	13.95	1.67	.53	5.21
Philadelphia	1,235,637	538	54	18.20	22.26	—	.42	2.52
St. Louis	575,253	—	—	—	—	—	—	—
Baltimore	500,957	238	54	22.26	—	—	—	—
Cleveland	381,568	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,002	—	—	—	—	—	—	—
Pittsburgh	321,616	133	55	21.20	23.31	.53	10.53	—
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	175,597	—	—	—	—	—	—	—
Boston	560,822	240	63	26.48	18.32	3.20	2.54	1.51
Worcester	118,421	32	6	9.36	9.36	—	—	3.12
Fall River	104,863	—	—	—	—	—	—	—
Lowell	94,939	—	—	—	—	—	—	—
Cambridge	91,886	20	9	23.97	16.65	—	—	6.67
Lyons	68,513	23	6	6.20	17.25	—	—	—
Lawrence	62,559	30	15	3.33	26.64	—	—	—
New Bedford	62,442	26	8	3.84	20.72	—	—	—
Springfield	62,059	25	3	20.00	20.00	—	—	—
Somerville	61,643	17	8	17.64	25.52	5.88	—	—
Holyoke	45,712	17	5	41.16	6.88	—	—	11.76
Brockton	40,063	1	1	10.00	—	—	—	—
Haverhill	35,155	10	2	—	20.00	—	—	—
Salem	35,056	23	6	8.70	24.75	—	—	—
Chelsea	34,072	9	1	—	—	—	—	—
Malden	33,694	8	2	12.50	12.50	—	—	—
Newton	33,587	7	1	—	42.80	—	—	—
Fitchburg	31,531	8	2	—	25.00	—	—	—
Taunton	31,036	—	—	—	—	—	—	—
Gloucester	28,121	10	—	—	—	—	—	—
Everett	24,336	10	2	20.00	—	—	—	—
North Adams	24,290	9	2	—	33.33	—	—	—
Quincy	23,599	7	1	14.29	28.60	—	—	—
Waltham	23,141	7	—	28.60	14.29	—	—	14.30
Pittsfield	21,706	7	—	71.40	28.60	—	—	—
Brookline	19,935	—	—	—	—	—	—	—
Chelsea	19,167	7	3	14.28	28.56	—	—	—
Methuen	18,244	—	—	—	—	—	—	—
Newburyport	14,478	11	5	7.14	35.70	—	—	—
Melrose	12,962	—	—	—	—	—	—	—

Deaths reported 3,041; under five years of age 835; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 621; acute lung diseases 582; consumption 332; diphtheria and croup 88; diarrheal diseases 13; scarlet fever 49; influenza 25; typhoid fever 33; whooping cough 26; cerebro-spinal meningitis 6; measles 13; erysipelas, 15.

From whooping cough, New York, 8, Pittsburg, 5, Balti-

more, 2, Philadelphia, 1, Boston, 4, Pittsfield, 2, Spring-
field, 2, Cambridge and Holyoke, 1 each.

From cerebro-spinal meningitis, Providence, Philadel-
phia, Boston and Worcester, 1 each; Pittsfield, 2. From
scarlet fever, New York, 30, Philadelphia, 9, Pittsburg, 1,
Boston, 7, Lowell and Springfield, 1 each. From typhoid
fever, New York, 11, Pittsburg, 14, Philadelphia, 5, Provi-
dence, 2, Baltimore, 1. No deaths were reported in Massa-
chusetts from typhoid fever.

In the thirty-three greater towns of England and Wales,
with an estimated population of 11,787,000, for the week end-
ing February 10th, the death rate was 15.5. Deaths reported
4,308; acute diseases of the respiratory organs, (London)
420; whooping cough 105, diphtheria 71, measles 78, diar-
rhea, 35, fever, 32, scarlet fever, 27.

The death rates ranged from 11.7 in Burnley, to 28.8 in
Liverpool, Birkenhead, 22.7, Birmingham, 22.8, Blackburn,
19.5, Bolton, 16.6, Bradford 13.3, Brighton, 18.8, Bristol, 19.2,
Cardiff, 13.9, Coventry, 18.2, Derby, 18.1, Gateshead, 16.7,
Hull, 20.6, Leeds, 17.5, London, 19.3, Manchester, 22.5, New
Castle-on-Tyne, 19.3, Norwich, 27.3, Oldham, 17.4, Plymouth,
25.1, Portsmouth, 18.8, Salford, 20.1, Swansea, 17.0, West
Ham, 15.2, Wolverhampton, 17.9.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for
Clinical Medicine, Pathology and Hygiene will meet in
Sprague Hall, Boston Medical Library Building, Number 8
The Fenway, Wednesday, March 20th, at 8 P. M.

Papers: Dr. H. F. Vickery, "The Plague."
Dr. S. O. Barnch, of New York: "Some Aspects of Hy-
drotherapy."

Dr. G. C. Smith: "The Value of Suggestion."
Discussion by Drs. J. J. Putnam, Morton Prince and E.
W. Taylor.

H. F. HEWES, Secretary,
3 Fairfield Street.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular
meeting of the society will be held in Sprague Hall Medical
Library Building, on Monday, March 18, at 8.15 P. M.

Papers: Dr. J. L. Goodale, "The Correction of Old Dis-
placements of the Nasal Bones."
Dr. J. S. Stone, "Cleft Palate."

ARTHUR K. STONE, M. D., Secretary,
657 Boylston Street.

EXAMINATIONS FOR DENTAL SURGEONS IN
THE UNITED STATES ARMY.

Candidates for appointment as dental surgeons in the
United States Army will be examined in the following
named branches: Anatomy, physiology, histology, physics,
chemistry, metallurgy, dental anatomy and physiology,
dental materia medica and therapeutics, dental pathology
and bacteriology, orthodontia, oral surgery, operative den-
tistry, theoretical; prosthetic dentistry, theoretical; opera-
tive dentistry, practical; prosthetic dentistry, practical.
An average of 75 per cent. will be required in each subject
for theoretical examination, and 85 per cent. in the practi-
cal examinations.

RECENT DEATH.

ROBERT STONE, M. D., of New York, sixty-four years old,
died on March 7th, after a tracheotomy operation for an
affection of the throat. He came of an old Massachusetts
family, and was the son of Joel Stone, a prominent New
York merchant. He first attended lectures at the Yale
Medical School and was afterward graduated from the Col-
lege of Physicians and Surgeons, New York. In 1864 he
was appointed an assistant surgeon in the United States
Navy. A considerable portion of his professional career
was spent in Yonkers-on-the-Hudson.

BOOKS AND PAMPHLETS RECEIVED.

Oral Sepsis as a Cause of "Septic Gastritis," "Toxic
Necrosis," and other Septic Conditions. Illustrated. By
William Hunter, M.D., F.R.C.S., Senior Assistant Physi-
cian, London, Tesci Hospital, etc. London, Paris, New
York, etc.: Cassell & Co., 1901.

King's College Hospital Reports: being the Annual Re-
port of King's College Hospital and the Medical Depart-
ment of King's College. Edited by Norman Dalton, M.D.,
F.R.C.P., Albert Carless, M.S., F.R.C.S., John Phillips,
M.A., M.D., F.R.C.P., W. D. Halliburton, M.D., F.R.S.
Vol. VI. (October 1, 1898, to September 30, 1899). London:
Adlard & Son, 1900.

Original Articles.

PUERPERAL INSANITY.¹

BY ARTHUR C. JELLY, M.D., BOSTON.

THE so-called puerperal insanity is not common, and without doubt some of you have never seen a case of it; but those who have been so unfortunate as to have such cases occur in their practice will probably agree with an eminent alienist, who characterizes it thus: "I do not know of any event that can occur in a family, short of death, that is so great a shock to all who have to do with it as for a new-made mother of the first-born child to become suddenly maniacal and require to be sent to an asylum. One of the most joyous times of life is made full of fearful anxiety, and the strongest affection on earth is then often suddenly converted by disease into an antipathy." Certain specialists believe that preventive measures might sometimes have been made effective, if the attending physician had appreciated the earliest symptoms of impending danger. The gravity of the condition and the possibility of prevention appear sufficient reasons for presenting the subject before this society.

In examining the medical records of the Institutions' Registration Department of the city, with reference to the question of the increase of insanity, I was struck with the apparent decrease of puerperal insanity, though certain names of women afflicted with this disorder were frequently encountered. Without expecting to add very materially to the present knowledge of the subject, I wondered whether it might not be worth while to collect all the cases where the puerperal state was the assigned cause of the mental disorder, and then to ascertain their hospital record, and possibly their subsequent history. Such a collection might give a broader view than was afforded by the records of any one hospital.

From 1872 to 1900 about 250 such patients were examined. Fifty of these have been excluded, because the conditions found did not warrant a certificate of insanity, or because a rapid improvement, or some other reason, led to keeping the patient at home, or because the insanity was due to other causes than the puerperal condition. There remain about 200 where the puerperal state is the alleged cause, whose hospital record is at our disposal. These people represent the middle and lower classes socially, some very poor, others in comfortable circumstances. The majority were examined at home; some in hospitals or charitable institutions; others in the hands of the police at the House of Detention; 12 had been recently delivered at the Lying-in Hospital.

The term "puerperal insanity" may be used broadly to cover cases of disorder arising at any time during pregnancy, or soon after confinement, or several months later; but it is customary to limit it to cases which develop within six weeks after delivery, and to describe the other cases by

the terms "insanity of pregnancy" and "lactational insanity."

In the early months of pregnancy, it is not so very uncommon to encounter symptoms of mild mental disturbance, such as irritability, eccentricity, perverseness, moderate depression of spirits. Such a condition usually lasts only a short time. If the disorder appears for the first time toward the end of pregnancy, it is apt to be much more serious in character and longer in duration. Sometimes a slight improvement may be noted after delivery, but it is usually only temporary, and the patient soon becomes worse. Thus it is evident that delivery has not essentially improved the mental condition. On the contrary, a mild case frequently develops in the week following delivery into a very severe one.

The insanity of lactation seems due largely to anemia and debility; its symptoms are usually gradual in onset, subacute in course, not very grave in character; on the contrary, some cases show a sudden onset of violent excitement with fatal termination, and others profound melancholia with suicidal tendencies.

It does not seem consistent with the laws of nature that a normal woman should become insane from passing through a physiological process. And yet this process brings such great changes, physical and mental, that one's neighbor is shocked rather than surprised upon hearing that an attack of insanity has quickly followed childbirth.

From an etiological standpoint one may divide cases into two distinct groups: In the first, the puerperal conditions appear to be the sole cause of the insanity; such are those due to sepsis, many due to exhaustion, some probably due to auto-intoxications. In the second group, preparations were already made, and the puerperal state opened the door, and thus the psychosis was liberated (*ausgelöst*—Kraepelin). In other words, it acted here just as worry, financial losses, grief or the period of puberty may act to add the weight needed to turn the scale. Indeed, there may occur several attacks of this sort in the same person, where each attack was apparently excited by a different one of this group of causes.

Another group should be mentioned. A defective or somewhat demented person, or one who has delusions (though living comfortably and quietly under the conditions of ordinary domestic life), may, when pregnant, become excited or depressed, and present a picture whose most striking features may be those of a puerperal insanity, but in which features of the chronic state are detected upon critical examination.

If, now, we turn to the clinical features and ask whether there is anything that we may describe as a type of puerperal insanity, we find just such a diversity as would naturally be expected from what has just been said. Viewed rather superficially, many of the clinical pictures do not seem to differ very much one from another, but on closer inspection may show widely differ-

¹ Read before the Obstetrical Society, May 15, 1900, and unavoidably delayed in publication.

ent diseased states. The following cases will illustrate this point: Of 3 cases, where the striking feature was a perplexity, due apparently to confusion, with restlessness, insomnia and anorexia, the first was an attack of simple excitement, the second was upon a basis of congenital defect, and the last was an episode in the course of a general paralysis. Three cases that would impress one at once as melancholia, proved on analysis in the same way to represent: one an attack engrafted on a slight congenital defect, another a form of recurrent psychosis, the third a general paralysis. Thus it seems best not to attempt the description of a sort of case which seems most typical, but to bear in mind the possibility of wide differences—important especially for prognosis.

Insanity is said to occur once in 400 deliveries. As to its frequency in hospitals for the insane, the following figures may be quoted:

	Puerperal.	Pregnancy.	Lactational.	Total.
Clouston,	12%	12%	18%	
Krafft-Ebing,	9.2%	5.4%	3.1%	17.7%
Kraepelin,	6.3%	3%	4.3%	14.7%

Our ratio is 3 puerperal and 2 lactational to 1 of pregnancy.

Etiology.—The relation between etiology and prophylaxis is so close that we are warranted in studying the causes in detail. The great predisposing cause of insanity in general is heredity. We should look for this in the collateral as well as in the direct lines of the family, and we must consider epilepsy, apoplexy and various nervous diseases, because these may lead to nervous instability of such a sort that the person is liable to serious breakdown at any period of stress. A history of heredity is found in about one-third of our cases. This undoubtedly does not represent the whole number, because such a family history is often concealed.

Tuberculosis is so often found in the family history of cases of insanity that it must be admitted to be an important predisposing cause.

Alcoholism is an important factor, because if it exists to any great extent in either parent of the woman, it may lead to those neurotic conditions in her which predispose to insanity. Moreover, a woman may, by drinking to excess, be laying the foundation for an attack of insanity when she becomes pregnant. It happens, however, sometimes that the alcoholism is merely one of the signs of disturbed mental condition due to pregnancy in a woman temperate when not pregnant.

Epilepsy or even profound hysteria may possibly be responsible, according to Kraepelin, for certain sudden outwardly severe delirious states of excitement, which arise rarely during the act of delivery and soon pass off. In certain of our cases epileptics during pregnancy or after confinement developed insanity.

The physical condition seems often the only important etiological factor. As psychic causes, grief, fright, worry, domestic unhappiness are mentioned frequently. In such instances as the following, worry might easily play an important rôle: A woman had an attack of insanity after

each of her three pregnancies, and her sister, a primipara, could not banish from her mind the probability in her own case; a woman whose mother had died in childbirth learned when seven months pregnant of the death of her sister from puerperal fever. In such cases there may be no history of hereditary tendency. Undoubtedly, illegitimacy operates as an important psychic factor, though the poor physical condition often associated with illegitimacy must not be overlooked. Clouston states that insanity is twice as common after the birth of illegitimate as legitimate children; and this is exactly the ratio in the Lying-In Hospital series—8 of the 12 were single women.

How many cases are clearly septic? This is the most important division of the subject for you. Dr. Chapin attributes the decrease from 99 very acute cases admitted to the Philadelphia Hospital in the ten years preceding 1877, to 20 such cases in the ten years preceding 1897 to the introduction of stricter antiseptic measures in obstetrical practice in Philadelphia; and he emphasizes the opinion that a further reduction might be made if in every case every source of septic infection could be excluded. Dr. Brush, in the *American Medical Quarterly*, cites statistics from the Kalamazoo Asylum, where the percentage of puerperal cases fell from 7.8% in the decade 1877 to 1886, to 3.8% in the years 1887 to 1896, and also from the asylum at St. Peter, Minn., where the experience was similar. In Boston there has been a decrease in ratio, puerperal to total female cases as follows: 1872-1880, 6.4%; 1880-1890, 4.6%; 1890-1900, 3.7%. But an examination of the most acute cases, some of which were clearly septic, fails to show a corresponding decrease. It seems fair to assume, therefore, that here in Boston prevention of sepsis has played a less important part than some other factors in the reduction. In this connection it has been suggested that a state of the pelvic organs resulting from previous disease may be the starting point for a septic process in spite of perfect technique on the part of the obstetrician. It is certainly a fact that certain cases of excitement which have been attributed to profound exhaustion are clinically like septic cases, except that the temperature is usually not so high, and there is no vaginal discharge. Possibly an ether examination would help somewhat.

In spite of our rather favorable statistics, however, this subject is so important that we may expect our profession to continue improving its methods until no case of insanity can be justly ascribed to puerperal sepsis.

Toxic States.—Defective elimination by the kidneys leads to delirious states which are frequently very transitory. The following extract from Kraepelin loses something in my imperfect translation: "The psychic phenomena of poisoning depend, (1) on the kind of poison; (2) on the rapidity with which it does its work. Rapid poisonings of the brain are usually expressed in conditions of delirious confusion with more or

less lively disturbances of sense-perceptions and often with excitement. While in slow destruction by the poison, signs of intellectual paralysis occupy the foreground. Naturally in each case the clinical picture is determined very essentially by the special properties of the poison. From the work of Nissl and others it seems probable that for every poison there is a characteristic disease-process in the nervous tissue, whose special traits we may learn to separate, in the earliest stages, even anatomically. Moreover, the investigations of the psychic effects of poisons—as far as they have been exactly carried out—have taught us that for every poison there is a special distribution of effect upon the different regions of the soul's life. Likewise, we are at last in a position to recognize in many cases the nature of the poisoning by the symptoms observed clinically. Only in rare forms, in most of the auto-intoxications, in many slow and insidious poisonings, is it still impossible to infer the cause of the disorder from the clinical picture."

By analogy it seems probable that when careful clinical observations and accurate laboratory studies are made simultaneously upon the same cases, we may find a sort of puerperal insanity due to auto-intoxication. Such a group might include many cases now attributed to exhaustion.

Sometimes several causes appear to have played a part in producing the disorder. This record made in one case under supposed cause shows the thoroughness of one physician: congenital mental deficiency, alcoholism, masturbation, confinement, and grief at loss of child. But sometimes no cause is found except the puerperal state itself. Indeed, Clouston says, "In far the majority there is no other exciting cause; the psychology of pregnancy has not been written." There are certain individuals whose makeup is such that they are liable to serious mental disturbances when the stress of their environment becomes great. Such women naturally have trouble at puberty, at the climacterium and in the puerperal state.

Symptoms.—In many cases symptoms were sudden in onset and severe in character, and reached a climax of wild excitement in twenty-four hours. Frequently, however, symptoms mild at first gradually increased in severity or suddenly gave way to an outburst of excitement. In cases of gradual onset the first symptoms noted were frequently these: A change of manner so that the patient became somewhat indifferent and neglectful of the child and of her household duties. She grew reticent, and her face showed a peculiar expression of watchfulness, as if she were anxious and yet unwilling to reveal her state of mind. On the other hand, many patients were moving constantly, talking incessantly, as if somewhat exhilarated. Nearly all showed early loss of appetite and inability to sleep. Later a patient may be confused, suspicious, resistive, depressed, less often excited; frequently she has impulses to suicide, or she makes attempts at suicide in an impulsive way; less often impulses or attempts to injure the child are recorded. Assaults upon

others are usually due to fear. Rarely there is a condition of marked stupor. Seldom does a patient become exhilarated in the strict sense of the word, that is to say, with a marked sense of well-being, rapid flow of ideas, and extreme activity, with a thoroughly happy state of mind. On the contrary, in our cases, though they were frequently noisy and incoherent and very active, and sometimes destructive and violent, these symptoms appeared to represent a mental state of confusion or perplexity, with a feeling of helplessness. Wernicke's term "*Rathlosigkeit*" is most aptly applied here. Hallucinations occur, of hearing more often than of sight, and they are usually of a distressing character. Delusions are also distressing and frequently are concerned with religion.

Course and Outcome.—After a short period many of the most excited cases become comparatively quiet and no longer suffer from hallucinations and delusions. Sometimes this change is so rapid that a diagnosis of alcoholic insanity is made; and in certain cases this factor is undoubtedly partly or wholly responsible for the condition. But if the case were due to an auto-intoxication, which ceased under the conditions subsequently established, then we might reasonably expect an equally rapid subsidence of symptoms.

English writers especially emphasize the short duration and curability of this group of cases. Clouston writes that 75% of his puerperal cases recovered completely, while 8% died; that 90% of these recoveries took place in six months; that 77% of his lactational cases recovered, 80% of them in six months; that 60% of the insanity of pregnancy recovered. Kraft-Ebing gives the average duration of hospital cases due to pregnancy and lactation as nine months, and eight months for puerperal cases. Many septic cases are of short duration and end in death. Others improve after removal of the source of sepsis, but not all of them recover.

Some cases of exhaustion live only a few days. If they recover, more time is needed than for the septic cases as a rule.

Many cases of excitement, on the road to recovery, pass into a state where they are more quiet than is natural for them when well, or even into a condition of stupor. And many others who do not appear especially dull have no subsequent recollection of the events of the attack. Some have exacerbations of excitement, followed each time by an improvement until recovery is established. The average case improves gradually, often the body before the mind, but usually both together.

Recurrence.—Thirty patients had more than one attack. In 6 all the attacks were puerperal (including here pregnancy and lactational). In 8 the first attack was puerperal. In 5 the first attack was not puerperal. In 11 the first attack is not accurately described, later some attacks were puerperal. In many the attacks were very similar in symptoms, course, duration and outcome, others showed considerable variation, but

are to be regarded as representing similar disease-processes and clinical pictures so much alike that they may be classed together. One woman was admitted to a hospital for the insane in 1870 in her first attack and in 1899 in her seventeenth attack. She has been discharged, recovered or much improved, seventeen times and is said to be very little if at all demented.

ONLY ONE ATTACK; 147 PATIENTS.

	Total.	Recovered.	Died, Acute.	Died, Chronic.	Living, Chronic.	Result in Doubt.	Average Duration (including hospital residence and duration previous to this).
Puerperal, very acute ¹ cases.	47	36	4		7		36 cases, 7.9 mos. 34 " 5.5 "
Puerperal, less acute ² cases.	31	11	2	4	13	1	11 " 6.5 " 10 " 5.8 "
Lactational cases.	46	14	3	5	19	5	12 " 7.5 " 10 " 6.0 "
Pregnancy cases.	15	7	3	2	3		6 " 13.0 "
Miscarriage cases.	8	5	1	2			5 " 9.6 "
	147	73	13	13	42	6	70 cases, 7.7 mos. 65 " 6.6 "

Causes of death in acute cases: sepsis, 3; exhaustion, 4; suicide, 2; phthisis, 2; exhaustion and bronchopneumonia, 1; unknown, 1.

¹ Patients in whom symptoms developed within two weeks after confinement of such a character that they were received at the hospital three weeks after confinement.

² Symptoms within six weeks after delivery.

MORE THAN ONE ATTACK; 30 PATIENTS.

	Recovered and remained well.	Became chronic.	Died.	Now ill in hospital.	Doubtful, probably recovered.	Total cases discharged recovered.
Two Attacks.	6	5			1	20
Three "	3	1	3			13
Four "	1	2		1	2	4
Five "						6
Six "	1	1		1		12
Seventeenth Attack.	1					17
Total.	12	9	3	2	4	75

MENTAL DEFECT OR DISORDER EXISTED BEFORE PREGNANCY BEGAN; 20 PATIENTS.

	Number of patients.	Discharged much improved, dementia slight if any.	Discharged improved, dementia considerable.	Discharged not improved.	Transferred to chronic Asylum.	Died, carcinoma.
Epilepsy.	3	1	1		1	
Imbecility.	3			2		
Secondary Dementia.	5	1	2	1	1	
Paralytic Dementia.	1					1
Dementia Precox.	3	1				
Delusional Insanity.	5	2		1	2	
	20	5	3	6	5	1

In calling your attention to the figures that follow I feel bound to express my skepticism as

to the value of statistics of this sort. No matter how carefully compiled, they are necessarily inaccurate. Allowing for this inaccuracy, however, they may be useful if considered very broadly.

Prognosis.—The prognosis as to life is very good. Of our cases 13 died in the first attack and 3 in the second; of the chronic cases, 14.

The prognosis for recovery from the attack is variously stated to be from 70% to 80% of the cases in asylums, and since many mild cases never go to an asylum, the percentage of recoveries is often stated as probably nearer 90%. Our cases do not warrant so favorable a prognosis. Moreover the tendency to recurrence must be taken into account, because, as we have seen, many cases recover from several attacks, but finally become chronic and demented.

The insanity of pregnancy does not disappear with delivery. A short temporary improvement should not mislead us, because often the patient soon becomes worse than ever before. Speaking of insanity in general, Clouston says, "I look upon a temperature of 100 and over with alarm in any form of mental disease, and in the estimation of the intensity of brain overaction, one-half a degree is equivalent to two degrees in the measurement of a febrile disturbance."

The return of menstruation is a good sign, not because it in any way leads to recovery, but because it indicates a return to normal condition on the part of the bodily functions. Recovery once well started usually progresses steadily, so that patients are frequently allowed to leave the hospital much earlier than when they are suffering from any other form of mental disease.

We have seen that the same clinical picture may have for its foundation a very different diseased state, and, therefore, before giving a prognosis we should be careful to determine whether we are dealing with a simple or complicated condition; because, after all, "The prognosis will be dependent upon the degree of defect in the nervous organization of the woman rather than any external conditions which may have complicated what might have been otherwise a physiological process."

Treatment.—At the outset it was suggested that possibly some of these cases might be prevented if the physician has in mind the conditions which are liable to lead to attacks of this sort, and if he is alert to note the early symptoms as they appear. It seems hardly possible to emphasize too strongly the importance of prevention, for though the mental symptoms of pregnancy are usually mild and temporary, and frequently pass off without treatment, this is not a sufficient reason for neglecting to treat the patient seriously, because, as we have seen, many cases pass gradually into a very serious condition, which leads to an attack of insanity, and ends in dementia. When the physician has reason to suspect the existence of conditions favorable to the development of insanity, he should instruct the patient to establish the most perfect hygiene possible in her home during her pregnancy, and if danger

signals, pointing to instability, appear at any time, he should at once seek to remove the cause if possible, and endeavor in every suitable way to restore the balance. Special attention should be paid to the digestive and eliminative functions, to exercise in the open air; excitement should be avoided, and sources of annoyance removed. Sleep is very important. If the conditions just mentioned are fulfilled, especially if the person is much in the open air, sleep may sometimes be obtained without the use of drugs; and we should avoid drugs, not only on general principles but out of consideration for the possible effect upon the child. Serious mental disturbance during the pregnancy is not to be regarded as an indication for inducing labor.

When mental disturbance appears after delivery it is wise not to act hastily, but to wait until it is clear that the patient is suffering from something more than a mere temporary affair before deciding the question whether she shall remain at home or be sent away for treatment. Since many cases which are explosive in their onset, and which show the gravest symptoms, are very frequently of short duration and end in recovery, it is often desirable that such should be treated at home if possible. Moreover, septic cases require surgical treatment of local conditions and such general treatment as would be proper for a septic case with fever and delirium, so that even violently maniacal cases of this sort may be treated at home if a sufficient nursing force can be obtained. In cases of profound sepsis or rapidly progressive exhaustion, death is liable to occur within a few days, and it is especially unfortunate to remove such a patient to an insane hospital and have her die there in twenty-four hours, as happened in one of our cases. Moreover, one may question whether the journey to the hospital might not be enough to turn the scale; therefore, one may properly hesitate about sending such cases away. If home treatment is adopted it frequently is necessary to turn a portion of the house into a hospital, because the patient may become excited, noisy, violent, destructive, suicidal or homicidal. Our first consideration must be to prevent loss of life. The presence of the child, and in less degree also of the husband, appears often to be a source of nervous excitement and irritation to the wife, even when there is no real danger, from impulsive acts on her part; but a sufficient number of cases have been recorded where the mother tries to kill the child to warrant us in saying that it is usually desirable and frequently necessary to separate the mother and child because of danger to the latter.

Our next care should be for the mother herself. The physician should explain to every one in attendance how great is the danger of suicide, how stealthily and suddenly and rapidly such people often commit the act, and he should demand the greatest vigilance on the part of every one. Moreover, this caution should be given not only at the outset, but should be repeated at frequent intervals afterward, because if the patient improves

the attendant may omit precautions too soon. The next indications are to maintain strength, to improve nutrition, and to insure sleep. Cases of mania frequently take food readily, so that we have no great difficulty in providing sufficient nourishment to meet the vast demands upon their strength, made by their great activity; but the majority of puerperal cases suffer from a loss of appetite which may be so great that they refuse all food. No time should be lost, but vigorous treatment should be begun at once by the use of simple, easily digested nourishment at frequent intervals. Nutrient enemata may be of service, but usually feeding with the tube, through the mouth or nose, will be necessary in the severe cases. This is neither easy nor safe in the case of an excited patient without the help of several assistants. It is often wise to peptonize some at least of the food so given.

It is usually necessary to give more or less alcohol. Insomnia is a symptom which calls for attention very early in the majority of cases. Sleep of several hours' duration will often follow the administration of food and stimulants, but hypnotics should be used freely at this time if necessary. There can be no doubt that here, as in an impending attack of delirium tremens, a few hours' sleep may prevent a serious and prolonged attack. After giving a reasonable quantity of the hypnotic selected, if the patient remains wakeful more food and stimulants should be administered, when it is often almost wonderful how soon sleep comes. If the patient wakes early in the morning hot milk or broth should be made ready promptly and given at once.

Puerperal cases in the excited stage are so oblivious of the calls of nature that the bladder may become over-distended and the rectum overloaded. Moreover, such patients are more or less anesthetic, so that they do not complain of pain or discomfort as ordinary patients do, and thus your attention will not be called to the condition of these organs or to inflammatory trouble in the pelvis or elsewhere.

In the treatment of lactational cases it is of course naturally suggested that nursing should be stopped and that debility and anemia should receive proper treatment. A large number of these cases are depressed, and in many the depression is profound and there is a tendency to suicide, which is attended with greater deliberation and is carried out less impulsively and therefore with greater chance of success than in the puerperal cases; so that it is necessary to guard what often seems a mild case from this danger.

Home treatment of insanity is possible for only a few cases. The expense is too great for most people, and the private or public hospital is a necessity for all such.

THE GRAVE OF HIPPOCRATES.—A London paper reports, according to the *Medical News*, that a telegram from Athens announces the discovery of the grave of Hippocrates, during excavations at Larissa. The report needs verification.

MEAT RATION IN THE TROPICS.¹

BY F. R. EGAN,
Surgeon U. S. Army.

FOLLOWING the late Spanish War, American soldiers were scattered from the Arctic Circle to the Equator. Speculation as to their requirements under these new surroundings soon became rife. The necessary clothing alterations were sufficiently apparent, but the requisite food is still a matter of discussion. In the first days of the occupation of Puerto Rico an officer of the line wrote home that his principal food consisted of crackers and milk, and that he was in excellent health because he avoided all heating diet.

Physiologists had for a long time observed that there was a rise of body temperature of nearly one degree in the tropics; that the pulse rate was lowered; that respiration and blood pressure were diminished; and that there was a marked languor and tendency to depression. Proteids and fats increased heat production, and should, it was stated, be abandoned or used very sparingly. They also proceeded to analyze the diet consumed by the Negro in the Antilles, the Hindoo in India, and the Malay in the Eastern Archipelago, and to point out a great diminution of the proteids and fats in his dietary. But they also discovered that the carbohydrates were diminished to an equal degree; or, in other words, that their diets were those of chronic starvation, a condition that exists to some extent in most tropical countries where the rate of increase of population is so great that the country is unable to raise sufficient produce to feed them, and where, as in India, famines are now beginning to be regarded as inevitable. Overlooking these facts they declared that there was need of more sugar and tropical vegetables, and less meat and fat to reduce our dietary to their standard; that is, to the standard of those who are unable to procure nourishing food. But coming nearer home, these same physiologists would not for a moment declare that because the Crofter lives on oatcake, and the Cottier on potatoes, that the diet suitable to Scotland was oatmeal, and to Ireland potatoes. Yet, guided by their theories, some, like the line officer, lived principally on crackers and milk, and others believed like Major Louis Livingston Seaman, surgeon to the First Volunteer Engineers, who is reported as declaring before the board of officers on the Tropical Ration that what should have been a delightful outing for his regiment was turned into a tragedy because of the heating foods his troops had to eat. When they landed in Puerto Rico not a man was on sick report. In less than three months nearly one-third of the regiment was on the sick list, and the rest were scarcely able to carry their personal belongings when they reached New York. Dr. Seaman said that all had suffered from bowel irritation, and that when they needed delicate food they had to use that which had inflamed the intestinal tract and had produced symptoms like a catarrhal condition, making the patient peculiarly subject

to attacks of typhoid and other fevers. He also said the food used was diet food and not the regular rations. However, few of the persons who have had extended experience of the Tropics agree to the so-called heating effects of the proteids; nor does the diet of the natives who can afford other than starvation fare tend to support this theory. The late governor, General Henry, of Puerto Rico, wrote in December 1899: "The better class live and dress like ourselves. The food of this class, is for the early meal, coffee and bread for breakfast; at noon, coffee, vegetables, eggs, meat and dulces, or sweets. The night meal is about the same. They are great meat eaters, it being cooked in various ways."

In January of the same year Colonel O'Reilly, chief surgeon, Division of Cuba, who had been sent to Jamaica to investigate how Great Britain cares for her soldiers in the tropics, reported: "No improvement on the present ration of the United States can be suggested. If it errs at all it errs on the side of too great liberality." In December, 1899, I wrote the following letter to the *Boston Medical and Surgical Journal*: "As a supplement to the article of my scientific friend, Colonel Smart, on the 'Army Ration,' let me add a few practical observations gathered in Puerto Rico. Duty has taken me at one time or another, since the first days of the American invasion, into almost every town from Ysabella on the northwest coast to Humacao on the east coast, and then up the military road to this capital. In the districts of Guayama and Southern Humacao it was part of my business to investigate the cause of deaths among the natives. Everywhere I found the main cause assigned to be anemia and phthisis. Everywhere I went I was struck by this ever-prevalent anemia. The pale, yellowish, waxy skin, the bloodless lips, and the swollen, puffy features, formed a picture never seen by me outside of tropical Puerto Rico. Yet I soon found that these people had been living on rice, beans, maize, dried codfish and fruits. Meat very rarely entered into their diet. They and their fathers before them had lived exclusively on the diet urged by the public press as suitable for tropical climates, and the result filled the hospitals with such ghastly cases of anemia that no one who has once seen the picture can ever forget the impression. On the other hand, I soon discovered that the people who lived in the towns and could afford it ate two hearty meals daily. These people, I believe, use more meat than we use in American cities, and there is no doubt in my mind that I have used more meat and felt more need of it since I have been here than ever in the same time in the United States. Yet I am one of the few who did not have to go home for ill health; while the natives that eat in the hotels with me, and as freely as I do, are perfectly healthy individuals, and show not the least trace of anemia. Only a few days since, a native informed me with much gusto that one of the best things that Puerto Rico afforded was *chuleta de cerdo* (pork chops), surely one of the most unsuitable articles of diet

¹ Read before the Lyceum, Fort Douglas, Utah, January 25, 1901.

for a tropical climate, as our physiological friends will tell us, and yet the absence of which, in my opinion, made the native anemic to a noticeable degree. These observations are so common in this climate, and have been so forcibly impressed on me, that I feel more and more the wisdom of going very, very slowly in urging alterations in the ration."

Major Stephenson, Surgeon U. S. Army, also made the following statement: "My personal experience of a year in Tampa, Puerto Rico and Santiago was that I craved and ate as much meat of all kinds relatively to all food eaten in cooler climates. I believe that meat consumption among the natives of hot climates is limited to their purses, not to their tastes. In Cuba and Puerto Rico I found the noon and evening meals in private houses and restaurants prodigal of meats of all kinds."

The absurdity of arguing from theory and not from experience was forcibly impressed on me as I read on a balcony in San Juan the essay that gained the hundred dollar prize given by Major Louis Livingston Seaman for the ideal tropical ration. As I reached the part that discussed the "distaste for fats in considerable quantities, so early acquired in the tropics" I was aroused by the cry of the "Char-r-rone" vender. For more than a month I had noticed that same cry every afternoon. I had tried faithfully during that time to detect what he was calling out, but had as signally failed, until one evening I was fortunate enough to have an Englishman educated in Spain along with me when he made his rounds. Then I learned that "Char-r-rone" was the Puerto Rican abbreviation for "chicharrones," and that this was Spanish for pork fried crisp with the skin on it. For twenty centavos I obtained a piece about a foot square. I found that while the outside was crisp the interior of my piece, an inch in thickness, was simply cold fat pork with a very little lean through it. The man sold it as a *bonne bouche* through the streets every afternoon. A couple of mouthfuls was all I desired to test, but the rapidity and relish with which my four little Puerto Rican girl friends devoured it gave me a striking example of the "distaste for fats in any quantity so early acquired in the tropics," and of the value to be attached to theories derived from analysis of "jibaro" dietary, as to what constitutes a suitable food for the tropics. On the other hand, it is now being claimed by some writers that the depression and languor of the tropics call for increased food and vinous stimulants, and this idea seems to be warranted by the large amount of meat, and of claret, or water with a dash of rum, used twice daily by the better classes of the population.

The board before which Major Seaman made his plea has recently, according to the public press, reported to the Secretary of War that, "The recommendation that the fresh meat ration be reduced in quantity was so opposed to all the teachings of experience, both in our country and in Cuba and Puerto Rico, that the board was un-

able to accept the recommendation as conclusive without further investigation. Two members of the board have served in Cuba and the third in Puerto Rico, and their personal experience has been that as much meat has been desired and eaten as in the United States, and with no deleterious effect on the health of the men. The natives of these countries are also large meat eaters when they are able to secure it, and the meat eaters are noticeably stronger and healthier looking than the poorer classes who from necessity are mainly vegetarians. The board also interviewed a number of officers and other persons that had been in the Philippines, and, taking all sources of information together, the board is of the opinion that it would be a mistake to make any fixed reduction in the meat ration." The criticism of General Henry in the above quoted article that, "The objection to the meat (of Puerto Rico) for an American is, that having no place to keep beef after being killed, it has to be put in the pot in a hot, quivering condition; and I believe this made many an American soldier ill," is in part well applied. Puerto Rican beef cannot be cooked American fashion and be other than tough and unpalatable, as it is killed about 3 o'clock in the morning, and eaten by 11 or 12 o'clock the same day. I had so fully recognized this fact that for more than a year before leaving the island I refused all "bistek" or "rostitif," as presented by the seductive native. Only Swift or Armour refrigerated beef can in Puerto Rico be prepared American fashion. Native beef, however, prepared by native cooking, is tender and palatable, devoid of this objection and is habitually consumed with only the best results. In fact, when they ask us to replace the meat ration by vegetables we should not forget the Spanish motto that says: *Bellotas y tostones hacen malos trabajadores*.

BUBONIC PLAGUE.¹

REPORT ON THE PLAGUE IN MANILA, P. I., FROM JAN. 1, 1900 TO JUNE 30, 1900.

BY JOSEPH J. CURRY, M.D.

Captain and Assistant Surgeon, U. S. A., Philippine Medical Service; Member of the Board of U. S. Army Medical Officers to Investigate the Diseases of the Philippine Islands.

ABOUT the 1st of January, 1900, there were reported, from the walled city of Manila, a number of deaths with history of only few days illness—these cases occurring in the same block of dwellings. As the Board of Health was at this time without a laboratory equipment, Major-Surgeon Edie, U. S. Army, president of the Manila Board of Health, requested the assistance of the First Reserve Hospital laboratory. At the time I was in charge of this laboratory, and with the consent of Major-Surgeon W. R. Hall, U. S. Army, commanding the First Reserve Hospital, I placed the use of the laboratory, for the work of investigating

¹ Extract of a report to the Surgeon-General of the Army on the Diseases of the Philippine Islands. By permission of the Surgeon-General of the Army.

these cases, at the disposal of Assistant-Surgeon W. J. Calvert, U. S. Army, pathologist to the Board of Health. As in most of these suspicious deaths, there were reported to have been found greatly swollen glands. Bubonic plague was suspected, in spite of the assurances of the Spanish and native physicians that the plague never occurred in Manila.

I assisted Dr. Calvert, as did also Dr. Edwin R. Hodge, and Hospital Steward Musgrave, U. S. Army, in autopsies, with cultures, and in the experimental work. The greatest care was taken of the cultures, and in the inoculation and care of the animals. For nearly six weeks the plague work was carried on at the laboratory of the First Reserve Hospital. The disease was early shown to be bubonic plague.

Numerous cultures were made, and many animals inoculated, but no case of bubonic plague occurred as a result of this work in the laboratory. I continued the work on the plague in the months of March and April, at the Board of Health laboratory, during Dr. Calvert's absence in Japan. As Assistant-Surgeon Calvert will make a full report of his work later, it is unnecessary for me to go into details here.

I will confine myself to the statement of a routine method used in the examination of suspected plague cases, and to a few general remarks

ON THE DIAGNOSIS OF BUBONIC PLAGUE.

The plague bacilli do not appear in the blood until late in the disease, save in the rapid fulminating type. Blood cultures are therefore unsatisfactory, so also is the agglutination (Widal's) test with the plague bacillus, for an early diagnosis.

The most satisfactory method, I believe, is that of aspiration by means of a hypodermic syringe of one of the swollen glands, preferably, of one of the recent swollen glands. A hypodermic syringe with large caliber needle and tight plunger answers admirably. After cleansing and disinfecting the skin over the swollen gland, a few drops are withdrawn from the gland. The syringe may then be placed in a sterile box or a test tube and carried to the laboratory without danger. Now three things are to be done with the material in the syringe: (1) A drop is used to make cultures—best in melted agar tubes or in bouillon from which dilutions, cultures and plates can be made. (2) A drop is allowed to fall on a clean slide, which is then smeared by a platinum needle, to be used for direct examination. (Two preparations may be made from this.) (3) The remainder is injected into an animal (mouse, rat or other animal).

The plague bacilli occur in large numbers in the glands even early in the disease. The specimens on the glass slides are stained, one by Gram's method, and one with Zeihl's carbolie fuchsin, or Löffler's Methyl Blue. The presence of large numbers of characteristic short bipolar staining bacilli, which decolorize by Gram's method, makes the case at once more than sus-

picious. The cultures will be ready to examine and transplant on various differential culture media by the next morning. By the second day these latter cultures will be ready for examination. Usually by this time, or shortly after, the animal (if the plague bacillus is present) is either dead or very ill, and now an absolute diagnosis can be made. This method I used many times, and in every instance in which the direct coverslip examination showed large numbers of short, thick bacilli, which decolorized by Gram, the subsequent history of the case, the cultures, and the inoculations of animals proved the case to be one of bubonic plague.

The above applies to the bubonic type which was the type that prevailed in the great majority of the cases which occurred in Manila. In the pulmonary type the plague bacilli occur in enormous numbers in the bloody expectoration, and are readily recognized on direct coverslip examination of the expectoration.

Sometimes bubonic plague is ushered in with a sudden chill, followed by a fever simulating closely a malarial attack. The examination of the blood in these cases fails to reveal the malarial parasite, and the blood shows a marked leucocytosis early. This would arouse suspicion of a septic process of some kind, and direct the observer to look carefully for a cause of the leucocytosis.

I was enabled to detect a case of plague in a very early stage, occurring in the walled city close to the army headquarters, by having my attention directed by the blood examination for the malaria and finding this condition, that is, absence of malarial parasites and presence of marked leucocytosis. This man died two days later at the plague hospital, and at the autopsy the case was found to be a very acute case of bubonic plague.

GENERAL REMARKS ON THE MANILA CASES.

There were recognized from January 1 to June 30, 1900, in Manila, 225 cases of bubonic plague, with 167 deaths, which equals a mortality of 74%. Of this number of cases of plague 160 were Chinese, with 115 deaths; 63 natives, with 15 deaths; and 2 Americans, with 1 death. It is rather surprising to find the death rate higher in the cases among the natives than among the Chinese. The native death rate in this series is nearly 81%, while the Chinese is not quite 72%. When the surroundings are considered, and manner of living, it would be expected that the Chinese would present a much higher percentage of fatality than the Filipinos. I am at a loss to account for this higher mortality among the natives in Manila.

There were no cases of plague discovered among the Spanish or foreign residents of Manila, and but 2 among the Americans. These 2 cases were in civil employees of the Quartermaster's Department of the Army, who were employed at Hall's Corral in Manila. One of these men died, and the other recovered after a moderately severe attack.

Mode of infection.—It was noted that the right femoral and right inguinal glands were

usually the first glands to enlarge. In considerably over one half of all cases these glands were enlarged first. The right femoral and inguinal glands were primarily enlarged nearly three times as often as the corresponding glands on the left side. It was unusual to be able to locate any fresh wounds of the extremity which appeared to be the point of entry of the infection. It was very common, however, to find skin lesions involving legs and thighs. Dhobie itch (so called) is very common among the natives, and the crotch is a favorite site for this infection. There is the possibility of introduction of the plague bacilli through infection of these areas (in which the epidermis is broken) by scratching. (As most people are right-handed, it may be possible that they are more inclined to scratch the right thigh than the left.)

It would be of interest to know if in other epidemics the right inguinal glands were *primarily* involved as frequently as in those cases which we studied in the Manila epidemic. Fleas and mosquitoes are always abundant in the Philippine Islands. Almost all cases of plague which came to autopsy showed evidence of bites by these pests. The possibility of the spread of plague by insects has been shown by the Japanese and other observers. It does not seem probable that mosquitoes play any part in the dissemination of the plague.

Objection has been made by some to the puncture of a plague gland with the hypodermic needle. These observers claim there is danger of causing general infection by this method from rupture or injury of a blood vessel, which would allow the plague bacilli to enter vessel and, by it, the general circulation. I think that this objection to the use of the aspiration method for diagnostic purposes is based more on theoretical than on practical grounds. I believe it much *safer* for both the patient and operator than the incision method as advocated by some.

Clinical Department.

A CASE OF RETROPERITONEAL LYMPHANGIOSARCOMA; OPERATION; RECOVERY—NO RECURRENCE AFTER TWO YEARS.¹

BY T. E. LUND, M. D., BOSTON.

On February 13, 1899, I saw, in consultation with Dr. W. T. Patch, of Boston, G. W. B., a salesman, fifty-eight years of age, who had been obliged to give up his work by an attack of influenza in December, 1898. The attack of influenza had left him weak and miserable and he had, during January, 1899, suffered from pain in the epigastrium, extending into the left side and back. Two weeks before I saw him he had a sudden attack of pain in the epigastrium, with vomiting. His bowels had been very loose during his illness,

and his movements occasionally tinged with blood. He thought he had lost eighteen to twenty pounds in the last two months. His only previous illness had been an attack of typhoid fever eight years ago, and he was in good health when attacked by influenza.

We found him in bed at his home, a rather florid, flabby-looking man, with a temperature of 99.4°, pulse 80, and of fair strength, lips and extremities rather blue. His abdomen was lax, tympanitic, and not markedly tender. In the left lumbar and hypochondriac regions, extending inward as far as the median line, was a rounded, fluctuating tumor, larger in size than a fetal head at term. The tumor, from its location, suggested a tumor of the left kidney, and its fluctuation suggested a hydronephrosis. Such a diagnosis also was consistent with its recent appearance and unusually rapid growth. Mr. B. was brought to the City Hospital, and rested comfortably in bed for a few days, having no pain, and a normal pulse and temperature. The urine showed no albumin or evidence of renal disease.

On February 18th he was given ether, and by means of the Harris urine separator an attempt was made to obtain the urine from each kidney. The specimens obtained from each side of the instrument varied only in that one contained a larger percentage of urea than the other. Pressure upon the tumor seemed to cause a faster flow of urine from the left side of the instrument. The tumor, repeatedly aspirated through the loin, gave no fluid except a few drops of blood.

Under the circumstances it was thought best to perform an exploratory operation and deal with the tumor according to the conditions as found. The means so far employed had not sufficed to clear up the diagnosis, but had rendered that of hydronephrosis improbable, and that of a tumor of the kidney, which would seem from its soft consistency and rapid growth to be malignant in character, more probable. Therefore on February 23, 1899, the patient was again etherized, placed on the right side with the body flexed over a sand bag, and an incision was made from the tip of the twelfth rib to the crest of the ilium, parallel to the outer border of the erector spine. After incising the transversalis fascia, there was found in the retroperitoneal space, apparently below the kidney, the surface of a large, fluctuating tumor, which consisted of a fibrous sac, over the surface of which were spread several very large veins, running in a direction parallel to the spine. Aspiration of the tumor yielding only a few drops of blood, an incision was made into the sac, and it was found to contain a soft, dark-red, malignant-looking material, having the appearance and consistency of currant jelly. The incision was then enlarged sufficiently to admit the hand, and a very large quantity, more than a quart, of this red, jelly-like material removed with the hand and a large curette from the interior of the sac, which appeared to extend upward and forward in front of the kidney. There was considerable hemorrhage from the interior of the sac, and the patient col-

¹ Read before the Surgical Section of the Suffolk District Medical Society, February 6, 1901.

lapsed and became pulseless, so that it was evidently impracticable to attempt to remove the sac, which was therefore washed out, rapidly packed with several strips of iodoform gauze, and the wound partially sutured. Subcutaneous infusion of normal salt solution was then performed, and under this, and stimulants given subcutaneously and by the rectum, the patient gradually came up, and by evening had a pulse of 140. During the next few days he did well, and the course of the wound was aseptic. The pathologist's report, by Dr. F. B. Mallory, was as follows:

Microscopically the tumor is very cellular. It is largely made up of long, narrow, branching canals or spaces, lined for the most part with low, flattened cells; in places, however, the cells are taller and approach the cuboidal shape. The canals contain an almost perfectly homogeneous material. In parts of the tumor the cells are packed very closely together, so that little or no evidence of spaces can be made out, and the cells assume more or less of a spindle shape. The connective tissue stroma is slight in amount, but contains many dilated lymph spaces, which, like the canals first mentioned, contain a homogeneous material, and in places many lymphoid and plasma cells.

Diagnosis.—Lymphangiosarcoma, or perhaps better, lymphangio-endothelioma.

We had here to do with a tumor of which the rapid growth, the vascular appearance of the covering sac, the macroscopical appearance, and the microscopical examination confirmed the diagnosis of malignancy. It was also in the highest degree probable that we had not accomplished its complete removal, both because we had not excised the fibrous sac, and had perhaps left some fragments of the jelly-like contents adherent to the interior of the sac. Therefore, in view of the probability of recurrence, it was determined to try the crysipelas and prodigious toxins of Coley. On March 14th, the patient being in fair condition, and the wound reduced to a clean granulating sinus with slight serous discharge, 1 minim of the serum was given. It was gradually increased to 10 minims, but on April 14th, as the patient, who had developed a right femoral phlebitis, had a slight cough and pain in the chest, seemed in a critical condition, and as several small abscesses had developed at the site of the injections, it was deemed wiser to discontinue the administration of the toxins.

After this the patient made a gradual recovery, left the hospital on April 24th, and after spending the summer in western New York, returned to Boston restored to health, and resumed his employment as a salesman in one of the large department stores. He has been regularly engaged in his employment since, has gained markedly in weight and strength, and suffers only from swelling of the right leg, which is undoubtedly one of the results of the phlebitis which followed the operation. There is no evidence of the recurrence of the tumor at the present date, two years after the operation.

The case is reported on account of the rarity with which a tumor of malignant macroscopical and microscopical appearance is cured by operation, and goes to show that all tumors of malignant

appearance and rapid growth are not, at least, actively malignant. It does not seem to me probable that the treatment by the mixed toxins had anything to do with the non-recurrence in this case, as, owing to its apparent bad effect upon the patient's general condition, the toxins were given only in small amounts and for a comparatively short time.

VOMITING OF PREGNANCY. — SUSPENSION OF PREGNANT UTERUS. — EXTRA-UTERINE PREGNANCY. — OPERATION FOR FIBROIDS.

REPORTED BY J. OSWALD VOGEL, M.D.,

From the Service of Frederick William Johnson, M.D.

CASE I. Vomiting of Pregnancy.—Nellie C., twenty-one, single. Entered the medical service of the Carney Hospital, September 28, 1900, with the following history: For the past four months has had poor appetite, with occasional nausea and belching after eating. Ten days ago the patient vomited in the morning and several times during the day. There was no blood in the vomitus. The vomiting has continued ever since, coming on both during the day and during the night. Has lost about 8 pounds, although the appetite is fair. Bowels constipated. Physical examination was negative throughout. The white count was 8,200. The urine was acid, of a specific gravity of 1.012; no albumin, no sugar. Since entrance the patient has vomited repeatedly, irrespective of time and feeding. No blood in vomitus; no pain; temperature and pulse normal; no epigastric pain or tenderness; no sign in breasts of pregnancy. Rectal feeding was ordered. By mouth oxalate of cerium and bismuth subnitrate, and by the rectum $\frac{1}{2}$ grain of cocaine were given. No effect was produced on the vomiting.

October 3d. Dr. Johnson found the uterus enlarged and somewhat to the right side of the pelvis. Cervix soft; violet color of vagina well marked. The diagnosis of probable pregnancy was made.

October 6th. In spite of every variety of treatment, the vomiting still continued, everything taken by the mouth being promptly rejected. The patient first menstruated at fifteen. Regular every four weeks until she came to this country in November, 1899, when she did not menstruate for two months. Was then regular up to June, 1900, when she did not flow for six weeks. Was unwell in July and August; but has not flowed any since August 20.

October 11th. When etherized, a positive diagnosis of pregnancy was made. The cervix was slowly and carefully dilated to the width of an inch. Then the cervical canal was thoroughly painted with Churchill's tincture of iodine from external os to inside internal os.

October 12th. Some vomiting from the ether. On rectal feeding.

October 13th. Vomited once. Rectal feeding stopped. Semi-solid food given.

October 15th. Was put on house diet.

October 18th. No trouble in retaining all kinds

of food. The cathartic pill taken at night caused vomiting.

October 24th. No vomiting since the 18th. and no vomiting of food since the 15th. Discharged well.

This is the second case of the persistent vomiting of pregnancy relieved by this method of treatment by Dr. Johnson.

CASE II. Suspension of pregnant uterus.—Mary F., twenty-eight, married. Entered Carney Hospital November 6th, and was operated on November 8, 1900. A diagnosis of three months' pregnancy complicated with an ovarian cyst was made by her family physician, Dr. G. N. P. Mead. An incision 4 inches long was made to the right of the median line, through the right rectus muscle. The intestines were found adherent to the posterior surface of the uterus on the left. A cyst of the right ovary with twisted pedicle was found adherent to the posterior surface of the uterus and to the rectum. This cyst was the size of an orange, and was filled with dark, inky-looking material, apparently due to hemorrhage from the cyst wall. In separating the adhesions, the cyst was ruptured. The sac with right tube was removed, the tube being dissected out of the horn of the uterus, as has been Dr. Johnson's custom for years. The uterus was the size of a three months' pregnancy. The left ovary, the size of a hen's egg, was so incorporated in the cyst wall that it appeared part of it, and it took some time to decide from which side the cyst grew. The diseased portion of the left ovary was removed, leaving a rim of apparently healthy ovarian tissue, which was sewed over and over with catgut. The uterus was then suspended, after Kelly's method, with two sutures of kangaroo tendon. A quart of normal salt solution was poured into the peritoneal cavity. The abdominal incision was closed (as has been Dr. Johnson's custom for years) layer by layer, with animal ligature material, except the skin, which was united with silkworm gut. The convalescence was uneventful, and she was discharged well twenty-three days after the operation. Pregnancy has continued up to the present day with no discomfort.

This case is reported on account of the unusual procedure of suspending the uterus three months pregnant, and on account of the complication which existed with the pregnancy.

CASE III. Extra-Uterine Pregnancy.—A. N., thirty-three, married. No children. One abortion at four months, seven years ago. Menstruation began at sixteen; always regular; flows three days; uses but three napkins. No dysmenorrhea. Peritonitis lasting one month followed the abortion seven years ago. No leucorrhea. Menstruated last, November 24, 1900; flowed the usual amount; no pain. December 25, 1900, at 2 A. M., was suddenly taken with pain in the lower abdomen. The pain was not confined to either side, and lasted several hours. Returned in forty-eight hours very severely and lasted two hours. These pains returned, off and on, for several days, requiring the use of morphine. Was never entirely free from discomfort

in the abdomen. Was kept quiet in bed from December 27, 1900, until she was removed to the hospital January 25, 1901.

January 6th. A dark, bloody discharge began from the vagina, and continued up to the time of the operation. Often soaked through three napkins a day.

Nausea and vomiting were present during the interval from December 27th to January 25th.

Examined January 25, 1901. There was a dark brown, non-offensive discharge from the vagina. Uterus enlarged and in good position. Fibroid at the fundus extending toward the right. Sensitive mass, with boggy feel, behind and to the right of the uterus. Temperature normal; pulse 90.

Operation.—Considerable tissue was everted from inside the uterus. On opening the abdomen, the right tube was found dilated half way between its uterine and fimbriated ends to the size of a pullet's egg, and with lymph and partially organized blood around it, made a mass the size of a small orange. The tube was unruptured; the escape of blood had been from the fimbriated end. The right tube and ovary were removed, the tube being dissected out of the horn of the uterus in the usual way. The parietal peritoneum was thickened, considerably injected, and in places the intestines were adherent to it. The bladder was adherent to the intestines, the ileum and cecum adherent to each other and to the iliac fossa. The appendix was hypertrophied, covered with adhesions, and adherent to the cecum and to the gestation sac. The mesosalpinx was greatly thickened. On the left side there was old pelvic peritonitis. A fibroid the size of a goose egg was situated in the fundus. This was enucleated, and the opening in the uterus closed with catgut. The appendix was inverted into the cecum and the edges stitched over with over-and-over suture of plain catgut. The uterus was suspended after Dr. Kelly's method. A pint of normal saline solution was poured into the abdominal cavity, and the abdominal wall was sewed up in four layers. The patient made an uneventful recovery.

CASE IV. Operation for fibroids.—After a long search, I can find but 2 cases similar to this one on record. One was reported by Dr. George H. Washburn, of Boston, and the other by Dr. Howard A. Kelly, of Baltimore. The unusual condition was due to the fact that the fibroids originated from the cervix and lower segment of the uterus. As they developed they grew downward into the pelvis, and as they filled this space they gradually pushed the uterus up, so that at the time of the operation in this case, it reached to the umbilicus, riding on the top of the mass, and reminding one of the howdah on the back of an elephant. In front and behind, the tubes, ovaries, round ligaments and uterus were visible and of normal size and appearance. From about the cervical junction a mass spread downward, filling the pelvis and containing forty-three separate fibroids.

E. W., thirty-three, married. Was everted four years ago for hemorrhage. Menstruation is

regular every four weeks; but of late there has been an increase in both the duration and the quantity of the flow. There is severe dysmenorrhea, beginning two days before the flow. The pain is in the back and lower part of the abdomen, and continues throughout the flow. Between menstrual periods there is a constant backache, with sagging and dragging down. For five years the patient has been able to feel a hard mass in the lower part of the abdomen. Has never had any children. Feet swell at times. Urine normal. On vaginal examination a round, smooth mass was found filling the pelvis. No cervix could be found. An incision was made, in the usual way, to the right of the median line through the right rectus muscle, about six inches in length. No cervix could be found, nor was it seen at any time during the operation, it having been so drawn out and incorporated into the fibroids that it was indiscernible. Extending out on either side underneath the peritoneum were what appeared to be two large masses of fibroids filling the pelvis. The mass on the left extended into the left broad ligament to the pelvic wall. The blood supply to the uterus was completely shut off, then the large mass was enucleated posteriorly. This mass extended beneath the uterus over to the symphysis. Then another mass on the left, extending out to the pelvic wall, was enucleated. This was of the size of a large orange, was of a very soft consistency, and was made up of a great number of small tumors. After emptying the pelvis of fibroids, a hysterectomy was done. The wound was closed, layer by layer. The patient made an uninterrupted recovery.

Medical Progress.

PROGRESS IN PATHOLOGY.

BY JAMES H. WRIGHT, M. D., BOSTON.

Director of the Clinical-Pathological Laboratory, Massachusetts General Hospital.

MALARIA AND MOSQUITOES.

THE Italian observer Grassi has recently stated that, as a result of his studies in Italy, the geographical distribution of malaria and certain species of anopheles are coincident, and that these species of mosquitoes are not found in non-malarious districts. He also states that this coincidence is probably true for other parts of the world. Celli¹ has recently denied these conclusions, for he found anopheles in healthy situations in Italy which had never been malarious. More recently Nuttall, Cobbett and Strangeways-Pigg² have published an elaborate study of this question, based upon observations in England. Although malaria has apparently disappeared from England, they find three species of anopheles, not only in districts which were formerly malarious, but also in places in which malaria has never been known. The conclusion

of Grassi, therefore, that anopheles are not to be found in non-malarious districts, is abundantly disproven, and it further appears that the disappearance of malaria from England is not dependent upon the absence of anopheles.

The disappearance of malaria from England is considered by them as probably due to the following causes: (1) A reduction of the number of mosquitoes consequent upon the drainage of the land; (2) the reduction of the population in infected districts as the result of emigration about the time when malaria disappeared from England; (3) the use of quinine.

The first mentioned cause seems to the authors to have been chiefly operative. They are inclined to think that there may be another intermediary host for the malarial parasite besides man, and that this host may have become extinct in the lowlands where it is known that the fauna and flora have altered. As a further result of their observations they conclude that the numerical distribution of the anopheles is more important than their geographical distribution. The existence of anopheles in known malarious districts, they think, will explain the occasional occurrence of malaria in out-of-the-way places without making it necessary that malaria-bearing mosquitoes have been freshly imported, for under suitable conditions of temperature and the requisite number of anopheles, a malarious subject coming from other parts might well infect the local insects which in turn would spread the infection to healthy persons.

SARCOMA OF THE INTESTINE IN THE ILEOCECAL REGION.

Blaut³ reports 2 cases of sarcoma in this situation, and summarizes 6 other cases which he has found in literature. All 8 cases were round cell sarcoma, with a relatively small amount of stroma. The tumor formations took the form of a marked thickening and infiltration of the intestinal wall, but without narrowing of the lumen of the intestine, except in 1 case. With the exception of this single case no symptoms of intestinal obstruction were observed.

The author points out that the absence of symptoms of obstruction may be of clinical significance in the differential diagnosis from carcinoma and tuberculosis. In the majority of cases the tumor ceases at the peritoneal surface, yet it may happen that this may be broken through and an enormous tumor development occur external to it. Adhesions to neighboring structures occur, but are not the rule. The production of metastases varies. In general it comes early, and may involve a great number of organs. The mesenteric and retroperitoneal lymphatic glands are usually the seat of secondary growths.

THE STRUCTURE OF CARCINOMA.

Peterson⁴ thus summarizes his study of carcinoma of the skin by reconstruction methods and serial sections.

¹ Arch. Pathol. Anat. u. Physiol. n. Klin. Med. Bd. 162, H. 3.

² Verhandl. der deutsch patholog. Gesellsch. auf der 72 Versammlung deutsch. Naturforscher und Aerzte zu Aachen vom 16 to 22, September, 1900.

³ Centralbl. f. Bakteriöl., vol. xxxviii, p. 531.

⁴ Journal of Hygiene, vol. i, No. 1, January, 1901.

(1) The masses of epithelial cells of a carcinoma are continuous with one another, belonging to a single trunk from which in all directions branches and processes arise. The so-called cancer alveoli are nearly always sections of these processes. Isolated alveoli, that is, islands of epithelial cells altogether surrounded by connective tissue, are very rare. The discontinuity of growth of the epithelial cells, therefore, does not belong absolutely to the conception of carcinoma.

(2) With regard to the starting point of the neoplasm two forms may be differentiated: (a) The unicentric carcinoma; the growth of epithelial cells begins at a single point and spreads from this throughout the whole neighborhood and also to the neighboring epithelium. In this way microscopical pictures can easily arise which simulate an active growth of this neighboring epithelium. (b) The multicentric carcinoma; the epithelial cell growth begins at different points, and the different masses of epithelial cells become combined only secondarily. The separation of these two forms of carcinoma, which can only be made with difficulty by pure microscopical observation, can easily be made by means of the reconstruction method.

(3) The certain proof that multicentric carcinoma exist is a further strong confirmation for the belief that the first beginning of carcinoma is to be sought for in the epithelial cells and not in the connective tissue.

THE ETIOLOGY OF YELLOW FEVER.

Walter Reed and James Carroll⁵ publish the results of an exhaustive study of the biological characters and pathogenesis of the bacillus X. of Sternberg, of the bacillus *icteroides* of Sanarelli and of the hog-cholera bacillus.

They appear to have settled beyond a doubt that the bacillus X. of Sternberg is not identical with the bacillus *icteroides* of Sanarelli. Their conclusions are as follows:

(1) Bacillus X. (Sternberg) belongs to the colou group.

(2) Bacillus *icteroides* (Sanarelli) is a member of the hog-cholera group.

(3) The various channels of infection, the duration, of the disease and the gross and microscopical lesions in mice, guinea pigs and rabbits are the same for bacillus *icteroides* and for the hog-cholera bacillus.

(4) The clinical symptoms and the lesions observed in dogs inoculated intravenously with bacillus *icteroides* are reproduced in these animals by infection with the hog-cholera bacillus.

(5) Bacillus *icteroides* when fed to the domestic pig causes fatal infection, accompanied by diptheritic, necrotic and ulcerative lesions in the digestive tract, such as are seen in hogs when infected with the hog-cholera bacillus.

(6) This disease may be acquired by exposing swine in pens already infected with bacillus *icteroides*, or by feeding them with viscera of infected pigs.

(7) Guinea pigs may be immunized with sterilized cultures of bacillus *icteroides* from a fatal dose of the hog-cholera bacillus and *vice versa*.

(8) Rabbits may be rendered immune by gradually increasing doses of a living culture of bacillus *icteroides* of weak virulence from a fatal dose of a virulent culture of the hog-cholera bacillus.

(9) The sera of animals immunized with bacillus *icteroides* and with the hog-cholera bacillus, respectively, show a marked reciprocal agglutinative reaction.

(10) While the blood of yellow fever practically does not exercise an agglutinative reaction upon bacillus *icteroides*, the blood of hog cholera agglutinates this bacillus in a much more marked degree, thus pointing, we think, to the closer etiological relationship of this bacillus to hog cholera than to yellow fever.

In a later publication these same investigators, in conjunction with A. Agramonte and Jesse W. Lazear,⁶ report that they failed to find bacillus *icteroides* either in the blood during life of 21 patients in various stages of yellow fever, or in cultures from the blood and organs at 11 autopsies of yellow fever patients.

As a result from the studies contained in these papers it seems very probable that the bacillus *icteroides* is not the cause of yellow fever, and that when it is observed in cases of yellow fever it is only a secondary invader.

In the second paper some very interesting observations are offered which strongly suggest that the mosquito may be the intermediate host for the infecting agent in yellow fever.

PRIMARY SARCOMA OF THE STOMACH.

Since Schlesinger, in 1897, published his analysis of 36 cases of primary sarcoma of the stomach, which number included 33 cases in literature and 3 cases of his own, the number of recorded cases has increased to the neighborhood of 50.

W. Mintz,⁷ in a gratifyingly short paper, reports an additional case, and gives a very readable summary of our present knowledge of this affection. He points out that the most frequently observed forms of sarcoma are lymphosarcoma and round cell sarcoma. These new growths do not occur in the form of projecting nodules, but assume the character of an infiltration and thickening of the stomach wall of varying extent. They are prone to form metastases in other organs.

The disease apparently is more frequent between the twentieth and thirty-fifth year. Men are more frequently attacked than women. In general the symptoms are those of cancer of the stomach, and in only a few cases has the proper diagnosis been made during life. In one of these the diagnosis was made by microscopical examination of a small particle obtained in the stomach washings. In the cases in which a chemical examination of the stomach contents was made, lactic acid was present, but hydrochloric acid absent. Mintz thinks that the starting-point of the sar-

⁵ Journal of Experimental Medicine, vol. v, No. 3.

⁶ Philadelphia Medical Journal, October 27, 1900.

⁷ Berlin. Klin. Woch., 37 Jahrgang, No. 32.

coma in his case was the lymph-nodes which are normally present in the submucosa near the pylorus.

LATENT TUBERCULOSIS OF THE PLEURA.

The occurrence of small, circumscribed, fibrous nodules on the pleura is frequently observed at autopsies. The nature of these nodules has not received much attention at the hands of pathologists. They have been called milium fibromata by some. Weigert, in 1883, pointed out that these nodules cannot be distinguished from old milium tubercles of the pleura, but his paper has hitherto been the only careful treatment of the subject.

In a recent paper E. Hodenpyl⁸ reports the results of his examination of the pleural surfaces in 131 autopsies apparently consecutive. The ages of the individuals varied from fourteen to ninety-two years. In 45 of the autopsies in which the lungs were free from tuberculosis, or in nearly 50% of all the cases, nodules were present, which he found, on careful histological examination, were undoubtedly of tubercular origin.

THE SPOROTHRIX OF SCHENCK IN SUBCUTANEOUS ABSCESSSES.

L. Hektoen and C. F. Perkins⁹ report a case of refractory subcutaneous abscesses of the arm, in the pus from which a fungus was found apparently identical with the sporothrix described by Schenck in 1898. The pathogenic effects upon experimental animals produced by this organism were in only a slight degree different from those which Schenck observed. The authors emphasize the point that in the lesions of the animals the organism appears only in the spore form, and does not develop the mycelial threads which it does in cultures. The histological lesions produced are necrosis and pus formation accompanied by development of granulation and fibrous tissue. The human lesions were not studied histologically.

THE ETIOLOGY OF ACUTE PANCREATITIS AND FAT NECROSIS.

E. L. Opie¹⁰ offers a most plausible explanation of many cases of acute pancreatitis and fat necrosis. He considers that these conditions can be brought about by the lodgment of a gall stone in the common duct, near its lower extremity, by which the pancreatic duct would be obstructed. As soon as the pancreatic duct is thus totally obstructed, the damming up of the pancreatic secretion would be followed by its escape into the surrounding tissues, and consequent production of necrosis and various lesions in the pancreas itself. The invasion of intestinal micro-organisms would likewise easily occur, and they in turn would contribute to the necrotic and inflammatory process.

In order to bring about these results the obstruction of the bile duct and the pancreatic duct by the stone need not be long continued, but may be transient, so that the existence of signs of such

an obstruction may be overlooked at the autopsies.

In support of this view of the origin of acute pancreatitis and of fat necrosis, he points out that in more than 30 cases of acute lesions in the pancreas and of fat necrosis in the parapancreatic fat tissue the coincidence of cholelithiasis has been observed. In 8 cases, including one case observed by himself, a gall stone was found either in the common duct near its orifice, or in the duodenum with evidence of recent passage from the gall duct. That the damming back of the secretions in the ducts of the pancreas may lead to fat necrosis, Opie has previously shown by experiments on cats.¹¹

Opie calls attention to the fact that only one individual in three is without an excessory duct of the pancreas opening by a separate orifice into the duodenum, so that in the majority of individuals the obstruction of the main pancreatic duct, in the manner above indicated, would probably not be followed by lesions in and about the pancreas.

THE DEMONSTRATION OF TUBERCLE BACILLI IN SPUTUM AND URINE.

¹²G. Jochman proposes a method for increasing the numbers of tubercle bacilli in specimens of sputum and urine, so that they may be more readily demonstrated by microscopical examination.

The method for sputum consists in mixing 10 cubic centimetres of the sputum with 20 cubic centimetres of a special culture fluid and keeping the mixture in the incubator for twenty-four hours. At the end of this time 3 cubic centimetres of liquefied carbolic acid is added to the mixture and shaken until a milky emulsion is formed. A sediment is allowed to form and this is examined for tubercle bacilli.

For urine the usual amount required for obtaining a centrifugalized specimen is taken. After it has been centrifugalized the supernatant fluid is poured off from the sediment and replaced by some of the special fluid. The centrifuge tube is then placed in the incubator for twenty-four hours, after which the sediment is examined as usual for tubercle bacilli.

Jochman claims that by this method any tubercle bacilli that may be present in these fluids are greatly increased in number. The special fluid which he uses is essentially Hesse's culture medium for tubercle bacilli, minus the agar agar. It has the following composition: Nahrstoff Heyden, 5 grammes; sodium chloride, 5 grammes; glycerine, 30 cubic centimetres; sodium bicarbonate solution (28.6 to 100), 5 cubic centimetres; water, 1,000 cubic centimetres. The Nahrstoff Heyden is a proprietary preparation of the same class as somatose and other proteid trade products. The virtues of this fluid are due to the fact that the tubercle bacillus thrives better in it than do other bacteria.

In a later paper¹³ Jochman advocates an acid

⁸ Studies from the Department of Pathology from the College of Physicians and Surgeons of Columbia University for the year 1899-1900.

⁹ Journal of Experimental Medicine, vol. v, No. 1, October, 1900.

¹⁰ American Journal of Medical Sciences, January, 1901.

¹¹ Contributions to the Science of Medicine, dedicated by his pupils to William H. Welch, 1900.

¹² Hyg. Rundsch., October 15, 1900.

¹³ Hyg. Rundsch., January 1, 1901.

rather than an alkaline reaction for the culture fluid. For the purpose of producing an acid reaction he recommends the addition of a 1% solution of lactic acid in the proportion of 10 drops to 50 cubic centimetres, or about 10 cubic centimetres to 1 litre.

PATHOGENIC BACTERIA IN MILK.

E. Klein¹⁴ has made bacteriological examination of 100 samples of "country" milk. In 7

chemical and bacterial conditions of the Illinois River and its tributaries, concludes that sedimentation and exhaustion of the food supply by the bacteria themselves are the most potent factors in the disappearance of sewerage bacteria from river waters. He says that "it is noteworthy that all the instances recorded in literature, where a marked bacterial purification has been observed, are precisely those where the conditions have been most favorable for sedimentation."

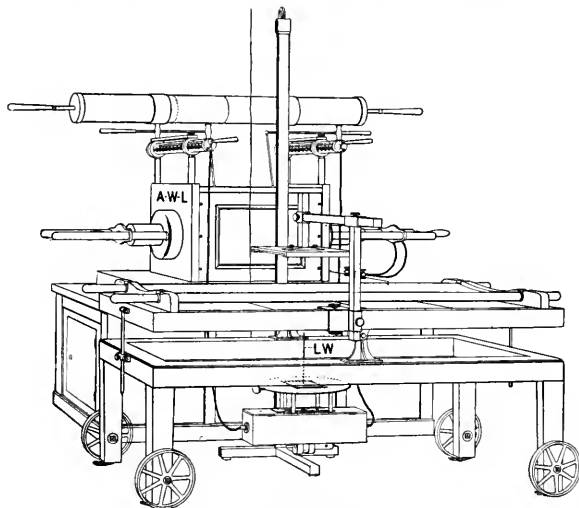


FIG. 1.

X-LIGHT EXAMINATION TABLE.—Showing also Tube Holder and Stand; Coil and Supports for Photographic Plate Holder,

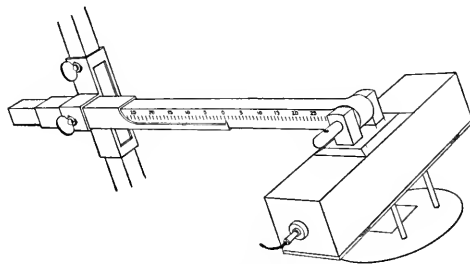


FIG. 2.

GRADUATED ARM OF TUBE BOX.

samples he proved conclusively the presence of the tubercle bacillus. This is a somewhat lower percentage than those obtained by other reliable observers whose percentages varied between 14% and over 71%. In one of the samples the diphtheria bacillus was present.

THE BACTERIAL SELF-PURIFICATION OF STREAMS.

E. O. Jordan,¹⁵ from the results of his study of

New Instrument.

A TABLE FOR X-LIGHT EXAMINATIONS.

BY WILLIAM ROLLINS, BOSTON.

DR. F. H. WILLIAMS has used for several years a stretcher on fixed supports. In the arrangement described in this note I have retained his stretcher, abandoning the fixed supports for several reasons:

¹⁴ Journal of Hygiene, vol. i, No. 1, January, 1901.

¹⁵ Journal of Experimental Medicine, vol. v, No. 3.

(1) It is desirable to always stand in the same relation to the spark-gap and break handles, in order to control the wave length and intensity of the light without removing the eyes from the fluoroscope; moving the patient from right to left, or the reverse, to bring any part of his body under observation.

(2) It is important to be able to tip a patient; for example, in photographing stone in the bladder. If the patient is placed face down, with his head lower than his feet, the stone falls away from the shadow of the pelvis, in a distended bladder, coming so near the sensitive plate as to ensure a sharp picture, if light of proper wave length is used.

(3) In using a light above the patient a flat support for the plate is an advantage, while in placing a plate under a patient he need not be disturbed, one end of the stretcher being raised enough to allow the plate to be slipped between the stretcher and the top of the table. A suitable table is shown in Fig. 1. Length, 214 centimetres; width, 66 centimetres. The top is made of cross-glued veneers in sections, that any part may be removed. The underside is coated with aluminum paint to act as a static screen when grounded. The notched pieces holding the stretcher can be removed to allow the patient to lie flat on the table.

In my last note several precautions were mentioned which should be taken when making examinations by x-light. One of these, the non-radiable tube box, is shown in Fig. 1, with a stand having the necessary movements. We should be able to quickly measure the motion of the tube relatively to the median line of the patient, because in taking stereoscopic pictures or two photographs on the same plate, with the light in two different positions, a record must be kept. By graduating the arm carrying the tube box this is easily done. When the pointer is at zero the radiant area of the target should be in the same vertical plane that passes through the patient's medial line. Williams has shown that it is imperative for the right interpretation of an x-light negative to know the position of the source of light. As far as possible the record should be automatic. One way to accomplish this is shown in Fig. 1, at L.W. A straight wire is placed between the patient and the light. If the long axis of the wire is in line between the radiant area on the target and the plate, the image of the wire is a round dot. If in some other position, it shows as a line, whose length and direction give valuable information.

The authorities of Honolulu and the Hawaiian Islands, according to the *New York Medical Journal*, have determined that the recent great increase in the death rate from tuberculosis is due to the importation of the disease. A bill has been prepared and will be brought before the territorial legislature prohibiting the landing in the Hawaiian Islands of any person suffering from tuberculosis, or other contagious or infectious disease.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M. D., SECRETARY.

MEETING of May 15, 1900, the President, DR. ALFRED WORCESTER, in the chair.

DR. A. C. JELLY, by invitation, read a paper entitled

PUERPERAL INSANITY.¹

DR. J. G. BLAKE: The fact that in the very large number of obstetrical cases I have attended in the past I have met with but very few of puerperal insanity, leads me to corroborate the statement of the reader as to its rarity. I was about to refer to one of the cases Dr. Jelly has mentioned, in which, although the patient finally recovered completely, she had to go to the hospital during each attack. In several cases I have noticed an entire indifference to the baby, the mother's interest in the child being of very slow growth.

DR. C. F. FOLSOM spoke of the probability of many of the acute cases being of septic origin, and expressed the opinion that fresh air and plenty of nourishment were of much more importance than hypnotics in treatment.

DR. W. N. BULLARD: I think a very important question is the proportion of cases that are really puerperal insanity as compared with those that are merely some other form of insanity induced by the puerperium. Of course if puerperal insanity is induced by sepsis it would be probable that many of such cases were merely cases of pre-existing insanity lit up by sepsis. While I have seen fewer cases of puerperal insanity in the last few years, I am somewhat skeptical about the part sepsis plays.

DR. H. E. MARION: I should like to ask the reader as to the fixity of the rule he has laid down as to interference with pregnancy on account of insanity being contra-indicated. I recently saw a case of puerperal insanity in which the patient had several times been forced to go to an asylum for six months at a time. I advised emptying the uterus, with the happiest results as regards the mother.

DR. J. P. REYNOLDS emphasized the rarity of the condition and the advantages of home treatment when possible.

DR. G. J. ENGELMANN: I can testify as to the ease and promptness with which the sometimes intense nervous disturbances of pregnancy can be checked by the induction of labor. I have not happened to see many cases following labor. I have been in the habit of thinking that the decreasing frequency of puerperal insanity is due to the improved technique of obstetrics—the earlier use of the forceps, etc.—rather than to improved technique in asepsis, by perhaps lessening the woman's dread and shock.

DR. ALFRED WORCESTER: I have myself had a very sad experience with the few cases I have

¹ See page 271 of the Journal.

seen, so much so that the advent of puerperal insanity seems one of the most dreadful things that can happen. I can recall five cases in about a thousand cases of obstetrics, and four of these five were fatal. None went to an asylum. One fatal case was suicide, she having previously killed her baby and another child. She had shown unmistakable signs of insanity in previous confinements. I cannot help thinking that puerperal insanity is escaped only barely in many cases. I have often noticed symptoms that seemed to me threatening—cases in which everything else was favorable. When I see a woman becoming suspicious when such a thing is utterly foreign to her nature, or unwilling to see her children or husband, I think that it should be taken account of, and I always am at pains to separate such a mother from her family, and warn the nurses to keep the sharpest kind of a lookout. I can recall several cases in which the woman acted in a strange way in the first few days after labor, such as getting up and wandering about the house when not watched. I cannot but help feeling that it would be a disadvantage to lull our professional brothers into a feeling of overconfidence and security about puerperal insanity. I think increasing emphasis should be laid on the necessity of guarding in every possible way the mental processes of the mother during pregnancy and labor; the necessity of giving the mother complete physiological rest before and after confinement rests heavily on us.

To sum up, I feel that aside from all provoking causes there is in the physiological drain of pregnancy and confinement a large predisposing cause for mental lesions that should be carefully borne in mind. Two of my four fatal cases were very directly associated with albuminuria. I agree with the reader as to the desirability of keeping these cases at home, if the home can be turned into a hospital, but that can be done only rarely. I feel that when it comes to the question of artificial feeding, the patient is much better off in a hospital than at home.

Recent Literature.

An Introduction to Physiology. By WILLIAM TOWNSEND PORTER, M.D., Associate Professor of Physiology in the Harvard Medical School, Cambridge, Mass. The University Press. 1900.

Dr. Porter's work must be regarded as a practical contribution to the solution of the very urgent problem of education in the medical sciences. Teachers of these branches in our best medical schools are agreed that it is necessary to bring the student into direct contact with the facts he is studying, so far as possible, and that purely didactic instruction must be reduced to a minimum. This does not present serious difficulties in gross and microscopic anatomy, in pathological anatomy, or in bacteriology; the laboratory technique is comparatively simple and the

solution of the problem is merely a question of equipment and an adequate corps of assistants. With physiology the case is different; not only is the apparatus frequently complicated, but the conduct of the experiments themselves often demands an amount of time and technical skill which forbids their introduction into laboratory courses for beginners.

Dr. Porter recognizes this difficulty, and the work before us is his solution of the problem. In the preface he says: "Training in science means first of all the mastery of one field. In physiology the study of nerve and muscle is at present that best adapted to form the mind in habits of exact observation and clear reasoning. Schooled in this important part of physiology, the student can pass more rapidly and with greater understanding over the remaining parts. It is with nerve and muscle, therefore, that the Introduction to Physiology begins, and the treatment of this subject is made as thorough as is practicable."

In general this plan is exceedingly well executed in the work before us. The technique of the nerve-muscle preparation, of the electrical instruments employed in the experiments, and of the graphic method first receives attention. The physiology of nerve and muscle is then studied, as follows: Chapter IV, The Electrical Stimulation of Muscle and Nerve. Chapter V, Chemical and Mechanical Stimulation. Chapter VI, Irritability and Conductivity. Chapter VII, The Electromotive Phenomena of Muscle and Nerve. Chapter VIII, The Change in Form. Each of these subjects is studied by the experimental method, and it is not the least merit of Dr. Porter's book that it points out a practical method of doing this comprehensively and yet with "trustworthy and relatively inexpensive" apparatus. The student observes the facts for the most part for himself, while the explanatory text guides him to the correct understanding of what he observes. In the execution of this sound pedagogical principle the book is eminently and, we may almost say, surprisingly successful.

One point of criticism occurs to us, and that is the omission of all reference to the relation of active muscle and nerve to chemical and thermal change. Surely no one can be said to have mastered the physiology of muscle and nerve without understanding the chemical change involved, for this, with its liberation of kinetic energy, is the fundamental process which is the cause of the change in form, in temperature, and in electrical condition. The defect is all the more striking in the treatment of fatigue (pp. 232 foll.), which is confined to the study of the work done by the fatigued muscle, and makes no mention of waste products, etc. We cannot help thinking that practical laboratory acquaintance with these matters is of more importance to the beginner than many of the electro-motive phenomena which are quite fully considered. The value of the study of the muscle-nerve preparation lies partly in the fact that it is "that best adapted to form the mind in habits of exact observation and clear reason-

ing"; but it possesses even greater value in that it gives us the most convenient means of presenting to the student the action of a typical differentiated organ; and equal stress should be laid upon those features in which all differentiated organs are similar to that laid upon their points of difference. From this point of view the chemical and thermal changes cannot be neglected; if they are, one runs serious risk of leaving with the student the impression that muscle-nerve physiology consists in "making crooked lines on smoked paper."

Part II deals with the mechanics of the circulation and the innervation of the heart and blood-vessels, using the same methods of instruction as in the study of muscle and nerve, and with equally satisfactory results. Especially noteworthy is the efficient use made of the artificial scheme in studying the mechanism of the circulation.

The great value of a course such as that outlined in the present work is that it gives the student an adequate acquaintance with the methods of physiological investigation and enables him to study at first hand and with intelligent criticism other portions of the science. This must ever be of fundamental importance, the first object to be kept in view. The present work is, of course, not final; the next decade will surely see great improvements in our methods of teaching; laboratory work, for one thing, will be brought into more intimate relation with the study of the conditions which obtain in the normal and the diseased human body. Meanwhile Dr. Porter has earned our gratitude for what he has done to bring the student of physiology into more intimate personal acquaintance with physiological knowledge.

Practical Guide to the Public Health Acts (Eng.). By THOMAS WHITESIDE HIME, B.A., M.D. Second much enlarged edition. London: Baillière, Tindall & Cox. 1901.

This excellent handbook has been very much enlarged since the publication of the first edition in 1884. It contains those portions of the General Public Health Act of 1875 which especially concern medical officers of health and inspectors of nuisances, together with very many other sanitary acts down to date.

Still more valuable to sanitary authorities everywhere is that portion of the work which is entitled "Miscellaneous Memoranda of Importance to Medical Officers of Health." In this part of the book is collected a vast amount of practical information upon all subjects relating to public health, meteorology, vital statistics, inspection of meat, school hygiene, etc.

An appendix is also added containing decisions of the courts in 76 cases under the Health Acts.

MANUFACTURE OF ACETIC ACID.—According to the *Philadelphia Medical Journal* acetic acid is now made in Germany from the refuse material obtained from the sauerkraut factories. The enormously increased production will reduce the price of the acid to a merely nominal sum.

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THE REPORT OF THE ANESTHETICS COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

THIS noteworthy contribution to our knowledge of the subject of anesthesia and the comparative value and safety of the various general anesthetics is the result of nine years' work on the part of a committee of twenty-one members of the British Medical Association, appointed in 1891, and having as members such worthy representatives of British surgery as Lord Lister, Professor McEwen and Professor Ogston. The committee was appointed "to investigate the clinical evidence with respect to the effect of anesthetics upon the human subject; and especially the relative safety of the various anesthetics, the best methods of administering them, and the best methods of restoring a patient in case of threatened death." The subcommittee to which this work was deputed, and of which Mr. Hutchinson was chairman, instituted an inquiry which extended over the year 1892 into all cases of the administration of anesthetics in the United Kingdom of which accurate notes could be obtained, and these records were carefully classified and subjected to a most exhaustive and critical analysis. Detailed reports were secured upon 25,920 cases, and the enormous amount of work required in the careful analysis of this enormous amount of material may be imagined. In 13,393 cases chloroform was the anesthetic; in 4,595, ether; in 2,074, nitrous oxide, followed by ether; in 678, A. C. E. mixture; in 418, mixtures of chloroform and ether in various proportions; in the remainder various combinations of chloroform followed by ether, gas and ether followed by chloroform, etc., but it would seem that every possible permutation of these anesthetics and their mixtures had been employed to make up the number of methods investigated to 45. Of the total number of cases analyzed, 25,163, or 97.169% are

classed as uncomplicated cases, or those in which, as far as the effects of the anesthetic are concerned, nothing unusual occurred. The percentage of uncomplicated cases of chloroform anesthesia was 96.73, and of ether 96.953. Of the complicated cases, in 68.57% of the ether cases and 45.2% of the chloroform cases the complications were of a minor character, and not such as to cause anxiety. Out of the 13,393 cases of chloroform anesthesia, 138 cases are classed as cases of danger, and of these 120 recovered and 18 died. The percentage of cases of danger to the total percentage of chloroform anesthesia was then 1.03. Of the 4,595 cases of ether anesthesia there were 14 cases of danger, and of these 8 recovered and 6 died. The percentage of "danger" cases was then to the total ether cases 0.304. This percentage was smaller than that of the various combinations and mixtures, in which, although in some the total number of cases was too small to make the statistics of value, the percentage of "danger" cases ranged from 0.338 to 4.347. There were 29 cases of death due or partly due to the anesthetic, of which 17 occurred under chloroform, 6 under ether, and 6 under other combinations and mixtures.

The analysis with reference to the time of year shows that the percentage of complicated and danger cases was slightly greater in the winter than in the summer months, and that this increase of danger was slightly greater in the case of ether than of chloroform.

The percentage of complicated cases in all anesthetics was greater in males than in females in the proportion of 1.477 to 1, and the percentage of danger cases in the ratio of 1.687 to 1. In males the percentage of danger cases under chloroform was nearly six times that under ether, while in females it was nearly twice the percentage under ether. In males the frequency of danger cases under chloroform was 1 to every 68 administrations; under ether, 1 to 406 administrations. In females under chloroform the danger cases were 1 in every 141 administrations, and under ether, 1 in every 251 administrations.

The analysis with reference to the condition of the patients at time of operation emphasizes the higher danger rate of chloroform in healthy patients. Adding together the cases in which chloroform was used alone or in mixture, a total is obtained of 10,199 patients in healthy condition with 73 cases of danger, or 0.716%. The danger rate in patients in good condition under ether was only 0.135%, or less than one-fifth as great. The exact figures for ether were 5,200 cases, with 7 cases of danger. In patients in poor or very bad condition the danger rate was still higher with chloroform than with ether, but not in so high a proportion.

The analysis of the various pathological conditions as affected by anesthetics brings out many interesting facts, to only a few of which we have space to refer. In valvular disease of the heart the only three cases of danger occurred under chloroform, giving a danger rate of 4.61% for this anesthetic in valvular disease. In tuberculosis, including phthisis, the general danger rate was diminished for all anesthetics, especially ether, while the danger rate for chloroform was less than half the general chloroform danger rate. "Anesthesia in pulmonary phthisis is remarkably free from complications and dangers throughout the whole of the record books." In bronchitis the liability to complications is largely increased, and the danger rate more than five times increased under chloroform. In empyema the general chloroform complication rate was high, but there were so few cases of this disease where other anesthetics were given as to offer no grounds for comparison. In alcoholism, chloroform was found more than eight times as dangerous as in the general run of cases, while in the 56 cases in which ether was employed there were no cases of danger.

To summarize the conclusions on pathological conditions: There was found increased liability to complications and dangers in patients suffering from emphysema, shock and collapse, alcoholism, affections of the heart, emaciation, empyema, bronchitis and anemia. Symptoms of danger were particularly prone to arise under chloroform in emphysema, shock and collapse, alcoholism, diseases of the heart, valvular and otherwise, and empyema.

Many more deductions of interest and value might be cited from this exhaustive and extremely thorough report, but space will only allow us the consideration of a few of the more interesting of the final conclusions of the committee, among which we may select the following as of especial interest:

(1) *Relative safety of the various anesthetics.*—The cases of danger under the chloroform group of anesthetics, considered to be entirely due to the anesthetic, were 88, or 0.584%. Under the ether group of anesthetics there were only 6, or 0.085%. Ether must, therefore, be accepted as the safest routine anesthetic, though certain circumstances connected with the nature of the operation, the state of the patient, etc., may make the use of some other anesthetic or combination safer and easier.

(2) *Methods of administration.*—No method of administration of chloroform is free from danger, but the occurrence of danger depends largely upon the administrator who follows any particular method.

(3) *Regarding chloroform and ether.*—In

conditions of good health chloroform is very much more dangerous than other anesthetics.

(4) When danger occurs under chloroform, there is abundant evidence that in a large proportion of cases the symptoms that are observed are those of primary circulatory failure.

(5) While respiratory complications are, as a whole, of equal frequency under the ether and chloroform groups respectively, yet those which occur under ether are, for the most part, of a trifling and transitory nature, while those that occur under chloroform are more grave and persistent.

(6) While vomiting is more common after administrations of ether, severe and prolonged vomiting is more common when chloroform has been used.

The above are only a few of the interesting and important conclusions arrived at by the committee, a report which may be said to have settled beyond peradventure the relative safety of ether as a routine anesthetic. It will be interesting to note whether it will have any effect upon British practice, or whether chloroform will still maintain its hold.

The results of this laborious clinical analysis and comparison tally very closely with those of physiological experiment, by which repeatedly the limit between the safe and toxic dose of ether was about seven times as great as in the case of chloroform, thus conclusively proving that the former was about seven times as safe an anesthetic for ordinary purposes.

THE STUDY OF ANATOMY.

With the growth of the special sciences, there is a clearly discernible tendency toward breadth rather than narrowness. The opponents of specialism would do well to observe this fact, when their pessimism becomes extreme. No sooner does a special branch of knowledge come to the attention of investigators than the full bearings of that branch must of necessity be considered, in determining its relation to the whole body of systematized science. This fact is sufficiently apparent in whatever direction we may turn for an example, but perhaps nowhere more marked than in the study of anatomy. At the outset anatomy was merely a matter of description, and as such might well be regarded as covering a limited field for the exercise of the higher intellectual powers. Later the microscope and the consequent study of tissues in detail, with all the broadening of knowledge which this implies, practically transformed the hitherto descriptive science of anatomy, and led indirectly to numerous relationships with embryology, comparative morphology and many more or less closely related fields of research.

All this means breadth and not narrowness. In fact we may, without looking very far below the surface, see everywhere, with the growth of special knowledge, an inevitable tendency toward a coalition with branches of knowledge often apparently only distantly related. Here, unquestionably, lies the safeguard of what is popularly spoken of as the danger of specialism. Dr. Jewell F. Barker, of Chicago, in an address to the students of Rush Medical College, published in the *Journal of the American Medical Association*, does a distinct service to the cause of anatomy, by showing its far-reaching associations simply as a pure science. He concludes his remarks as follows: "I have tried to give you an idea of what the study of anatomy includes, viz.: descriptive or systematic anatomy—gross and microscopic—physiological, surgical and topographical anatomy; histology or general anatomy, including histography and cytology; comparative anatomy; embryology; comparative histology and embryology; histogenesis, and, lastly, experimental morphology. Assuredly the subject is wide. It is, I am sorry to say, too wide to be mastered in all its details even when a whole life-time is devoted exclusively to it. The scientific anatomist, after familiarizing himself with the main facts and principles of its various subdivisions, does best, in agreement with the great law of division of labor, to direct his efforts toward the acquisition and promulgation of knowledge in some one portion of it."

MEDICAL NOTES.

DEATHS IN HAVANA, CUBA, DURING FEBRUARY. —According to the vital statistics report from Havana, February 1901, with 408 deaths, is the best record for that month since trustworthy reports have been available. The minimum number was in 1893, with 446 deaths, and the maximum in 1898, with 1,602. This is not only less than any February since 1890, but actually less than any month of the preceding twelve years, the lowest in any month being 444 deaths, in November, 1900. The average for the ten years succeeding 1890 was 746 deaths.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. —For the week ending at noon, March 20, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 83, scarlatina 30, measles 79, typhoid fever 3.

BOSTON MORTALITY STATISTICS. —The number of deaths reported to the Board of Health for the week ending March 16th was 236, as against 341

the corresponding week last year, showing a decrease of 105 deaths, and making the death rate for the week 219. The deaths from consumption were 18; pneumonia, 48; whooping cough, 1; heart disease, 25; bronchitis, 9; marasmus, 2. There were 5 deaths from violent causes. The number of children who died under one year was 43; under 5 years, 77; persons more than sixty years, 61; deaths in public institutions, 54.

GREAT IMPROVEMENT IN DIPHTHERIA SITUATION AT WALTHAM, MASS.—During the months of October and November, 1900, there were a large number of cases of diphtheria in Waltham. Prompt measures were taken to crush the epidemic. Four physicians were appointed as medical inspectors of schools, but no schools were closed on account of diphtheria. Beside a rigid inspection at school of every pupil much work was done at the homes of those afflicted with the disease. In this way all sources of infection were located and a rigid quarantine maintained. This system proved a success, as shown by the present status of diphtheria in Waltham. The number of new cases has steadily diminished until on March 16th there are no Waltham patients in the diphtheria ward of the Waltham Hospital where for the last few months about two-thirds of the cases have been treated. Inquiry at the Board of Health office shows there are but two convalescing cases in the city at the present time.

BEQUEST FOR A HOSPITAL AT NEWBURYPORT, MASS.—William C. Todd has given the sum of \$50,000 and a suitable building site at Newburyport for the erection of a well-equipped modern hospital. The present structure is insufficient to meet the demands made upon it. The new institution will retain the name Anna Jaques Hospital.

COURSE IN DENTISTRY AT TUFTS COLLEGE EXTENDED TO FOUR YEARS.—The Faculty of the Tufts College Dental School, at its last meeting, passed a unanimous vote to extend the course in that school to four years, the change to apply to all students entering the school in 1902 and thereafter.

A PROPOSED HOSPITAL AT ARLINGTON, MASS.—It is reported that by the will of Stephen Symmes, a resident of Arlington, who died recently, the sum of \$25,000 is left to found a hospital in that place.

NEW YORK.

REVERSAL OF AN INSURANCE JUDGMENT.—The Appellate Term of the Supreme Court in the last week in February reversed a judgment for \$369.30 obtained in the City Court by Patrick Meehan, a policeman, against a company in which he was

insured against accident. The plaintiff lost his left eye and was otherwise injured by carbolic acid which, it was claimed, was thrown in his face by a woman named Marie Pfister. He was confined in a hospital over ten weeks before he could resume duty. The company contended that, under the terms of the policy, it was not liable for "injuries, fatal or otherwise, resulting directly or indirectly from, or in any wise contributed to by, poison in any form or manner, or contact with poisonous substances." The plaintiff claimed that the policy referred to poison taken intentionally. Justice Blanchard, for the Court, stated that there was a great difference between the words "by taking poison" and "by poison." The former expression might very well be held to mean the internal use of poison, but the latter wording could not be so construed except by a forced construction. "The further contention of the plaintiff," the court said, "that by the subsequent words 'contact with poisonous substances' is meant and intended voluntary and conscious action of the plaintiff, is likewise without force. In this case the meaning is clear and beyond doubt. The injuries occasioned to the plaintiff were occasioned 'by poison' or by 'contact with poisonous substances' within the meaning of the certificate." Mrs. Pfister has been twice tried for assault, the jury disagreeing both times. Her story was that the acid was thrown at her by Meehan, and that while she was defending herself with an umbrella the acid was splattered over him.

ANESTHETIZATION AS A SPECIALTY.—At the monthly meeting of the Medical Association of the Greater City of New York, held March 11th, Dr. S. Ormond Goldan made a forcible plea in favor of anesthetization as a specialty, basing his argument particularly on the ground of the increased safety secured to the patient by having as an anesthetizer one specially skilled in the selection and administration of anesthetics and thoroughly prepared to meet any emergency that might occur. Dr. Goldan's position was fully endorsed by the president of the society, Dr. Robert F. Weir, who stated that while the deaths from ether were commonly placed at one in every 25,000 cases, there could be no question that the percentage was in reality considerable larger than this. He had looked up the records of the New York Hospital (an institution whose reputation, he thought, would compare favorably with others of its class), and found that since the first use of anesthetics there the deaths attributable to ether were about one in 3,000 cases.

MORTALITY FOR FEBRUARY.—During the month of February there was a very gratifying falling off in the mortality of the city, which represented an annual death rate of 19.92, against 25.15 in Janu-

ary. The death rate was also considerably smaller than that of February of last year, which was 23.84. In the last week of the month the rate was 27.28 in 1900 and 20.8 in 1901. The most marked decline was in the mortality from pneumonia, the weekly average of deaths from which decreased from 270 in January to 158.5 in February. The weekly average of deaths from influenza decreased from 88.75 to 51.75; from phthisis, from 179.75 to 173.5; from bronchitis, from 54.75 to 41.5; from diphtheria and croup, from 55.5 to 40.75; and from typhoid fever, from 13.5 to 9. On the other hand, the weekly average of deaths from scarlet fever increased from 18.5 to 27; measles, from 1.75 to 6.25; whooping-cough, from 3.25 to 4.5, and smallpox from 2.25 to 8. In the week ending March 2d there were 11 deaths from the last-named disease.

DESTRUCTION OF A SMALLPOX HOSPITAL.—On March 11th a mob, led presumably by the same persons as the preceding one, before mentioned, succeeded in destroying the temporary smallpox hospital at Orange, N. J., chopping it down with axes and hatchets. On the following night the ruins of the building were set on fire and entirely consumed. At a special meeting of the Common Council, called, on March 13th, on the application of the Board of Health, a communication was read from the Mayor, asking the Council to designate a place for the erection of a hospital for contagious diseases, and a resolution was adopted directing the committee on public health to confer with the authorities of East Orange, West Orange, and South Orange in regard to securing a permanent hospital of this character to be used in common by the various communities.

WATER SUPPLY OF NEW YORK.—There has been a good deal of talk about a shortage in the water supply of the city in the near future, but James R. Cross, President of the American Society of Civil Engineers, has just made the statement that there is plenty of water for New York for many years to come, provided the present waste is checked. He bases this opinion principally upon a comparison with Boston, Fall River and other cities, and on the examinations, measurements and observations recently made by John R. Freeman and himself. Roughly, about 61% of the water, he says, is wasted. Of this percentage about one-fifth is wasted by private consumers, and could be checked by the general use of meters. The remainder, or nearly 50% of the entire supply to the city, is wasted by leakage from the street mains and the house connections.

NEW NURSES' HOME FOR PRESBYTERIAN HOSPITAL.—Plans have been filed for a new nurses'

home, to be erected for the Presbyterian Hospital on 71st Street, opposite the hospital buildings. It will be eight stories in height, and occupy a plot 124 by 102 feet. Several months ago an anonymous benefactor promised \$300,000 for the erection of this building, provided the hospital authorities would assume the maintenance of it. When it is completed the capacity of the hospital will be materially increased, as the upper floors, which are now given up to living apartments for the corps of eighty-five nurses, will then be turned into additional medical and surgical wards.

THE C. R. AGNEW FUND.—In the thirty-first annual report of the Manhattan Eye and Ear Hospital it is announced that during the past year donations and bequests for the C. R. Agnew Memorial Fund have been received to the extent of \$2,561, and that this fund now amounts to \$24,217.

PROVISION FOR THE SICK POOR.—The Legislature has passed and Governor Odell has signed a bill authorizing town supervisors in counties where there are not adequate accommodations for the care of the sick poor to send such patients to the nearest hospital.

A PROLIFIC FAMILY.—Hester Forbes, who recently died at Waverley, N. Y., at the age of 94, left an extraordinary number of descendants. These are given as 146; namely, 10 children, 50 grandchildren, 72 great-grandchildren, and 14 great-great-grandchildren.

DOUBLE PENIS.—At the March meeting of the Surgical Section of the New York Academy Dr. Carl Beck presented a case of that very rare deformity, double penis; the subject was an infant of five months.

--- Miscellany.

THE DANGERS OF BOILED MILK.

It is well, no doubt, says the *Medical Press*, to educate the public in the importance of avoiding the consumption of raw, *i.e.*, unboiled, milk, but it is also well to bear in mind that boiling does not impart to stale or partially-decomposed milk the health-giving properties of freshly-drawn milk. Boiling may sterilize milk so far as active, living organisms are concerned, but it does not rid the fluid of the toxins elaborated by them during their brief spell of life. The irritating effects sometimes observed to follow the ingestion of boiled milk are due, in part at any rate, to the presence of these products. There are, however, other changes to which boiled milk is liable. If raw milk be allowed to stand it turns sour, and the change is accompanied by the production of a certain quantity of gas. If milk which has been sterilized by Pasteurization or by heating to 70°C.

be subjected to the same treatment, the casein is precipitated as curds mixed with bubbles of gas, with a distinctly putrefactive odor. If the milk be boiled before being allowed to stand, the curds fall to the bottom without the formation of gas, and the albuminoid substances undergo gradual disintegration. In the case of raw milk lactic acid predominates; in Pasteurized milk the ferment is destroyed and replaced by gas-forming organisms, while in boiled milk the bacteria are destroyed and their place is taken by peptonizing organisms which elaborate products often of a toxic nature. To prevent this deleterious change it is recommended, when boiled milk is not for immediate consumption, a small quantity of raw milk should be added thereto.

THE INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.

THE *British Medical Journal*, urging the necessity of an international catalogue, writes:

"One of the complaints which British men of science frequently make is that scientific work done and published in this country is often ignored by foreign investigators and writers. This is even the case with German writers, whose thoroughness in all such work is well known and recognized, and who have frequently laid science under great obligations by the compilation of the bibliographies of special subjects. It is not to be supposed that this failure to recognize work done and published in this country is due to any intention on the part of foreign writers to belittle British science. When attention has been called to such an omission, as it has often been our duty to do, the excuse invariably given is that the foreign writer had not found a reference to the particular research in any quarter accessible to him. The scheme of the International Catalogue of Scientific Literature, as to which we have on several occasions given particulars, is not a British scheme, but it was initiated by the Royal Society, and that body continues to take a leading part in the work. The volumes will, in fact, be published under its direction. There can be no doubt that this catalogue will in future be consulted by all serious workers in all parts of the world who are studying the literature of any subject; it therefore behooves British men of science, in the interest of science itself not less than in that of their own reputation, to take care that the papers which they contribute to scientific literature should be brought under the notice of the cataloguers. If this be not done, there will in the future be no good ground for complaint if publications are overlooked by foreign writers."

Professor Halliburton, writing in the same number of the *Journal*, says:

"The formation of an International Catalogue of Scientific Literature, which was initiated by the Royal Society, and has been the subject of several international conferences during the last few years, has at last been started, and cataloguing is in

active progress. It is hoped that all papers published on and after January 1st of the present year will be indexed; the indexes will be two in number—an author index and a subject index. Each participating nation will be responsible for the indexing of the papers published in that country. A central bureau is to collect, co-ordinate, and publish the labors of the various national bureaus."

SUMMARY OF DEATHS IN BOSTON FOR THE YEARS 1899 AND 1900.

THE following statistics, published by order of the Board of Health, offer a comparison of the deaths and the causes for the years 1899 and 1900: Total number of deaths from all causes, in 1899, 11,167; in 1900, 11,678. Population, (estimated) 1899, 555,957; 1900 (census) 560,892. Annual death rate per 1,000 inhabitants, 1899, 20.12; 1900, 20.82. Total number from zymotic diseases, 1899, 1,444; 1900, 3,787. Percentage of deaths from zymotic diseases to total mortality, 1899, 12.93; 1900, 32.43. Total number of still-births, 1899, 539; 1900, 578. Total deaths of children under 1 year, 1899, 2,404; 1900, 2,410. Total deaths of children under 2 years, 1899, 3,034; 1900, 3,013. Total deaths of children under 5 years, 1899, 3,591; 1900, 3,752. Percentage of deaths under 5 years to total mortality, 1899, 32.15; 1900, 32.13. Total number of deaths from diarrheal diseases, under 5 years, 1899, 329; 1900, 661. Total number of deaths from diarrheal diseases, all ages, 1899, 396; 1900, 762. Percentage of deaths from diarrheal diseases to total mortality, 1899, 3.54; 1900, 6.52. Cholera morbus, 1899, 16; 1900, 15. Cholera infantum, 1899, 280; 1900, 299. Cerebro spinal meningitis, 1899, 88; 1900, 66. Diarrhea, 1899, 69; 1900, 442. Dysentery, 1899, 31; 1900, 6. Diphtheria and croup, 1899, 304; 1900, 537. Erysipelas, 1899, 42; 1900, 53. Influenza, 1899, 49; 1900, 215. Intermittent fever, 1899, 1; 1900, 6. Measles, 1899, 33; 1900, 88. Pulmonary, laryngeal and general tuberculosis, 1899, 1,236; 1900, 1,407. Puerperal fever, 1899, 11; 1900, 29. Pyemia and septicemia, 1899, 73; 1900, 100. Rheumatism, 1899, 17; 1900, 69. Scarlatina, 1899, 74; 1900, 181. Small-pox, 1899, 5; 1900, none. Syphilis (congenital), 1899, 22; 1900, 20. Syphilis, 1899, 5; 1900, 10. Typhoid fever, 1899, 165; 1900, 143. Typhus fever, 1899, none; 1900, none. Whooping cough, 1899, 76; 1900, 99. Yellow fever, 1899, none; 1900, none. Other zymotic diseases, 1899, 9; 1900, 2. Cancer, 1899, 402; 1900, 452. Bright's disease, 1899, 118; 1900, 142. Bronchitis, 1899, 393; 1900, 304. Heart disease, 1899, 966; 1900, 1,009. Pneumonia, 1899, 1,455; 1900, 1,241. Old age, 1899, 212; 1900, 315. Violent deaths, 1899, 620; 1900, 561. The increased number of deaths in the zymotic group in 1900 over that of 1899 is chiefly due to the incorporating into this group pulmonary, laryngeal and general tuberculosis with some form of diarrheal diseases.

Address.

THE EMBRYOLOGICAL BASIS OF PATHOLOGY.¹

BY CHARLES SEGSDWICK MINOT, LL.D.

EMBRYOLOGY is the basis upon which pathological science must be erected. Pathology is even more a superstructure upon embryology than is anatomy. Anatomy, in its descriptive form, may stand by itself and have usefulness. Pathology cannot be built up as a merely descriptive science. It fails of its true purpose unless it discovers the causes of diseases. Now, since function is dependent on structure, the aim of the pathologist must be, first, to discover the causes of morbid structure. In brief, pathology at the present time deals chiefly with problems of the development of anatomical forms. Pathology and embryology might almost be united in a single comprehensive study—morphogeny. Let us then try, for this evening at least, to free ourselves from the conception of an essential difference between normal and abnormal structure—a conception which, I believe, domineers too largely over our daily thoughts. This belief of mine I hope to justify tonight.

Simple description is indispensable, it furnishes the virgin facts; but facts do not develop by parthenogenesis into science; they must be saturated with the stimulus of study, with the stimulus of knowledge of their history, their antecedents, their causation; then we may see them evolving themselves into new orders, which we call natural laws. As little as a description of the people of the United States with no information as to their history could satisfy a serious thinker, so little can descriptions of fully developed structures satisfy an earnest pathologist. An innate, intense mental impulse is continually driving us forward in the search for causes, and obedience to this impulse is one of the main factors in scientific progress. All this is familiar, trite even, but may serve to fix our starting thought, namely, that we are to study causes.

Our attention is to be directed to the consideration of what embryology can teach us in regard to the causation of organization, and then to the application of those teachings to pathology. This plan will exclude from our discussion many of the aspects of embryology which appeal most strongly to pathologists. We must omit from our study at least three groups of interesting phenomena, to wit: (1) The arrests of development; (2) the teratological formations, monstrosities and misdevelopments, which will, however, have to be included ultimately even in the precise field we are about to study; (3) the so-called teratoma, or to use a more recent term, "embryoma." I may say in passing that I find it very difficult to accept the hypothesis that these remarkable structures arise by a parthenogenetic development of ova,

retained in the parent body. Professor Bonnet's hypothesis is more legitimate, but towards that also my attitude is one of sceptical agnosis. Bonnet suggests that one of the early segmentation cells (blastomeres) may become isolated and retarded in its development, remaining as an inclusion in the fetal tissues, and afterwards develop and produce a variety of tissues, as isolated blastomeres have been shown by experiments on the lower animals to be capable of doing.

Teratological formations fall, it seems to me, naturally into three fairly definite divisions: (1) Those due to necrosis of the tissues, which apparently rarely if ever takes place uniformly throughout the embryo; (2) those due to gross mechanical disturbances of the development, consequent upon failure of the proper correlation of the growth of parts (monstrosities of this division are probably the most common); (3) errors in the differentiation of the tissue, or pathological histogenesis. It is only phenomena of the first and second divisions of teratology which we can safely drop from view, while those of the third division—errors in differentiation—we must bear uninterceptedly in mind.

One more preliminary explanation is necessary. The range of pathological changes is not so great as to reach equality with embryological developments. In the normal embryo we deal with the evolution of complete organs, together with all their accompanying varied and complex modifications of tissue. In pathology, on the contrary, we deal not with organs, but with modifications of tissues, with histogenesis. The statement will not seem too absolute if it is recalled that we have excluded arrests of development and monstrosities from our discussion.

Histogenesis is the common territory in which the pathologist and embryologist have—to borrow a legal phrase—an undivided interest. It is unfortunate that our tendency has so long been to attempt an unnatural and impossible partition of the territory, which has resulted only in a division of our forces into two camps, between which has reigned little interest and less sympathy. I venture to regard your invitation to address you tonight as a wish, which I fully share, to secure fuller co-operation between the two camps of workers, who are both striving to lay bare the laws which govern the differentiation of cells.

After these preliminary explanations it is possible to define the evening's task with precision. It is twofold: (1) To present some of the more important conceptions derived from embryological study in regard to the processes of cell differentiation; (2) to suggest some of the bearings of these conceptions on the problems of pathology.

PART I. NORMAL DIFFERENTIATION.

Under this head I propose to discuss three fundamental ideas: (1) Of the undifferentiated cell; (2) of the progress of differentiation; (3) of the changes which may succeed differentiation.

The fertilized ovum is an undifferentiated being, although it has a very complex organization, and

¹ The Middleton Goldsmith Lecture delivered before the New York Pathological Society, March 26, 1901.

contains, besides the protoplasm, a store of nutritive material, the so-called yolk or deutoplasm. As there is only one nucleus, there can be no variety of nuclei; the term "undifferentiated," therefore, applies to the protoplasm, which seems to have a uniform essential structure throughout, although the masses and strands of protoplasm may exhibit characteristic peculiarities, especially in relation to the distribution of the yolk. In the adult, on the contrary, the protoplasm of the cells of different tissues offers many varieties of essential structure, which can often be readily distinguished under the microscope. It is a legitimate conclusion that the absence of visible peculiarities of the intimate structure of the egg protoplasm, by which one part may be distinguished from another, corresponds to uniformity of structure throughout the egg—excepting, of course, certain special characteristic arrangements, as, for example, the centering about the centrosome, which may occur in any cell.

We have also direct experimental proof that the egg is uniform throughout, or to use a better phrase, that the egg is isotropic. Pflüger, in 1884, proved that the side of the frog's egg which normally develops into the ventral surface of the embryo can be made to develop into a perfectly typical dorsal surface. The frog's egg has a small white area, which normally lies underneath, the larger, darkly pigmented area of the egg alone showing from above. Out of the dark area the back, with the nervous system and other parts, takes its origin. If the eggs, freshly fertilized, are fastened with the white side up, then the white side produces an absolutely normal back and nervous system, normal as to form and function, though lacking the typical pigmentation. These observations were confirmed by Born, who further discovered that the segmentation nucleus always rises towards the upper side of the egg, and that the position of the nucleus determines which part of the ovum shall become the dorsal side of the embryo. Another set of experiments by Oskar Schultze demonstrated that both the unpigmented and the pigmented sides of the same egg could be made to produce dorsal structures.

Another class of experiments, which were first made by Hans Driesch, have demonstrated that the earliest cells (segmentation spheres, blastomeres, or cleavage cells, as they are variously called) produced by the ovum preserve the undifferentiated qualities of the parent egg, and may develop in one way or another according to circumstances. The egg of a sea urchin divides into two cells, each of which multiplies and normally gives rise to half² of the body of the animal. By somewhat violent shaking the two cells may be artificially separated; each cell may then develop into a complete larval sea urchin, but of half the normal size only. Similar experiments have since been made by several investigators, who have obtained like results with other animals, vertebrate as well as invertebrate. Even more remarkable larvae have been raised from blastomeres of the four-cell and

eight-cell stages of segmentation, producing larvae of one-fourth and one-eighth the normal size. Zoja claims to have repeated the experiment successfully on the eggs of *Clytia* and to have obtained one-sixteenth larvae.

The facts offered suffice to illustrate the two aspects of our conception of the undifferentiated condition of living matter. The first aspect is morphological and presents to us the apparent uniformity of the visible minute structure of protoplasm. While we readily admit that the uniformity may be only apparent in the sense that we fail to observe fine differences, yet we none the less maintain that the uniformity is real, because there is an absence of variations of structure comparable to the variations which we can observe in the cells of adult tissues. The second aspect is physiological and offers to our view the wide range of possibilities in the future developmental history and growth of the protoplasm. The fate of the protoplasm of any given part of the ovum is not fixed, but if its conditions of development are changed its fate is changed. A few years ago the mosaic hypothesis was advanced by W. Roux, and it has been vigorously defended by him. According to the mosaic theory, the egg is a mosaic pattern, each member of which has its predestined history. It is fortunate for our comprehension of pathological processes that we are already able to say that Roux's hypothesis is erroneous.

We must start then with the right conception of the ovum, every part of the protoplasm of which is to be regarded as potentially capable of producing any or all of the tissues of the adult.

We turn next to the consideration of the progress of differentiation, in order to establish a second fundamental idea, namely, that it acts as a progressive restriction of the further development. Each successive stage of differentiation puts a narrower limitation upon the possibilities of further advance. Applied to pathology this law means that the range of possible pathological changes is determined not merely by the nature or kind, but also by the stage or degree of the previous differentiation of the tissue.

The eggs of all animals³ pass through two well marked phases of development. During the earlier and much shorter phase, the nuclei are multiplying rapidly, while the cytoplasm is growing but little, if at all. This period includes the time of segmentation, as commonly described, and somewhat longer. During this period the total bulk of the nuclei in proportion to the protoplasm is fundamentally changed. The ovum arises from a cell, the oocyte, which, as its last act, grows rapidly; this enlarged cell by the process of maturation gives rise to the female sexual element, which has a single nucleus. After fertilization we have an ovum with much protoplasm and deutoplasm, but again with only the single segmentation nucleus. The development of each individual begins, therefore, with a cell in which

²It would be safer to say supposedly about half.

³The protozoa are obviously excluded from the present discussion.

the extreme disproportion between the size of the nucleus and of the whole cell body occurs. The first effort of development is to correct this disproportion by the enormously rapid increase of the nuclei, which continues until cells of the embryonic type are produced, that is to say, cells each with a minimal amount of protoplasm around the nucleus. With the production of cells of the embryonic type, the first phase of development is completed. The limits of this phase are very indefinite, for we observe often that the production of cells of the type defined may be far advanced in one part of the germ, while it is still in early progress in another. In fact the phase has no exact boundary in time.

During the second, later and much longer period, or phase of development, the multiplication of nuclei lags behind the growth of the protoplasm, the increase is gradual and often shows itself through successive generations of cells, sometimes, however, in a single cell, which no longer multiplies. Of the first method of protoplasmic growth, embryonic blood cells offer a good illustration; of the second, the neuroblasts or young nerve cells afford a striking example. Now cells of the embryonic type show little if any capacity for differentiation, and the increase of the protoplasm in the single cell is, so far as we can judge, a necessary preliminary step to cell differentiation. The embryonic cells have yet another characteristic of basal significance—they are capable of rapid multiplication. Hence we conclude that the growth of the cytoplasm impedes the multiplication of cells, and therefore ultimately retards the growth of the body as a whole, while on the other hand it favors differentiation. Accordingly the growth of cells and their differentiation are essentially antagonistic processes, which are necessarily more or less mutually exclusive. This conclusion, which I published in 1890, has since been amply confirmed by further observation. It is probably applicable alike to animals and plants, alike to normal and to abnormal tissues. It is one of the many conclusions of embryology which are sure to throw a revealing light upon some of the dark problems of pathology.

During the first phase of development, as just defined, we encounter preparatory changes which we may characterize summarily as the manufacture of embryonic cells. During the second phase, though the production of embryonic cells is doubtless continued in certain regions, there supervenes the process of differentiation—the true histogenesis.

After segmentation there follows the formation of the germ layers, a gradual arrangement of the cells in three distinct primary strata; at least in all vertebrates there are always three strata, never more⁴ nor less. The outer and inner layers, ectoderm and endoderm, very early become distinctly epithelial. The middle layers become partly epithelial, partly of a special character, that is, mesen-

chymal. At first one is inclined to think of the difference between epithelium and mesenchyma as a fundamental one, an early and unalterable separation of cells into classes. This view finds support in the fact that the mesenchyma, and it only, produces in the course of further development the connective tissue and supporting tissues of the adult. More attentive study of the germ layers in early stages reveals, however, that the mesenchymal cells arise from the epithelium; single epithelial cells migrating from the parent territory, while, on the other hand, groups of mesenchymal cells rearrange themselves so as to form an epithelial covering of some surface, as, for example, in synovial cavities, arachnoid spaces, the inner surface of the cornea, lymph vessels, etc. Such observations teach us that we must not assume that either one form or the arrangement of cells are necessarily and always a sign of true differentiation, but that instead we are to conceive of differentiation as a change in the intimate and essential structure of the individual cell, more specifically of its protoplasm, and perhaps of its nucleus. The rôle of nuclei in histogenesis is a topic which, unfortunately, is still awaiting serious investigation. To resume: It seems to me probable that the cells of the germ layers are at first quite indifferent, so that if it were possible to graft a young mesodermal cell on to the ectoderm or endoderm, it would become a true ectodermal or endodermal cell, as the case might be.

But although we may, so far as we now see, regard the cells in the germ layers as originally wholly indifferent as individual cells, nevertheless we must not forget that as members of a germ layer their potential fate is already restricted by the conditions of their very layership—if I may coin a word for the occasion. Each layer produces its own group of tissues, and never any other. There are indeed apparent exceptions to the rule, as, for example, the stratified, horny epithelium of the esophagus, which is strikingly similar to the epidermis, although in one case the tissue is ectodermal, in the other endodermal. We have, however, to do only with a resemblance, and the development in the two cases is quite unlike—the esophageal epithelium in the mammalian embryo being ciliated at one stage, and exhibiting then little resemblance to any stage of the epidermis.

Each germ layer has its specific function, its exclusive share in the work of differentiation. The work of one layer is not done by another nor shared by another. It is true that attempts are made from time to time to upset the validity of this fundamental doctrine, but they have hitherto failed to find support or recognition from any leading embryologist, and I deem these attempts unworthy of serious consideration. We are able now to assign almost every cell of the normal adult human body to its proper germ layer. Our only great uncertainty is where two layers meet, as do the ectoderm and endoderm in the pharynx, or as do the mesoderm and endoderm, where the ureter opens into the bladder. With these and

⁴Hartwig and some other German embryologists divide the mesoderm into two layers; the division is contrary to the actual development, and is made, in my opinion, quite arbitrarily to satisfy the needs of an erroneous theory.

perhaps a very few other small exceptions, everything in adult anatomy can be correctly stated in terms of germ layers. The layership of every organ is known, save that in the cases of the thymus gland, the tonsils and the adrenals authorities are not yet agreed.

A remarkable attempt to upset the doctrine of the germ layers deserves a brief consideration. It was first maintained by Goronowitch that the cells forming at least a part of the skeleton arose from the ectoderm. The same opinion was expressed also on the basis of their own investigations by H. Klaatsch and by Miss Platt. Confirmation of these views has not followed, but, on the contrary, C. Rabl, one of the most trustworthy of living observers, maintains that essential parts of Goronowitch's and Klaatsch's evidence are simply errors of observation. Klaatsch's views were based partly on the study of the developing teleost fins. R. G. Harrison has shown that here the German worker is in error. Miss Platt's observations were made in the head region of embryo *Necturus*. An examination of a number of series and stages has not enabled me to find the slightest evidence in favor of Miss Platt's conclusions. H. K. Corning has pointed out that the processes alleged by Miss Platt to occur in *Necturus* do not take place in the frog, *Rana temporaria*. We may, therefore, I think, safely regard this attempt to overthrow the morphological value of the germ layers as unsuccessful. I know of no other attempt of sufficient importance to be even mentioned.

The importance to pathologists of a thorough knowledge of the genesis of the tissues from their germ layers can hardly be emphasized too strongly, for it is more than probable that all pathological tissues are as strictly governed by the law of the specific value of germ layers as are the normal tissues. Are there not many pathologists whose knowledge of embryology is wholly insufficient to meet the practical needs of their professional study even in this one direction?

The accompanying table presents the principal tissues, classified according to their layership. There have been classifications of organs on the layership basis published before, but inasmuch as organs usually contain cells from two layers, we get a more correct presentation of the actual genetic relationships by restricting our tabulation to the tissues. Leucocytes do not appear in the table for the reason that their first origin is uncertain. Blood cells arise very early, before the clear separation of mesoderm and entoderm has occurred; it is possible that they are entodermal. With these two limitations, the table presents our present knowledge.

CLASSIFICATION OF THE TISSUES.

A. ECTODERMAL.

- (1) *Epidermis*:
 - (a) Epidermal appendages.
 - (b) Lens of eye.
- (2) *Epithelium of*
 - (a) Cornea.
 - (b) Olfactory chamber.

- (c) Auditory organ.
- (d) Mouth (oral glands, enamel organ, hypophysis).
- (e) Anus.
- (f) Chorion, fetal placenta.
- (g) Amnion.
- (3) *Nervous System*:
 - (a) Brain: optic nerve, retina.
 - (b) Spinal cord.
 - (c) Ganglia.
 - (d) Neuraxons.

B. MESODERMAL.

- (1) *Mesothelium*:
 - (a) Epithelium of peritoneum, pericardium, pleura, urogenital organs.
 - (b) Striated muscles.
- (2) *Mesenchyma*:
 - (a) Connective tissue, smooth muscle, pseudo-endothelium, fat cells, pigment cells.
 - (b) Blood.
 - (c) Blood vessels.
 - (d) Lymphatics.
 - (e) Spleen.
 - (f) Supporting tissues, cartilage, bone.
 - (g) Marrow.

C. ENTODERMAL.

- (1) *Notochord*.
- (2) *Epithelium of*
 - (a) Digestive tract, esophagus, stomach, liver, pancreas, small intestine, yolk sack, large intestine, cecum, vermiform, rectum, allantois (bladder).
 - (b) Pharynx, Eustachian tube, tonsils, thymus, parathyroids, thyroid.
 - (c) Respiratory tract, larynx, trachea, lungs.

We will now turn to the analysis of the differential process in each germ layer. We have to deal with changes in cells.

There are two distinct types of cell differentiation, which I think have not hitherto been clearly recognized or defined. For both types the starting point is the same—the undifferentiated embryonic cell. In one type we find that as the cells proliferate a portion of them only undergoes differentiation, and another portion remains more or less undifferentiated and retains more or less fully the power of continued proliferation. The epidermis is a good representative of this type. Its basal layer consists of embryonic cells, which multiply; some of these cells move into the upper layers, enlarge and differentiate themselves into horny cells; others remain in the basal layer and continue to multiply. The progeny of a given basal epidermal cell do not all have the same fate, but divide themselves into two kinds of cells, one kind retaining the ancestral character, the other becoming something new and unlike the parent cell. Differentiation according to the second type is characterized by its inclusion of all the cells. This type has its culminating and most perfect illustration in the central nervous system, where comparatively early in embryonic life all the cells become specialized, and with acquisition of specialization they forfeit their power of multiplication—the neuroglia cells partly, the nerve cells wholly. The growth of the brain after early stages depends not on the proliferation of cells, but chiefly upon the increase in size of the individual cell. The correctness of this statement is not af-

fects, in my belief, by the fact that epithelial portions of the medullary tube in comparatively late stages may be added to the nervous portion, the cells multiplying rapidly, as we see at the growing edge of the young cerebellum. The brain here grows by the addition of cells in the indifferent stage, but as soon as these cells are differentiated, they conform to the general law and divide no more (neurones) or slowly (glia cells).

The two types of differentiation produce essentially unlike conditions. The pathologist may not overlook such unlikeness with impunity. The two types pass into one another with many intergrades. Hence when we consider the possibilities of pathological alteration we must in each case seek to determine how far the condition of the tissue involved permits cell multiplication, as well as differentiation.

Just as the segmenting ovum divides itself into parts, which we name germ layers, each of which has its special and exclusive share in developing the adult tissues, so does each of the three germ layers divide into parts, each part having its special and inclusive rôle, and these parts again subdivide until, after the final partition, the adult variety is produced. During all these changes there is no exchange of rôles. It will be profitable to let the phenomena pass before us in rapid review.

First, then, the ectoderm. This layer early separates into two parts, one to form the central nervous system, the second the epidermis; the nervous part thereafter never forms epidermal structures, the epidermal part never forms a nervous system. The central nervous system retains in part a simple epithelial character, but most of its walls become nervous tissue; its cells pass from the indifferent stage and become neuroglia cells or young nerve cells (neuroblasts). Neuroglia cells never become anything else, and the nerve cells are always nerve cells to the end. The primitive epidermis forms a series of special sensory areas and the permanent epidermis. The sensory areas, which belong to the olfactory, auditory and gustatory organs, soon become well defined and never produce any cell arrangements like those of the epidermis. This last, on the contrary, remains, as before stated, rich in undifferentiated cells, and gradually produces a great variety of structures. Most of these, namely, the hairs and glands, are small and very numerous, while a few, like the nails, enamel organs and epithelium of the lips, are larger. No one of these special structures, however, converts itself into another. The basal layer of the general epidermis may perhaps preserve a true embryonic quality and have wide differential possibilities.

Next, as to the entoderm, which undergoes less differentiation than either of the other two germ layers, since over a large part of its extent it remains throughout life a simple epithelium with many cells very slightly modified in structure. Wherever in it specialization takes place, as in the tonsil, thymus, thyroid, esophagus, liver or pancreas, each territory of cells keeps its charac-

teristics and never assumes those of another territory.

Finally, as to the mesoderm, in which layer variety of differentiation attains its maximum. To follow the genesis of this variety is most instructive. The mesoderm is found very early to include, in vertebrate embryos, four kinds of cells, of which the most numerous are undifferentiated cells, the other three kinds being, (1) endothelial cells of blood vessels, (2) blood cells, (3) sexual cells. All of these are precociously specialized; they are few in number, yet they are probably the parents of all the cells which are produced of their kind throughout life. Our present knowledge does not permit us to speak with entire certainty, but the evidence is strongly in favor of the following three conceptions: (1) That all the endothelium of the blood vessels of the adult is descended directly from the endothelium of the first blood vessels differentiated in the extra-embryonic portion of the germinal area. (2) That all the red blood corpuscles are descendants from the red blood cells of the blood islands of the area vasculosa. According to this view the blood-forming organs, as they are called, merely provide sites where the red cells can multiply, as for instance in the mammalian embryonic liver or in the adult marrow. (3) That the primitive sexual cells by their multiplication produce all the cells from which the gonoblasts, or sexual elements proper, male and female, are evolved.

The future will decide the validity of these conceptions. They are very significant, because they assume that there are cells which form exclusive classes, and are characterized by a special combination of qualities, so that while they retain so much of the embryonic character as to have still the power of rapid multiplication, they yet are so specialized that they can only produce their like. If the three conceptions are established, we shall regard these three sorts of cells as almost the first to be fully differentiated. We shall also have to regard the vascular endothelium as distinct not only from the epithelial lining of the body cavity, but also from that of the lymphatic system. The immense importance of such a discovery, as bearing upon pathological researches and interpretations, is obvious.

The next important change in the mesoderm is the development of the main-body cavity, which the embryologist designates comprehensively as the coelom. The cells, which lie next the body cavity and border it, assume an epithelial arrangement; this epithelial layer around the coelom is properly named *mesothelium*, and the loose cells about it constitute the *mesenchyma*. We do not have, however, at first, a true differentiation of mesothelial and mesenchymal cells; all are undifferentiated, and we can readily demonstrate that the cells are interchangeable, differing during early stages by their positions in relation to one another and to the body cavity, but not differing in their essential structures or qualities. Thus we find that the mesothelium constantly gives off cells which join the mesenchyma, and we find later that

mesenchymal cells may take on an epithelial arrangement around any of the cavities—and there are many such—which arise within the mesenchyma itself in the course of further development.

But although difference of arrangement does not necessarily indicate differentiation of the cells it does affect the character of the differentiation which ensues. As every textbook states, the mesothelium gives rise to the striated muscles and to the epithelial portions of the entire genito-urinary tract, and is permanently retained, with slighter modifications, as the epithelium of the pericardium, pleura and peritoneum. The mesenchyma produces an even greater variety, since it is the parent of not only all the connective and supporting tissue, but also of the lymphatic system.

I venture to turn aside for a moment to urge upon you the adoption of the term "mesothelium" as the correct designation for the epithelial lining of the cavities of the thorax and abdomen. It is literally the same epithelium in the four cavities, for they were originally one with a single continuous epithelium. It is well also in our nomenclature to recognize the important fact that the epithelium is radically, because genetically, distinct from the endothelium of the blood vessels and lymphatics, and the application of the term "endothelium" to the covering of, for instance, the peritoneum, leads and can lead only to confused bad thinking. If mesothelium be employed as suggested, clearness will be gained.

Coming back now to the subject of the mesoderm, let us note that when a striated muscle fibre is produced a striated muscle fibre it always remains, and it never becomes anything else; the ovary never changes. In short, with the mesoderm, as with the ectoderm and endoderm, we see the fate of the cells once fixed to be thereafter unchangeable as to the kind of differentiation.

Our hasty review is worse than imperfect, yet is sufficient to impress upon us the great law that differentiation in any direction terminates the possibility of differentiation in any other direction. In accordance with this law we encounter no instances, either in normal or in pathological development, of the transformation of a cell of one kind of tissue into a cell of another kind of tissue, and further we encounter no instance of a differentiated cell being transformed back into an undifferentiated cell of the embryonic type with varied potentialities.

Thus far I have expressed myself somewhat as if there were two sharply defined conditions, the differentiated and the undifferentiated. To give such an impression would be to create error, since differentiation is a slowly progressive and wholly gradual change in the cell. We must look upon each step in the process of differentiation as establishing narrower limits for future changes. Thus, when in the spinal cord neuroblasts diverge from the glia cells, they are not specialized into different classes of neuroblasts; such specialization comes later. So in the mesenchyma, after the embryonic cells have changed and large numbers of them have become connective tissue cells, these

last still are capable of various further differentiations, and may, therefore, be said to have been arrested in their development at a stage of partial differentiation. This quality of the connective tissue cells is, from the pathological standpoint, one of the most important facts known to us concerning the structure of the body.

Having now elaborated, as far as time permits, our conception of the nature of differentiation, let us turn to our third fundamental idea, which concerns the changes which succeed differentiation. These changes are very unlike the constructive changes, which precede them, for they are destructive. They fall into three main groups: (1) Changes of direct cell death; (2) necrobiosis², or indirect cell death, preceded by changes in cell structure; (3) hypertrophic degeneration, or indirect cell death, preceded by growth and structural change of the cell.

Of direct cell death no discussion is here necessary, for the fundamental idea, which I wish to emphasize, is that necrobiosis and hypertrophic degeneration are normal processes, which invariably occur in the normal body and play, in many cases, important rôles in the life history of the individual. Without necrobiosis and degeneration on a large scale, the normal round of human life would be impossible. It is singular that in treatises on normal anatomy and histology these two subjects are generally neglected, or at most appear only as matters of incidental reference. The force of tradition makes us apply these terms as if they corresponded exclusively to pathological conditions. This tradition might still prescribe our mental attitude, were it not that the studies of the last dozen years have made us familiar with the enormous extent, variety and rapidity of the destructive degenerations which go on in the pregnant uterus of placental mammals, a degeneration which takes place without affording a trace or a suggestion of any pathological modification whatsoever of the organ. To our inherited prejudices the uterine phenomena alluded to are startling, but their evidence before the tribunal of biology has settled the case in favor of the plea that hypertrophic degeneration is a normal factor in typical healthy development.

The normal and pathological changes associated with the death of cells, and consequently also of the tissues which are formed by cells, are so nearly identical that they may be combined in a single discussion. For the more convenient presentation of the subject the following table has been prepared. Concerning the table, little explanation is necessary. A few special points need mention. The distinction made between necrobiosis and degeneration corresponds to recognizable differences, but our present knowledge is insufficient to provide clear definitions for the two closely related types of indirect cell death. I feel much doubt as to the propriety of including atrophy in the table at all, since it seems to me that we ought, perhaps, not to regard atrophy as a phenomenon of a distinct

² It is a matter for regret that so awkward a term as "necrobiosis" should have become current.

class, but merely as a result of necrobiotic or degenerative alterations in cells and organs. Under the heading "Degeneration" the division into "cytoplasmic" and "paraplasmic" takes us beyond our present knowledge, while the division "nuclear" is added rather to satisfy a biological conscience than to represent a part of our knowledge.

DEATH OF CELLS.

First. Causes of death.

A. External to the organism:

- (1) Physical, (mechanical, chemical, thermal, etc).
- (2) Parasites.

B. Changes in intercellular substances (probably primarily due to cells):

- (1) Hypertrophy.
- (2) Induration.
- (3) Calcification.
- (4) Amyloid degeneration (infiltration.)

C. Changes inherent in cells:

Second. Morphological changes of dying cells.

A. Direct death of cells:

- (1) Atrophy.
- (2) Disintegration and resorption.

B. Indirect death of cells:

- (1) Necrobiosis (structural change precedes final death).
- (2) Hypertrophic degeneration (growth and structural change often with nuclear proliferation precede final death).

Third. Removal of cells.

- A. By mechanical means (sloughing or shedding).
- B. By chemical means (solution).
- C. By phagocytes.

The preceding table represents the only attempt of the kind known to me, and like other first attempts is undoubtedly very imperfect. It embodies obviously no new facts. But, because it is frequently a scientific gain to systematize our information, I hope the table may be useful, and it will certainly serve its immediate purpose, namely, to guide our discussion of the normal changes which follow after cellular differentiation.

As the time at our command is brief, let us pass by the consideration of the causes of cell death. I will remark only that I think amyloid degeneration may be found to occur in the placental decidua of the human pregnant uterus and perhaps in other normal structures. No positive information on this point is known to me. For the reasons stated a few minutes ago, atrophy may also be omitted here. We pass by also the direct forms of cell death, to reach at once the consideration of the indirect forms.

The accompanying table offers an analysis of some of the principal varieties of structural change, which occur during indirect cell death.

INDIRECT DEATH OF CELLS.

A. NECROBIOSIS.

(1) *Cytoplasmic changes:*

- (a) Granulation.
- (b) Hyaline transformation.
- (c) Imbibition.
- (d) Desiccation.
- (e) Clasmatosis.

(2) *Nuclear changes:*

- (a) Karyorhexis.
- (b) Karyolysis.

B. HYPERTROPHIC DEGENERATION.

(1) *Cytoplasmic:**

- (a) Granular.
- (b) Cornifying.
- (c) Hyaline.

(2) *Paraplasmic:**

- (a) Fatty.
- (b) Pigmentary.
- (c) Mucoid.
- (d) Colloid, etc.

(3) *Nuclear* (increase of chromatine).

We begin, therefore, with necrobiosis. We may appropriately mention first those organs of which the existence is limited in time, such as the thymus and the fetal kidney (mesonephros or Wolffian body). These organs attain first their full differentiation; their elements during the next phase die off, and finally are resorbed, most of the organ disappearing. In the same category of change belong the histories of the senile ovary and testis. Another familiar illustration is offered by the notochord, which in the mammals totally disappears during the fetal period. The notochord cells undergo peculiar characteristic modifications, hence it is difficult to say whether or not there is degeneration in the strict sense. Cell death on a large scale is a common phenomenon of the tissues. It occurs in cartilage, both when the cartilage is permanent and even more conspicuously when cartilage gives way to bone, the disintegration of the cartilage cells preceding the irruption of the bone-forming tissues. It occurs among the bone cells after they are imbedded in their calcified matrix. It occurs in the ovary, where we designate its result as atresia of the follicles. It occurs in the sebaceous glands as an accompaniment of the process of their secretion. It occurs among the glands of the intestine, as discovered by Stöhr, and occurs normally, though not constantly, in the appendix, as recorded by Ribbert. It occurs in the epithelium of the human pregnant uterus and in all the tissues of the human decidua reflexa. Other examples could be enumerated, but we may content ourselves with citing the constant destruction of blood corpuscles, both red and white.

Degeneration, in the stricter sense of an antemortem hypertrophic change of cell structure, is also of widespread occurrence in the healthy body. No case of so-called granular degeneration under strictly normal conditions is known to me, though it seems quite credible that such cases should occur. On the other hand, the cornifying degeneration is very important, and does occur in all three germ layers, for we observe it in the ectoderm of the skin, the endoderm of the esophagus and the mesoderm of the vagina. Hyaline degeneration of so striking a character as to have been termed pseudopathological takes place regularly in the ectoderm (outer epithelium) of the placental chorion. In the rabbit it occurs in the uterine glands, during pregnancy, causing most rapid histolysis, and it seems to me probable that some of the changes, which can be observed in the

*I cannot venture to assert that these two divisions are valid, and not arbitrary.

decidua of the pregnant human uterus, ought also to be regarded as cases of hyaline degeneration. That fatty degeneration takes place normally has long been taught. There seems no reason for regarding the development of ordinary or mesenchymal fat cells otherwise than as instances of normal degeneration. In old age a more or less marked fatty degeneration may be widespread and occur in many different kinds of cells. The same is true of the deposit of pigment, as we see it in the liver cells and motor nerve cells of adults. Finally, mucoid and colloid degeneration are so obviously normal, that we commonly think of their pathological occurrence as merely an exaggeration of a normal state.

The various kinds of changes in dying cells, with which the pathologist is most familiar, recur in healthy tissues. In the preceding table seven forms of change are enumerated under the heading "Necrobiosis." Every one of these seven occur normally. Granulation of the bodies of the cartilage cells and of the notochord cells may be observed to precede their resorption. Hyaline transformation is conspicuous in the decidua reflexa. Imbibition or cellular oedema occurs in the epidermis of the lips, in the cells of the uterine glands during pregnancy, after they have detached themselves from the gland walls, and in the endothelium of the placental blood vessels of the rabbit. Desiccation is the usual accompaniment of cornification. Clasmotosis has given its name to the clasmatoocytes of Ranvier, and we may well apply the same term to the cells of the secreting milk gland, and also, as an unpublished research indicates, to the cells of the secreting glands of the cervix uteri. Karyolysis is, according to present probabilities, the method by which nucleated red blood cells are converted into non-nucleated blood corpuscles. Karyorhexis, or the fragmentation of the nucleus, occurs in the cells of the disappearing follicles of the ovary.

Lastly, as to the removal of cells. The sloughing off of cells is one of the most familiar phenomena, since it occurs incessantly over the epidermis and with the hairs; its part in menstruation and its colossal rôle in the after-birth are known to all, and every practitioner is accustomed to look for shed cells in urinary sediment. Large numbers of cells are lost by the intestinal epithelium. Cells without access to the external world must be got rid of by resorption, which seems to take place either with or without the co-operation of leucocytes. In the latter case we must for lack of a better hypothesis attribute the resorption to chemical means. Of resorption with the aid of leucocytes the necrosed human decidua reflexa offers a perfect illustration. Of resorption without leucocytes the masses of degenerated epithelium in the placenta, periplacenta and obliqua of the rabbit afford by far the most impressive demonstration I have ever seen. At nine days after conception the epithelium is profoundly changed, being very much thickened, and where thickened transformed into a syncytium without cell boundaries, but with an enormously increased

number of nuclei. In the obliqua (or portion of the uterine wall opposite the placenta proper) portions of the epithelium from the fundus of the glands remain, but the upper stratum has not only undergone syncytial degeneration, but has become vacuolated and partly resorbed without being directly attacked by either leucocytes or epithelium or any other kind of cells. At eleven days the resorption has progressed still farther, so that the degenerated part is almost gone, but meanwhile the isolated patches of epithelium have spread until they united and so reformed a continuous epithelium. At thirteen days the epithelium has reconstituted new glands or follicles, very unlike, however, those of the resting uterus. To explain the extraordinary rapid disappearance of the degenerated material in the obliqua, the only available hypothesis seems to be that of a chemical change by which the material becomes soluble or is dissolved, for we see the disappearance of the substance taking place in the very heart of the layer, and not merely at the surface. Sloughing is impossible, and there are no phagocytes, leaving the chemical explanation as the only one I have been able to conceive. The contemplation of the described phenomena of the rabbit's obliqua inevitably raises the question—do we not tend in our explanations of the removal of necrosed and degenerated tissues to attribute too much to phagocytes and too little to direct chemical action? May it not be that the body produces histolytic toxins, which can destroy tissues somewhat as do snake-poisons.

The cycle of changes through which cells pass is obviously longer than the period of development and the differentiation, yet its phases all belong together as members of a single series. We lack a word to designate the entire series of changes, and for the lack of such a word often fail to appreciate the essential unity of progressive and regressive modifications of cell-structure. Accordingly, I wish to propose the new term, "cytomorphosis," to designate comprehensively all the structural alterations which cells, or successive generations of cells, may undergo from the earliest undifferentiated stage to their final destruction.

PART II. PATHOLOGICAL DIFFERENTIATION.

We have now completed our brief reviews of the four fundamental successive stages of cytomorphosis. These stages are: (1) Undifferentiated; (2) progressive differentiation, which itself often comprises many successive stages; (3) regression (necrobiosis or degeneration); (4) removal of the dead material.

Let us now apply some of the conceptions won to the interpretation of pathological differentiation, remembering all the time that the interpretation of diseases is a distinct and different problem. Although presumably pathological differentiation is the sole and exclusive cause of disease, and no disease arises from any other immediate cause, yet the disease must be regarded as the result, and, owing to the physiological correlation of the organs, this result may include many sec-

ondary effects, some of which are often of the greatest diagnostic value, and therefore likely to divert attention from the primary structural cause.

Our review of normal conditions furnishes us with three general conceptions, which are valuable for their pathological applications, namely: (1) That each germ layer has a specific and exclusive share in the production of tissues; (2) that undifferentiated cells, characterized by having only a small amount of unspecialized protoplasm, exist not only in the embryo, but also throughout life in certain parts of all three germ layers; (3) that differentiated cells, characterized by having a larger amount of specialized protoplasm, form most of the organs of the adult, and are incapable of undergoing any new unlike differentiation, though they are still capable of completing their cytomorphosis, by necrobiosis or degeneration.

We must apply these conceptions, according to my belief, as rigidly to pathological as to normal development. Thus, as to the germ layers, it ought to be possible, even with our present knowledge, to show their pathogenetic values, so that every elementary student, as a matter of course, can be taught to classify accurately most pathological differentiations, and to accept such a classification as the basis of all his further study of the science. How much this reform is needed is indicated by the many writers who put glioma under the head of connective tissue tumors, although gliomata arise from the ectoderm, and connective tissue arises from the mesoderm. Such a classification is on a par with the ancient system, which put the whales among the fish, for it is not going too far to say it is impossible that connective tissue should produce a glioma, because the two things belong in different classes. Another noteworthy violation of embryological law is offered by the classification of all muscle tumors under one head, "myoma," although smooth and striated muscle fibres are genetically and structurally distinct, with no intermediate or connecting forms of tissue, and with only a slight physiological resemblance. As regards epitheliomata, they should be studied in relation to their layership; and it is reasonable, in my judgment, to expect that they will be found to have very distinctive characteristics, according to the germ layer from which they take origin, for the layership of a tissue governs the normal differentiation and therefore probably also the abnormal. I believe that the first competent investigation in this field will mark a new epoch of pathological science. When that epoch comes our morphological sense will no longer be shocked, as for instance by the application of the name adenoma to an epithelioma of an organ like the kidney, which is in no sense a gland.

I should like to urge especially the study of the layership of the various cancers. Can we safely assume that there is only one kind of cancer? May it not well be that ectodermal, mesothelial and entodermal cancers are separate kinds?

Next, as to undifferentiated cells. The cells of this sort have the power of multiplication in a high degree, and they have the possibilities of increasing their size and of undergoing further differentiation, and their occurrence in the adult is of the utmost pathological significance. Such cells exist in four important parts: (1) In the basal layer of the epidermis and in corresponding portions of the epidermal appendages; (2) in the adult mesenchyma or connective tissue; (3) in many parts of the adult mesothelium, especially of the epithelia of the genito-urinary tracts; (4) in the entodermal epithelium of the gastro-intestinal tract. It is significant that it is precisely from these parts that the development of many rapidly growing tumors takes place, and it is further significant that the least differentiated or specialized of all, namely, the mesenchymal cells, are the ones which produce the greatest variety of tumors, as the following list recalls: myxoma, myoma (but not rhabdomyoma), fibroma, lipoma, chondroma, osteoma and sarcoma. Angioma presumably belongs in a different category. The mesenchyma still exhibits, by the formation of its characteristic tumors in the adult, its embryonic capacity to transform itself in varied ways.

Further insight into pathological development may be gained from the tissues or cells which have undergone differentiation, but do not attain a high grade of specialization. The endothelium of blood vessels, the endothelium of lymph vessels, the red blood cells, the leucocytes, and the neuroglia are examples of this class. All the cells of the kind just enumerated have advanced in organization beyond the embryonic state, but have retained the power of cell multiplication. When they multiply they produce cells like themselves, so that we might describe them as so many histological species, each capable of reproducing its own kind. In accordance with this conception, derived from the normal development, is the pathological fact that each of these species of cells produces tumors of its own kind. This is a familiar conclusion as regards the endothelium, both of the blood vessels and of the lymph vessels, and also as regards the neuroglia. It seems to me that the excessive multiplication of leucocytes may properly be classed in the same category as the growths resulting in angioma and glioma. I do not know whether or not an excessive and abnormally rapid production of red blood cells may occur so as to occasion a special and distinct disease. Increased production of red blood cells (erythrocytes) is, of course, well known to occur, but I understand that a distinct disease of this origin is, as yet at least, not recognized. It is not improbable, however, that such a disease exists, — we should, I suppose, name it *erythrocytosis* or *hematoma*.

We can now distinguish two main groups of new formations: (1) Those with marked cytomorphosis, or change in cell structure, as, for example, myoma, lipoma, chondroma, etc.; (2) those without marked cytomorphosis, the cells of the new growth resembling those of the parent tissue, as for example, angioma and glioma. Members of

the first group have been termed *heteroplastic*. Members of the second group have been termed *homoplastic*.

Accepting these terms we may say tumors are either *heteroplastic* or *homoplastic*. From the standpoint of the embryologist these terms are much more than convenient adjectives; on the contrary, they denote differences of a fundamental character, upon which we must base a large part of our notions about pathological differentiation.

Finally, as to the differentiated cells. We have just considered cells which have reached a low degree of differentiation, and therefore will now give our attention only to the most highly differentiated. Of these the nerve cells, or, as they are now termed, the neurones, stand highest, and are characterized not only by the great specialization of their organization, but also by the complete loss of their ability to multiply by cell-division. The neurones are then extremely unlike the embryonic cells, and they represent the extreme end of that scale of which the undifferentiated cell is the beginning. It is, therefore, very significant that neurones do not form tumors. Neuronoma, as such a tumor would be called, does not occur, so far as hitherto recorded, and if, as is possible, a neuronoma should be found, we should have to explain it not as a tumor-growth of neurones, but as the result of proliferation of indifferent cells, which subsequently became differentiated into neurones. The so-called *neuronoma* of pathologists do not here come into consideration because they are merely accumulations of growing axis cylinders.

Liver cells and striated muscles also represent a very high differentiation. It is possible that with more exact knowledge we shall be able to state that these elements also cannot produce tumors, although there may be tumors of the liver and of striated muscle fibres. Possible, because Cohnheim's famous theory of tumor origin from persistent embryonic tissue may be, though not generally applicable, yet available in these two instances. The adoption of this view would furnish an explanation of several familiar facts: of the fact that we do not find tumors formed by differentiated liver cells; of the fact that cancer of the liver arises usually from the bile ducts, which have a simple and little differentiated epithelium; of the fact that myoma of the cardiac and of the developed skeletal muscles is exceedingly rare; of the fact that rhabdomyomas so occur that their origin may be attributed to inclusions of portions of embryonic muscle plates. As regards primary epithelioma of the liver, it is claimed that it arises usually from the bile ducts, but the liver cells are also involved, but how it comes about that the liver cells participate is, so far as I have been able to learn, by no means clear. From analogy with other tissues, we infer that it is improbable that the large and specialized liver cells ever resume an embryonic character. In short, I deem our understanding of the pathological differentiation of hepatic cells and of striated muscle

fibres too imperfect to support a judgment. We can only say that the rarity of such differentiation concords with the degree of normal specialization of the cells and fibres in question.

Our very brief discussion of pathological differentiation seems to justify the following conclusions: (1) The process in its essential features is identical with the process of normal differentiation; (2) the character of a tumor depends primarily upon the layership of the cells producing it; (3) normal differentiation impedes and limits the formation of tumors, precisely as it does of further normal structures, so that tumors arise most readily from undifferentiated tissues and may then be heteroplastic; arise less readily from differentiated tissues and are then always homoplastic; and arise unready or not at all from the most highly specialized tissues. Each of these three conclusions might be advanced as a law of normal development, if we substitute the term "differentiated tissue" for "tumor."

We now pass on to the final stages of cytomorphosis, necrobiosis and hypertrophic degeneration in their pathological manifestations. The consideration of the direct or simple death of cells need not detain us, nor need we pause long over the indirect forms of cell death. In fact, the analysis made earlier this evening, of normal necrobiosis and degeneration, forced us to recognize that all, or nearly all, the modes of indirect cell death which the pathologist encounters in morbid tissue recur under healthy normal conditions. To put the conclusion in its correct form, we need only to reverse it, saying: Most, and probably all, pathological necrobiosis and degenerations of cells are essentially identical with normal processes, and are pathological owing to the abnormality of their occurrence in time and site.

Death of a cell may, of course, occur at any moment as a consequence of conditions external to itself. To a given cell, as such, it is of no moment whether the term, "physiological" or "pathological" be applied by us to the conditions which cause its death. The cell has its own inherent qualities, and its own cytomorphic possibilities. All that the environment of the cell can do, so far as we can at present understand, is to evoke, and perhaps to a minor degree modify, one of the possible structural changes of the cell. Hence we find actually that the processes of cellular necrobiosis appear to us identical in normal and pathological cases. This affirmation does not imply that a given cell has only one kind of possible necrobiosis before it. Quite otherwise, it being reasonable to believe that any one of several forms of necrobiosis, according to the circumstances, may ensue.

All that has just been said might be repeated in reference to hypertrophic degeneration. One of the investigations which is most needed at the present time, and which promises results of extreme interest and importance, is the investigation of necrobiotic and degenerative cytomorphosis, carried out as a research upon cell structures. At present we cannot discuss the subject except

in terms the very vagueness of which is a mortifying confession of ignorance.

Time forbids the prolongation of the discussion. But, although a more detailed study is thus for the present excluded, we have, nevertheless, dealt with the subject with sufficient fullness, I hope, to convince you, if you were not already convinced, that the fundamental problems of pathology and embryology are alike, not only in being problems of cell life, but also in being similar and even identical problems of cell life. Widely as the two sciences differ, they rest on a common foundation.

To complete our subject it would be necessary to summarize our present knowledge as to the causes of cell differentiation. Physiological morphology is a new science; we have barely crossed its threshold, and are not yet at home in it. To the physician this new science promises to far surpass in practical importance even the bacteriology of our time, since it is not presumptuous to hope that when we understand the physiological factors, thermal, chemical stimulant, mechanical and other, which bring about structure, which cause cytomorphosis — that then we can acquire control over cellular differentiation, and ultimately be able to prevent some of the most formidable diseases, over which we now have little or no power. The diseases which we may attack in the future, in this way, are diseases which may be designated as morphogenetic, because they are due to errors of morphological differentiation. At this vast topic it is quite impossible now to more than hint.

Here we may stop, not because all the great host of relations between embryology and pathology have been marshalled before us, but because enough of those relations have passed us in review to present a conclusive body of arguments. As we follow their march, we find ourselves led to the attack upon the problem of the causes of the specialization of cells, of histogenesis. To conquer this problem our only hope lies in the junction of all our forces.

Before closing, a personal word: First, of sincere thanks for the honor you have conferred upon me, both by your invitation and by your attention, and then a word to express the great diffidence with which I have undertaken to deal with pathological phenomena. A man of science ranks according to the number of details which he has mastered, and his ability to drill them into coherent battalions. By no such system of ranking can I hope to be included among pathologists. I offer, therefore, only the thoughts of an outsider, derived from the long pursuit of a cognate science. Such external suggestions, being independent to some degree of pathological tradition, may contribute to vivify the conception of the unity of the biological phenomena, and, therefore, of all forms of biological investigation. It will be a service rendered if my words recall the great truth that biology is not a congeries of sciences, but a single science, which we artificially divide and sub-divide until the parts are commensurate

with our mental capacity. In the truest sense we are fellow-workers. Let us, therefore, work together.

Original Article.

A NEW METHOD OF TREATING FRACTURES.¹

BY LEONARD F. HATCH, M.D., LYNN, MASS.

WHEN one stops to think of the rapid advance made in surgery during the past fifteen years, it seems little short of marvellous, and as though the wand of a magician had touched the art and shorn it of its crude and uncertain ways, and transformed it into the nearest approach to an exact science that we have in the whole field of the physician. Is it not remarkable that we have applied none of these new principles to the treatment of fractures? They are treated in the same indefinite and unscientific way that they were fifteen years ago, and have received none of the advantages of our recently acquired knowledge. The x-ray certainly has been brought to bear upon this field, but it is of comparatively little value. Does it show us the spicule of bone sticking into the soft parts? Does it show the fold of soft tissue caught between the two ends? Does it show the blood clots, the loose particles, and the ragged tissues that nature must take care of before union can commence? Does it obviate or tend to prevent in one particular the danger of non-union? I would not detract from the value of the x-ray, but merely contend that in the field of fractures it is of far more interest to the surgeon than of practical benefit to the patient.

Striving to establish a new method for the treatment of fractures, based on modern surgery, I have been severely hampered in applying and practically testing it by a lack of material, as it is very hard to get patients to permit a departure from established lines, and then, too, one has to be very sure of his theory before making a practical application of it, but I have been able to persuade a number to permit me to make use of it.

The principle (a part of it old but not followed generally, the other never having been used or advanced, to my knowledge) is to convert all compound fractures into simple ones; the other is to operate on simple fractures, making them compound, and then apply the first principle, making them simple.

I would submit a few cases bearing out these principles. I have had 6 cases of compound fracture of the large bones, besides a number of the small bones, which I have treated by making simple. I have operated on 4 simple fractures of the long bones and 5 fractures of the patella. All of these cases have given perfect results, without a drop of pus or any apparent inflammatory action. I have used drainage only once, and that was in the case of a compound fracture of the thigh. Fractures treated by this operative method are

¹ Read before the Lynn Medical Society, February 20, 1900.

practically devoid of pain. The sharp spiculae of bone sticking into the soft parts and the swelling are the principle causes of pain, and both of these are avoided by the operation.

Technique of operation is the same for simple and compound fractures, with this exception, that in simple fracture there is a point of selection for the incision, while in a compound fracture the wound is simply enlarged. There must be the most perfect antiseptic preparation. The site of operation must be shaved and then scrubbed thoroughly with soap and water, bichloride solution, and permanganate and oxalic acid solutions; all other parts of the patient must be carefully covered with sterile sheets and towels. Hold the extremity in a vertical position for a few minutes, then apply a rubber constrictor. Fit a sterile posterior and anterior splint of any suitable material. The points of selection for incision are for the tibia along the crest, for the femur along the outer side of the thigh, for the radius behind the supinator longus, for the ulna along the ulnar side of the arm where the bone is most superficial, for the humerus along the outer side of the arm. A good, free incision should be made, as it is important to have plenty of room, and the size of the incision does not complicate the case. Wash out thoroughly all clots and débris, removing all shreds of soft tissue and loose pieces of bone. If any sharp points of bone prevent perfect coaptation, remove them. Remove rubber band. Tie all bleeding points, and be sure that the wound is dry. If in case of a compound fracture the periosteum is stripped up, carefully replace it. Secure perfect coaptation. Apply one of the splints before closing the wound, to make sure of holding the fragments in place. Close the wound with catgut sutures without drainage, and lay a thin pad of iodoform gauze over the wound; apply the second splint and bandage quite firmly, as there will not be any swelling like that which occurs after a fracture treated in the usual manner. Remove dressings on the seventh or eighth day and apply plaster cast or ambulatory splint, according to the requirements of the case. It is safe to discontinue splints at least one week earlier than in fractures treated by former methods.

CASE I. Mr. D, age forty-eight, weight 150 pounds, height 5 feet and 11 inches; general health good. In breaking a colt was thrown out and dragged a long distance, resulting in a compound fracture of the radius. Enlarged the opening and washed out bloodclots, etc. Found some difficulty in reducing fracture, but after removing a few spiculae of bone it came together nicely. Closed wound without drainage. Removed dressings on sixth day and found a union of soft parts complete without pus. Applied plaster cast, which was removed on the twenty-fourth day. Union complete. No deformity.

CASE II. Mr. T, age forty-four, weight 180 pounds; general health good; truckman. In unloading a heavy desk slipped and fell, the desk falling upon his leg, causing a compound fracture of tibia. Made a good, free opening, and after

cleansing out wound thoroughly, and securing perfect coaptation of fragments, I closed the wound without drainage. Dressings removed on seventh day, and found perfect union without pus. Applied ambulatory splint, which was removed on the thirtieth day. Union perfect, with no deformity.

CASE III. Mr. B, age forty, weight 230 pounds, height 5 feet and 10 1-2 inches; a hard drinker. Tipped over with a load of furniture, sustaining a compound fracture of the thigh at the middle, the bone protruding posteriorly. Enlarged the opening and cleansed the wound with a bichloride solution. Reduced the fracture and closed the wound, leaving silk drainage, as there was quite a little exudate. Applied splints with weight and pulley. Removed drainage without removing dressings at the end of twenty-four hours. Removed dressings on the eighth day; no pus; removed sutures. Recovery uneventful; there was no shortening. Dr. Bennett, who saw the case with me, advised amputation, and expressed the opinion that it was foolhardy to close up the wound.

CASE IV. Mr. J, age fifty, weight 145 pounds, height 5 feet and 10 inches; keeps a variety store. While putting up some flags on the top of a veranda for a Fourth of July celebration, fell to the ground, causing a compound fracture of the tibia. Enlarged the opening and cleaned out the wound thoroughly. After perfect reduction of fracture, closed wound without drainage. Dressings removed on seventh day, and found union of soft parts without pus. Applied ambulatory splint, which was removed at end of fourth week. Union complete, and no deformity.

CASE V. Mr. R, age fifty-two, weight 257 pounds, height 5 feet and 11 inches; foreman of the Lynn Water Works, was in a ditch when a heavy derrick fell on him, causing a compound fracture of the tibia and fibula of the right leg at the junction of the middle and lower thirds. The tibia penetrated his trousers and overalls, and was forced into the gravel. I enlarged the opening without an anesthetic, as the patient refused to take one, and cleansed the wound and the bone very carefully with bichloride solution, then carefully replacing the periosteum, which had been stripped up, I reduced the fracture, being sure of perfect apposition, and closed the wound without drainage. Removed the dressings on the seventh day; no pus, union of soft parts. Further recovery was uneventful. Union complete at end of fourth week; no deformity.

CASE VI. Mrs. B, age thirty-two, weight 145 pounds, height 5 feet and 8 inches; general health good. I operated on this case three years ago for double salpingitis. She was thrown from a carriage in a runaway accident at Wells Beach, Maine, striking a telegraph pole and sustaining a compound fracture of the radius and ulna at lower end—practically a Colles fracture—and was badly bruised about the face and shoulder. It was after midnight when I arrived. The patient had been attended by a local physician in the morning at the time of the accident, and the arm put in a

splint. She was suffering severe pain at the seat of fracture. On examination under ether, I found that the fracture was not properly reduced, and that the skin was still between the fractured ends of the radius. Through a free incision I cleansed out the wound thoroughly, and after securing perfect coaptation closed the wound without drainage. Removed dressings on eighth day and found soft parts united; no pus. Applied plaster cast. Removed cast on eighteenth day, and commenced passive movement of fingers. Considered union of fracture complete on twenty-fifth day; no deformity, and recovered perfect use of fingers and hand.

CASE VII. Mr. M., age twenty-nine, weight 160 pounds, height 5 feet and 10½ inches; strong, muscular man, grocery clerk, when getting down from his team with a basket under each arm, fell on the ice, causing a fracture of the left tibia, at the junction of the middle and lower third. After preparing the patient for operation, I first reduced the fracture in the usual way, that I might determine how perfectly fractures are reduced by the old method. Before cutting down upon it it seemed as though I had complete apposition, but I found it to be only approximate, as there was nearly a half-inch separation. It was filled with blood clots and loose fragments of bone, one sharp spiculum of which was sticking into the soleus muscle. I cleansed it out thoroughly, secured perfect coaptation, and then closed the wound. Dressings removed on the eighth day; no pus; applied ambulatory splint. Recovery was uneventful; splint removed on twenty-fifth day.

CASE VIII. Mr. S., age thirty-four, weight 150 pounds; fair general health. Sustained a fracture of the humerus at the middle third. After the usual preparation for operation I tried to reduce the fracture but could not do so satisfactorily without using more force than was desirable, as I wished to find out what the true nature of the difficulty was. On cutting down upon the fracture I found the usual quantity of clotted blood and debris, and a good sized spiculum of bone at a sharp angle to one surface in the direction of the other. Upon cleansing out the wound and removing the fragments the fracture came together perfectly. I then closed up the wound in the usual manner. Recovery perfect and uneventful.

CASE IX. Mr. K., age twenty-eight, weight 140 pounds, height 5 feet and 9 inches; machinist. Was thrown from a carriage, striking the curbstone and sustaining a fracture of the thigh at junction of lower and middle thirds. Operated by cutting down upon the fracture, removing blood clots and loose particles of bone, secured perfect coaptation, and closed the opening without drainage. Applied splints with weight and pulley. Removed dressings on the seventh day. Union of soft parts, no pus. Union perfect, with no shortening, at end of fourth week.

CASE X. Mr. D., age thirty-eight, weight 160 pounds, height 5 feet and 10½ inches; general health good; clerk. While standing on a barrel

to fix some batteries, fell, fracturing the humerus below the insertion of the deltoid. Operated, removing blood clots, etc., and after securing perfect coaptation, closed the wound and applied splints. Removed dressings on the eighth day. Union of soft parts without pus. Applied plaster cast, which was removed on twenty-fifth day. Union perfect.

I will give in detail one case of fractured patella only, as the other cases pursued the same course, and recoveries in each one have been perfect.

CASE XI. Mr. L., age eighteen, weight 160 pounds, height 5 feet and 10 inches; very muscular; a grocery clerk. Fell down stairs and fractured the right patella. I saw him on the fifth day with the attending physician, Dr. Parcher, and advised an operation, which was consented to. On the tenth day I operated under the best aseptic conditions possible with the existing surroundings. I cut down upon the fracture and found the joint filled with clotted blood. There was a single transverse fracture of the patella. The capsular ligament and the accessory bands of vastus were torn apart and the edges very dark and ragged. I think a fractured patella presents the most formidable sight that the surgeon has to deal with outside of the abdominal cavity. It is a thing that must be seen to be appreciated, and I would advise any one to be very sure of his surgical ability before attempting it. I cleansed the joint out thoroughly and trimmed off the edges of the torn ligaments. I had planned to use heavy kangaroo tendon, but when I came to use it, it was so rotten that I had to abandon it and use heavy silk. I passed the needle through the ligamentum patellæ close to the patella, then through the conjoined tendon close to the upper fragment, and after securing perfect apposition, tied the silk, which held them perfectly. I then put a few stitches of catgut in the capsular ligament and closed the wound. The patient did not suffer nearly so much pain after the operation as he did before. I prefer this method to that of drilling the bone. By means of an apparatus which I designed, I kept the leg elevated at an angle of 45° for eight days. On the eighth day I dressed the wound for the first time. It was healthy; no pus or swelling. I then removed the stitches and applied an ambulatory splint, permitting the patient to be up about the room. Discharged the case at the end of the fourth week. At the end of the fifth week Dr. Parcher brought him to my office, and he had no trouble in walking from the depot to the office. At that time, while lying flat upon the back, he could raise the leg to a perpendicular position without the slightest bending of the knee. Motion in the knee was very good at this time, but two weeks later was perfect. In walking there was absolutely no throwing ahead of the leg, as is usual with cases treated by any other method. On examination it was almost impossible to find the point of fracture. Three of the other cases have

NOTE.—Mr. L. was examined by over fifty members at the medical meeting, Dr. Parcher kindly taking him around to each one, and there was not one of them who could locate the place of fracture, which I think proves the result.

been treated by this method, that is, making use of the ambulatory splint with equally good results.

CASE XII. Mr. M., age fifty-eight, weight 145 pounds, height 5 feet and 11½ inches; good health; builder. Fell forward in getting down from a wagon, fracturing the right patella. Operated at once; applied ambulatory splint on eighth day. Recovery uneventful, and case discharged at end of fifth week.

CASE XIII. Mr. F., age sixty-two, weight 140 pounds, height 5 feet and 10 inches; good health; no occupation. Fell on a car track, fracturing the left patella. Operated on ninth day; applied ambulatory splint on ninth day after the operation. Recovery uneventful at end of fifth week.

CASE XIV. Mr. N., age thirty-eight, weight 150 pounds, height 5 feet and 10 inches; teamster. In jumping from moving train, fell, fracturing both patellas. He was intoxicated at the time. Operated on the ninth day. Kept patient in bed five weeks. Recovery perfect.

CASE XV. Mr. R., age forty, weight 130 pounds, height 5 feet and 9½ inches; good health. Fell from a step ladder, fracturing left patella. Operated on ninth day. Applied ambulatory splint on eighth day following operation. Recovery uneventful, and perfect results.

All of these cases of fractured patella have given perfect results, and there is absolutely no throwing ahead of the leg, as is usual in cases of fractured patella treated by other methods, and resulting in union by a fibrous band with greater or less separation of fragments.

Deductions.—(1) With the advance made in modern surgery, where we do not hesitate to enter the abdominal or cranial cavities (in some cases, even, simply to establish a diagnosis), we surely should not be deterred from operating on fractures by fear of sepsis, and it certainly is unscientific to adopt a blind way when a better presents.

(2) It would be warranted if it did nothing more than to relieve the pain and swelling, which it certainly does.

(3) It shortens the repair process at least one week.

(4) It reduces the chances of deformity and non-union to a minimum.

I consider the ambulatory splint the best dressing for fractures of the leg, as it permits the patient to be up and about, thus avoiding the usual loss of strength, and enabling a great many to attend to portions of their business. In one case where I used the ambulatory splint for a fracture of the tibia, the patient, who owned a grocery and provision store, was enabled to go to the store daily, and to Boston once a week to attend to the buying.

A NEGRO CENTENARIAN. — James Garrison, a negro and former slave, died on March 16th at Richmond Terrace, Staten Island, at an extreme age, commonly reported in the neighborhood as one hundred and twenty-five years, though this is doubtless a considerable exaggeration.

Clinical Department.

MUMPS IN PNEUMONIA; BOROGLYCERIDE.

BY CHARLES W. DULLES, M.D., PHILADELPHIA, PA.

It is a curious but well-known fact that at certain times there occur almost simultaneously a considerable number of cases of forms of disease or injury which are in general quite rare. This has been recently illustrated by the publication by several observers of reports of the development of mumps in the course of pneumonia. The articles in which these cases have been recorded indicate that insufficient mention of this complication, in the text-books, has led to the impression that it is more rare than it actually is. As a matter of fact the occurrence of inflammatory swelling of the salivary glands in the course of pneumonia is spoken of in such really comprehensive works as that of Wilson Fox on "Diseases of the Lungs and Pleura." Still, the publication of recent observations is more likely to put the members of the profession on their guard than its mention in the books. For this reason—and for another—I think it worth while to make public an observation of my own occurring during the winter of 1899–1900. My patient was a woman over eighty years of age, living in a home for aged women in this city, a person of great neatness and careful habits, who contracted a cold and passed at once into a croupous pneumonia affecting the left lung. She became very ill, but after the crisis she began to improve, and eventually she fully recovered. Just after the crisis I found that she had marked swelling of the right parotid gland which presented all the characteristics of mumps; and afterwards the left parotid gland went through precisely the same stages. In this case there was no question of a second infection from without; it was a plain case of autoinfection.

The second motive for this publication, referred to above, is to describe the treatment adopted. On each side successively I applied a fairly thick compress of surgical gauze saturated with boroglyceride and covered with a layer of paraffine paper and just enough bandage to keep it in place. The relief of pain and the subsidence of swelling which promptly followed the application I am disposed to attribute to the boroglyceride. This is an application of the greatest utility in a variety of inflammatory swellings, and especially in the case of incipient boils and carbuncles. In my hands it has wholly replaced the poultice; and since some years ago, when I began to use it where poultices used to be employed, I have not had to apply the knife to either boil or carbuncle. I have also found it useful in inflammatory swellings below but near to the true skin. I have observed recently the extensive advertisement of a special preparation recommended for use in similar cases, which I am informed consists of a mixture of glycerine and talcum powder. If this has proved of value, I believe that it was through the depleting influence of the glycerine; and boroglycer-

ide—of a strength not greater than 50%—I presume would be a more rational and equally useful application.

A BRIEF SUMMARY OF NINE CASES OF LOBAR PNEUMONIA TREATED BY ICE PACK.

BY GEORGE L. COLLINS, M. D.,
House Officer, Carney Hospital.

HAVING in mind the discussion of the treatment of pneumonia in the *Medical Communications of the Massachusetts Medical Society*, Vol. XVIII, it was deemed advisable in the last service of Dr. Wm. F. Temple, at the Carney Hospital, to try the effect of treatment of lobar pneumonia by the continued application of dry cold over the seat of the pulmonary lesion. The cases reported below came under my direct charge during this service. The treatment adopted consisted in the conventional supportive and symptomatic treatment plus the application of dry cold by means of ice-bags.

CASE I. M. H., age sixty-five. Comes in with temperature of 102°, pulse 100, respirations 40. Second day of attack: Pain in left lower chest; cough. Bronchial breathing, prolonged expiration and few fine crepitant râles at left base. Lungs otherwise negative. White count, 21,000. Treatment: Liquid diet, whiskey half ounce every three hours; strychnia, one-sixtieth grain every four hours. Left chest packed with ice-bags below. In one day temperature reached 103.6, and two days later (fifth day of disease) the temperature, pulse and respirations were normal. Signs in chest never showed any increase; never any dullness. Râles cleared up on fifteenth day. This patient was the only one of 9 cases to complain of discomfort of ice-bags. Discharged well on 18th day of disease.

CASE II. C. F., age twenty-three. Comes in on second day of attack. Cough; pain in neck, chest and abdomen, bloody sputum, anorexia, vomiting. Heart enlarged, no murmurs, pulse regular. Expansion of chest limited on left side; left lower lobe shows usual signs of consolidation; only few râles in right chest. Temperature 103°, pulse 120, respirations 46; white count 52,000; urine normal. Treatment: Strychnia, rum, ice pack to left chest. Two days later (fourth day of attack) temperature fell to 99.2°, reached normal a week later. Ice pack omitted on eleventh day of attack. Signs cleared up on fifteenth day. (See diagram.)

CASE III. M. S., age sixteen. Entered on third day of attack. Headache; pain in chest, aggravated by cough and deep inspiration. No expectoration of any account. On entrance nothing found in chest but weak breathing in lower left chest; face flushed, temperature 102.3°; white count 46,000; urine normal with chlorides diminished. Left chest packed with ice about the base on the chances. Two days later (fifth day of attack) distinct and marked signs of consolidation in upper right lobe. Temperature on this day

103°. Ice pack at once changed to this side, and rum and strychnia continued as from entrance. Temperature dropped on this day. Reached normal on eighth day of disease. On thirteenth day of attack dullness almost all cleared up; râles on coughing; slight pleuritic pain in lower right chest. Signs cleared up on seventeenth day. (See diagram.)

CASE IV. M. M., age seven. Entered on third day of attack. Temperature 104°, pulse 130, respirations 40. Pain in left chest, cough; no expectoration, headache, anorexia, constipation, some abdominal pain. Usual signs of dullness, with no râles in left lower lobe. White count, 50,000. Active hyperemia of kidney. Treatment: Whiskey, liquids, strychnia, left lower chest packed in ice. One day later (fourth day of disease) temperature began to fall, and was normal on sixth day. Signs cleared up on fourteenth day.

CASE V. D. M., age sixty. Entered on second day of attack. Cough; dyspnea; slight expectoration, not bloody; constipated; pain in chest; cheeks flushed; white count 10,000; temperature 101°. Treatment: Whiskey, strychnia, ice pack to left chest, where dullness with bronchial breathing and râles were found. Three days later distinct consolidation of right middle lobe with usual signs appeared, with friction rub over lower right lobe. White count 13,000. Left chest now clear. Ice pack changed to right side of chest. Pulse now intermittent. Temperature still about 101°. Two days later (seventh day of attack) temperature rose to 102°, pulse 100, irregular and intermittent, respirations 50. One day later, signs remaining unchanged, patient died.

CASE VI. M. M., age 28. Entered on third day of attack. Chill; pain in right side of chest; vomiting, expectoration greenish; pain made worse by cough and deep inspiration; constipated; now menstruating. Dullness with usual signs over right upper lobe, râles throughout either chest,—moist and bubbling. Question arose whether we were dealing with a pneumonia in state of resolution, or a pneumonia on top of a generalized bronchitis. Ice pack decided on; rum, strychnia. White count 52,000; active hyperemia of kidneys; pneumococci in sputa. Temperature 103.5°, pulse 120; respirations 58. In three days (sixth day of disease) temperature fell to normal, and process in right upper lobe cleared up on tenth day. Râles in either chest persisted until discharge of patient. This patient was exceptionally sick on entrance and for three days after entrance, but she never complained of inconvenience from ice pack. Ice pack was left on six days and removed on ninth day of attack.

CASE VII. C. H., age thirty-eight. Comes in in state of delirium tremens. On spree four days. Dullness with usual signs found in lower left lobe. As near as can be made out this is fourth day of attack. Dyspnea, cough; pain in lower left chest, made worse by cough or deep inspiration. No blood in expectoration. Temperature 103°; white count 17,300. Treatment: Calomel, followed by salts; bromides, chloral, capsicum; ice bags to

left lower chest, whiskey, strychnia. In twenty-four hours temperature fell to about normal (fifth day of attack). Signs in chest practically all gone on twentieth day.

CASE VIII. G. S., age eleven. Entered on second day of attack. No chill; cough; pain in right chest, no expectoration; dullness with usual signs over right upper lobe. Chlorides in urine diminished; white count 23,000; temperature 105°; pulse 123, of poor volume and compressible; respirations 50. Treatment: Rum, strychnia, ice pack to affected lobe. In three days (fourth day

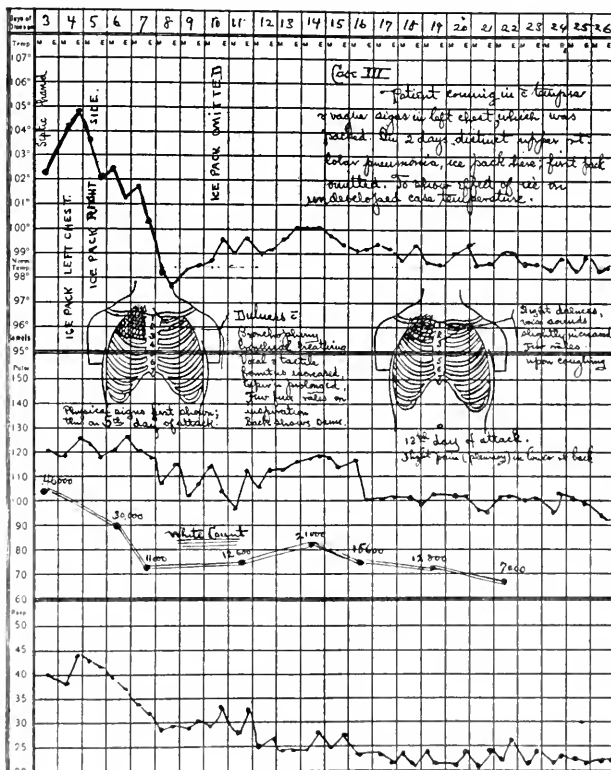
fell on fifth day of attack. Lungs showed only an occasional rale on ninth day.

SUMMARY AND CONCLUSIONS.

In only one case did the ice pack cause discomfort. In no case was the crisis accompanied by dangerous collapse.

The pack has been used to abort cases just beginning (Case I), in cases with well marked signs, and in cases showing resolution.

Contemporary signs of bronchitis were not considered contra-indicatory.



of attack) temperature dropped to normal, and white count dropped to 16,600. On sixth day ice omitted. Signs cleared up by fourteenth day.

CASE IX. G. B., age fourteen. Entered on third day of attack. Pain in right back, vomiting, cough; pain made worse by cough; rusty expectoration. Temperature 103°, pulse 110, respiration 30. Physical examination shows dullness with usual signs over middle lobe, especially in back. White count 34,400. Treatment: Rum, strychnia, ice pack to right chest. Temperature

High temperature (and not physical signs) has been in each case the indication for application of ice. Lowered temperature and not physical signs has been in each case the indication for removal of ice. The average fall in temperature was 4.5°. In all but one case this fall was within forty-eight hours of application of ice. In most cases it was within twenty-four hours. The slowest fall of temperature following ice pack was in Case III, when temperature took five days to fall 7°. This patient was suffering from a septic hand. The

average fall of temperature was 4.5° and took place on the fourth day.

The white count invariably began to fall with the temperature, but reached normal in no less than one week after temperature was normal.

The ice pack apparently had no particular effect in either shortening or prolonging the duration of physical signs. The physical signs cleared up on the fourteenth day.

Medical Progress.

RECENT PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

THE MANAGEMENT AND CONTROL OF INFECTIOUS DISEASES.

The Utility of Isolation Hospitals in Diminishing the Spread of Scarlet Fever.

ATTEMPTS having been made in England to show that isolation hospitals had failed to accomplish the object for which they were intended, Dr. Newsholme¹ contributes a paper in which he shows that, if death rates are to be considered as conclusive, the returns relating to scarlatina "show a strong case for the continued use of the present preventive measures, among which hospital isolation and disinfection claim an important part." He shows that in the period 1850 to 1885 the death rate had been extremely irregular, rising frequently to a very high rate and then sinking to a very low one, as, for example, from 451 per million in 1861 to 1478 per million in 1863, and down again to 546 in 1866. But since 1885 the mean rate had not only been low, but it had been quite uniform and free from extremes from that time to the present. He concludes that "preventive measures, among which hospital isolation holds an important place, have been associated with the remarkable and almost uninterrupted decline in the death rate from this disease."

The reasons which he assigns for the fact that an ideal condition has not yet been attained are briefly the following:

(1) Hospital and home isolation have never been perfectly carried out.

(2) Not only have a considerable proportion of the notified cases remained unisolated, but a considerable proportion of the total cases have not been notified. This is due to various causes, such as failure to call in medical aid in slight or unrecognized cases, errors in diagnosis and neglect to notify. Every additional case notified gives an additional opportunity for preventing the spread of the disease by personal infection; and every such notified case can be made a centre of inquiry leading to the detection of unnotified cases, if sanitary administration be active and intelligent.

(3) The best sanitary administration cannot accomplish everything. There must be hearty co-operation on the part of parents and medi-

cal practitioners, if efforts to secure early diagnosis and early isolation are to be successful. The law is much more regardful of the welfare of cattle than of human-beings. A doctor is not required to notify a case of scarlet fever till he "becomes aware" that it is certainly of this nature, but a farmer must notify each case, and each suspected case of certain cattle diseases.

To suppose that the spread of a disease caused by particulate infective material is not diminished by isolation of infective persons and by destruction of the infective particles, and to suppose further, that the occasional occurrence of "return" cases is more than a small drawback to the good achieved by isolation hospitals, is to strain the facts and to arrive at a conclusion which is contradicted by our general knowledge of the causation of specific febrile diseases.

Duration of Smallpox Immunity at Peking.

Dr. Matignon,² in a communication to the Academy of Medicine, stated the fact that an attack of smallpox in Northern China confers a temporary immunity lasting from seven to nine years. He also says that among Chinese vaccinated children the ratio of success is 79.5% at twelve years of age, 77% at ten years, and 53.3% at eight years, since the majority of children have probably, if not certainly, had smallpox in their early childhood. He has seen 3 positive cases of smallpox occurring a second time in the same person, the victims being two Frenchmen and one Swiss, and while it is proper to take account of the diminution of resistance caused by the fatigue of a long voyage, the severity of the weather, etc., he says the real cause is to be found in the widespread prevalence of smallpox at Peking. At the beginning of spring, one may see upon the streets everywhere Chinese with their faces and hands covered with variculous crusts in a condition of desquamation, at the same time selling embroidery, trinkets, etc. He urges the importance of revaccination immediately upon arriving in China.

Prevention of Tuberculosis.

Dr. Thompson,³ of New South Wales, proposes the following measures for the prevention of tuberculosis: (1) Notification and registration of phthisis. Such registration to be confidential; (2) free examination of sputa; (3) disinfection of rooms obligatory after death or removal of consumptive patients; (4) local registrars to notify every death from phthisis to the health authority as soon as received by them; (5) enforcement of good building laws.

Existence of Tuberculosis at Different Ages.

Nägeli⁴ found at the Pathological Institute of Zurich, as the result of 500 autopsies, no traces of tubercle in 16 infants under one year old, 12 of whom were new born. From two to five years it is rare, but fatal when it occurs. From five to

¹ *Lancet*, med. mod., November 7, 1900, p. 522.

² *Public Health*, January, 1900, p. 248.

³ *Hyg. Rundsch.*, 2, 1901.

⁴ *Journal of Hygiene*, vol. i, No. 1, p. 145, January, 1901.

fourteen, one-third of the bodies showed tubercle. From fourteen to eighteen half the cases were tuberculous. From eighteen to thirty nearly every body showed marks of the disease, but in one-fourth healing had occurred. All the bodies over thirty years of age showed alterations due to tubercle, but in the majority of these the healing process was complete, the proportion of "cures" increasing with the age. It would appear that after thirty years' existence every one (in the neighborhood of Zurich) has been more or less successfully attacked by the *bacillus tuberculosis*, but from the fact that not more than one in six or seven dies of the disease, and that most of these are under thirty, one may conclude that the adult body is, as a rule, well able to resist the attack.

Action of Sunlight on Tubercular Sputum.

Jousset⁵ records some experiments made in order to determine the vitality of *bacillus tuberculosis* in sputum, after exposure to direct and to diffused sunlight.

Dried sputum, after four hours' exposure to diffused sunlight, no longer infected guinea pigs, though the same sputum without such exposure was capable of producing typical tuberculosis on inoculation.

Another specimen of sputum, after an exposure of seven hours to diffused sunlight, produced only a localized tubercular ulcer at the seat of inoculation, without any general infection such as was produced by another portion of the same sputum which had not been exposed.

Sputum, the virulence of which had been tested, was rendered innocuous after drying and exposure to direct sunlight for one hour.

The results show that tubercular sputum when dried in sunlight is either harmless, or, at least, has its virulence attenuated by shorter exposure to sunlight than previous experiments had led us to suppose.

Tuberculosis and Marriage.

Professor Massalongo, of Verona,⁶ indicates certain measures which, in his opinion, should be taken to prevent the production of tuberculous offspring.

Recognizing the infectious character of tuberculosis, he says that while it may not be practicable under present laws and customs to prevent the marriage of tuberculous persons, it may be possible to take such measures as shall diminish the dangers of such marriages.

He advises the widespread publication of information upon the subject of the danger of marriage of tuberculous persons; as well of extremely early marriages; also the necessity, where such marriages occur, of rendering them sterile; of removing from the domestic fireside the offspring of such marriages as a matter of safety, and of keeping careful watch of such children till they have passed the period of puberty.

Diffusion of the Plague.

Not a year has passed since 1879 in which the plague has not developed in at least one country, and the number of countries invaded has increased, until in 1898 it was prevalent in Arabia, Persia, China, Japan, India, Russia, East Africa and Madagascar.

*Destruction of Rats to Prevent the Plague.*⁸

Certain French Navigation Companies have offered bounties to their sailors for rats caught on board the ships. The French Government has also taken up the subject: "If dead rats are found on board ships coming from infected countries they are to be examined bacteriologically; if the plague bacillus is found, the cargo and baggage must be disinfected and the dead rats burned."

*Extraordinary Measures for Preventing the Plague.*⁹

An order was published in Holland, December 28, 1900, prohibiting, (1) the examination of persons or goods for indications of bubonic plague by means of experiments on animals; (2) post-mortem examination of corpses of persons whose death has been due to bubonic plague, or who are suspected of having the disease; (3) the transport of any material that is infected or suspected of being infected with the plague. This order to remain in force one year from date.

The Results of Serum Treatment in Diphtheria.

Siebert¹⁰ of Strasburg has collected the results of 37,000 cases of diphtheria in which operations were performed, with the object of showing the importance of using antitoxin early in the course of the disease and in sufficiently large doses.

His work contains many interesting and extremely valuable tables, in which are presented the results of serum treatment in 69 hospitals in most of the principal cities of Germany, Austria and Switzerland, and 1 Paris hospital. These tables show not only the reduction of fatality of diphtheria under serum treatment, but also the reduction in the fatality of operated cases and in the ratio of operated cases. He selects a period of nine years, 1890-1898, and divides it into three periods: a "fore-serum" period of four years, 1890-1893; an introduction year, 1894, and a "serum" period, 1895-1898.

His first table contains the results of 36,422 operated cases, with 18,336 deaths. Of these cases 17,673 occurred in the fore-serum period with 10,701 deaths, or 60%, while 13,534 occurred in the serum period, or 35.7%. The mortality during the introduction year was 53.7%.

In the second table the general fatality from diphtheria in the fore-serum period was 41.5%

¹ Twenty-eighth Report of Local Government Board Supplement, England. P. 202.

² Rev. d'Hygiene, August, 1899.

³ Official order signed by the queen of Holland, and by the Ministers of Justice, and of the Interior, December 28, 1900.

⁴ E. Siebert: Vier Jahre vor und nach der Einführung der Serumbehandlung der Diphtherie. Berlin. 1900.

⁵ Comptes Rendus de la Société de Biologie, November 2, 1900; II, p. 284.

⁶ Giorn. della R. Soc. Ital. d'Hygiene, August 31, 1900; p. 337.

and that of the serum period was 16.5%. This table embraces the results in 23 hospitals, with a total of 41,917 cases.

Another table presents the ratio of operated cases to all cases treated in 21 hospitals, and shows very plainly that the necessity for operation is diminished under the effects of serum treatment, since the ratio of operated cases in the for-serum period was 47.2% and that of the serum period was only 27.5%. The whole number of cases considered in this table was 40,038.

*The Freeing of Places from Mosquitoes for the Prevention of Malaria.*¹¹

Drs. Fermi and Lumbau contribute a paper detailing the methods employed to rid the city of Sassari, in Northern Sardinia, of mosquitoes. The methods employed consisted mainly of drainage of open, stagnant bodies of water, the treatment of others with petroleum where drainage was impracticable, and the uses of gaseous disinfectants and powders as culicids.

Another article in the same journal details the substances employed for the purpose of destroying mosquitoes.¹²

(To be continued.)

Recent Literature.

Arsenical Poisoning in Beer Drinkers. By T. M. KELYNACK, M.D., and WILLIAM KIRKBY, F.L.S. London: Baillière, Tindall & Cox, 1901.

This book contains a résumé of this important subject, which has been for some time and is still exciting lively interest throughout Great Britain.

The Introductory portion treats of the beginning, extent, duration, and age and sex distribution, together with the discovery of the source of the poison.

The second or clinical portion contains a full description of the symptoms and appearances noted by the authors during a long series of observations. It is quite fully illustrated with photographs showing lesions of the skin, etc. The third part, "Chemical," contains a description of the methods employed for the detection of arsenic in the beer and sugar.

A full bibliographical table is appended to the work.

INTERNATIONAL CONGRESS OF PHYSIOLOGISTS.

The Fifth Triennial International Congress of Physiologists will be held this year at Turin from September 17th to September 23d. The University Institute of Physiology, under direction of Professor Angelo Mosso, will be placed at the disposal of the congress. In connection with the congress an exhibition of apparatus will be open from September 14th to 23d.

¹¹ Ann. d'Igiene Speriment, Rome, 1900, p. 93.

¹² Loc. cit., p. 89.

THE BOSTON Medical and Surgical Journal.

THURSDAY, MARCH 28, 1901

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ARSENIC IN FOOD AND DRINK.

The wide distribution of arsenic in nature as a constituent or impurity of several ores, its common use in the arts for different purposes, and its extremely poisonous character, all tend to make it a dangerous concomitant of the life of human beings.

The recent report ("Epidemic Arsenical Poisoning Attributed to Beer," by Dr. G. S. Buchanan, London, February 7, 1901) of the Local Government Board of England presents an account of the epidemic of arsenical poisoning which has taken place in England, chiefly since November 1, 1900. A communication in the *British Medical Journal* (Letter of Dr. E. S. Reynolds) of November 24, 1900, had called attention to certain cases which had been admitted to the Workhouse Infirmary of Manchester, and also in other institutions. The disease was characterized by paralysis, wasting of certain muscles, and loss of function in certain sensory nerves. After careful clinical study, Dr. Reynolds, who reported the cases, concluded that he was dealing with arsenical poisoning. Soon afterward Dr. Tattersall, of Salford, noticed an increase in the number of cases and deaths from peripheral neuritis occurring in his neighborhood. In 18 cities and towns visited by Dr. Buchanan, under the direction of the Local Government Board, cases of the same nature had occurred to the number of nearly 4,000. Further inquiry showed that the persons affected were generally beer drinkers, and the beer, on analysis, was found to contain arsenic. The invert sugar or glucose used in making this beer was made at one factory, that of Bostock & Co., near Liverpool.

The clinical appearances presented two types, an "alcoholic type" in which the symptoms were essentially those of peripheral neuritis, not accompanied with other manifestations enabling the disease to be differentiated from what it has been

customary to term "alcoholic peripheral neuritis;" also an "arsenical type" in which the main symptoms were diverse affections of the skin—for example, erythematata, herpes, pigmentation etc.—which are seldom known to be associated with "alcoholic peripheral neuritis," but are met with frequently in cases of sub-acute or chronic poisoning resulting from ingestion of arsenious acid. Another point frequently noted was the absence of any of the symptoms of gastric and intestinal disturbances commonly attributed to arsenical poisoning. It was found to be impossible to state exactly the number of deaths which were due to this cause, in consequence of the indefinite character of the symptoms. In Manchester alone, 36 deaths were attributed to arsenic poisoning between November 25, 1900, and January 10, 1901. Of these, 23 were women and 13 were men. The amount of beer used by the sufferers varied from a pint to two gallons per day. Many drank a gallon each, daily. Samples of glucose obtained from the factory of Bostock & Co. were found to contain from .02% to .05% of arsenious acid. The glucose was made by treating Indian corn or sago starch with sulphuric acid. The source of the arsenic appears to have been the pyrites from which the sulphuric acid was made.

According to the *Sanitary Record* of February 21st, this incident has entailed a serious loss to the brewers of Manchester and other cities, since hundreds of gallons of arsenical beer were poured into the sewers. The loss also falls heavily on Bostock & Co., since they have left on their hands sugar valued at half a million dollars, contaminated with arsenic, beside the possibility of heavy demands for damages.

Examinations of the beer which was believed to be the cause of the epidemic showed quantities of arsenious acid varying from $\frac{1}{10}$ grain to $1\frac{1}{2}$ grains per gallon.

Early in December the Manchester Brewers' Association recommended the adoption of the following precautions:

That all beer in which any sugar bought of Bostock & Co. had been used should be recalled, and destroyed if found to contain arsenic; that no beer should be sent out until it had been tested and found to be free from arsenic; that a certificate of freedom from arsenic should be given for beer which had been tested for arsenic, and that only such should be sold.

Another source of arsenic in beer is suggested by Mr. Wm. Thompson. (In a paper in the *Journal of the Society of Arts*, of February 15, 1901). The malted barley used for making the beer, after being soaked in water till it begins to sprout, is dried over fires of coke or anthracite coal, the fumes of which, passing over the grain, deposit arsenic from the fuel thus used. Out of

62 samples of malt which Mr. Thompson examined, all except 7 contained appreciable amounts of arsenic, varying from $\frac{1}{2000}$ grain per pound to as much as $\frac{1}{7}$ grain. He also found arsenic in 5 samples of hops and in 7 samples of yeast. Mr. Thompson also found arsenic in 8 samples of glucose, in one sample of caramel, in one of common salt, in one sample of phosphate of soda, and in one sample of nitrate of soda.

Certain tables appended to this English report would appear to confirm the suspicion that arsenical poisoning from beer had been going on for some years past. Deaths had been certified in Manchester which might have been construed as due to arsenic, to the number of 269 in 1896, 246 in 1897, 224 in 1898, 228 in 1899, and 340 in 1900.

The question of legislation having for its object the restriction of the use of arsenic in the manufacture and sale of wall papers and of textile fabrics has been brought to the attention of the Legislature of Massachusetts several times since 1872. All of the early attempts, however, were vigorously opposed by manufacturers. The writer recalls one instance in which a noted chemist from another State, who had published in a well-known encyclopedia a statement of his belief in the serious danger from certain uses of arsenic, when called before the legislative committee at the request of certain manufacturers was for some reason induced to retract his former published statement. In 1900, however, with scarcely any opposition, a law was enacted providing that dress goods or articles of dress should not be manufactured or sold in the State if they contained over $\frac{1}{100}$ grain per square yard, the limit for other materials being $\frac{1}{10}$ grain per square yard.

While the foregoing law does not apply to articles of food or drink, the analytical work in the State laboratory, which the enactment of this law has necessitated, has also given unusual opportunity to examine certain articles of food and certain drugs which were suspected of containing arsenic. The samples of glucose which were examined contained mere traces of arsenic, the quantity not being appreciable. The samples of beer examined were also practically free from arsenic. Out of 173 samples of glycerine examined, most of which were of American manufacture, 115 contained arsenic, from a trace up to 8 parts per 100,000. Out of 26 samples of phosphate of soda examined, 13 contained arsenic and one of these contained the dangerous amount of .05%, or 50 parts per 100,000. It is evidently a matter of importance that these articles, which are used internally, should be entirely free from arsenic, and the fact that many samples obtained were found to be free from this dangerous impurity shows that all can be made in the same manner by observing proper care in manufacture.

ASSOCIATE MEMBERSHIP IN THE BOSTON MEDICAL LIBRARY.

On page 316 of this issue will be found the Amendments to the By-laws of the Boston Medical Library, which were made at the meeting held on Tuesday of this week. As the real significance of these changes may not be apparent at first sight, we desire to call to the attention of our readers their object.

The essential feature is that which provides for the creation of a class of associate members for whom the annual assessment shall be one-half of that paid by the active members. This new class of members is open only to young men who have received their medical degree within five years, or to those who live outside the limits of Old Boston or those parts of Roxbury now included in the Suffolk District of the Massachusetts Medical Society.

The expenses of running the Library have naturally been greater in its new building. As was expected it was found to be necessary to increase the annual assessment to ten dollars. The members of the Library have cheerfully paid this increased amount and have felt that the improved facilities and attractions of the new building amply justified the increased expense. The financial support of the Library is therefore assured. It has been felt, however, that the growth of the library membership would be very much hindered by the increased assessment.

The gain in new members must come chiefly from the young men just entering practice and from those living outside the city limits. Men of these two classes would naturally hesitate to join the Library and to commit themselves to the yearly payment of ten dollars. To the younger men this would be a heavy burden, while those living out of town would feel that they would not use the Library enough to justify this outlay. By the creation of a class of associate members with a five-dollar assessment, it is believed that many will avail themselves of the advantages which the Library offers, who would otherwise feel themselves debarred.

The Library building was erected in chief part by the personal sacrifices of the physicians in and around Boston. They felt that a new building meant new members and wider spheres of influence for the Library.

 MEDICAL NOTES.

PHYSICIANS IN CANADIAN PARLIAMENT.—According to the *Medical Record*, eighteen doctors have been elected members of the new Dominion Parliament. Among the few conservatives who escaped the landslide, it is a gratification to see

the name of Dr. Roddick. It would have been a distinct loss to the medical profession of Canada had he been defeated, especially when the efforts to establish a licensing board for the Dominion are within a reasonable distance of success. Dr. Roddick has given much time, and has shown energy and ability in overcoming the difficulties in the way of this scheme, and has rendered a public service in the interests of not only the medical profession but the community at large, deserving the highest praise.

WILLS HOSPITAL OPHTHALMIC SOCIETY.—The members of the Staff of Wills Hospital of Philadelphia have formed themselves into an association known as the Wills Hospital Ophthalmic Society. The object of the association is to "promote the scientific usefulness of the institution by the discussion of papers and the exhibition of patients who have been under the care of the members of the attending staff." Meetings will be held twice a month, and reports of the proceedings will be published.

MARRIAGE REFORM LAW IN MINNESOTA.—The State Senate has recently reconsidered and finally passed a bill prohibiting the marriage of insane, epileptic and idiotic persons and requiring a medical certificate of all applicants for marriage licenses. Amendments to the bill as first introduced were adopted, thereby permitting the marriage of feeble-minded persons over forty-five years of age, either man or woman. The bill is reported to have passed by a vote of 34 to 17.

A SAVING OF LIVESTOCK.—It is reported from Washington, through the Department of Agriculture, that over \$6,000,000 worth of young animals were saved during 1900 by the prompt application of remedial measures for blackleg. Over 2,500,000 doses of the vaccine were distributed by the Department during the year.

DEATH OF PROFESSOR MANASSEIN.—It is announced that Professor Manassein, the founder and for many years the editor of the well known Russian medical journal, *Vratch*, is dead at the age of 60.

PLAGUE IN WEST AUSTRALIA.—It is reported by the governor of West Australia that a white man and a Chinaman have died of bubonic plague. There is no reason to fear a spread of the disease.

HOSPITAL FOR TUBERCULOSIS IN WISCONSIN.—A bill is before the legislature of Wisconsin, to provide a hospital for the care of incipient cases of tuberculosis.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, March 27, 1901, there were reported to the Board of Health of Boston

the following cases of acute infectious diseases: diphtheria 89, scarlatina 39, measles 95, typhoid fever 5.

SCARLET FEVER AT KEENE, N. H.—The scarlet fever situation in Keene and vicinity is said to be improving. There have been several new cases, but the number of deaths is growing smaller. Five deaths occurred in Keene and in Swanzy last week, and new cases were reported, but no deaths have occurred for two days. Eleven of the new cases are in families hitherto free from the disease.

PRECAUTIONS AGAINST SMALLPOX.—Owing to the appearance of a case of smallpox in Digby, Nova Scotia, the Boston Board of Health has had the crew of the steamer *Boston*, running from Yarmouth to this port, vaccinated. The crew of the Dominion Atlantic Line steamer, *Prince George*, were vaccinated at Yarmouth. No apprehension is felt of the introduction of the disease from this source.

AWARD OF BOYLSTON PRIZE FOR 1901.—It is officially announced that the Boylston prize for this year has been awarded to Howard Crawley, S.B., of Cambridge, for an essay on "Histological Changes Occurring in the Intestinal Cells of the Newt during the Absorption of Fat."

NEW YORK.

A NEW LYING-IN HOSPITAL.—The Attorney General of the State has approved the certificate of incorporation of a new lying-in institution, to be known as the Manhattan Maternity Hospital and Dispensary, particularly designed for severe and complicated cases, with facilities for carrying on a large tenement house midwifery service. An amount of money has been contributed by an anonymous benefactor sufficient for the purchase of a suitable plot of land, the erection and equipment of the hospital building, and a partial endowment for a term of years. It is understood that Dr. J. Clifton Edgar, professor of obstetrics in the medical department of Cornell University, has been mainly instrumental in organizing the Maternity, and that it is to be located in the upper east side of Manhattan.

DYNAMITE EXPLOSION IN RAPID TRANSIT TUNNEL.—A very severe dynamite explosion occurred on March 21st at 181st Street and Broadway, in the Rapid Transit tunnel now being constructed, which injured four workmen, and might have destroyed the lives of forty but for the prompt action of Engineer John Mullen, who with great presence of mind immediately started the air compressors, which drove out the suffocating dynamite fumes and supplied fresh air until the men could be rescued. For over half an hour they were lying

face downward in the tunnel, breathing the fresh air thus furnished them. The shaft at this point is 131 feet deep.

QUALIFICATIONS OF PRESIDENT OF STATE COMMISSION IN LUNACY.—Governor Odell has signed the bill, recently passed by the Legislature, providing that the president of the State Commission in Lunacy shall be a physician of ten years' experience, who has had five years' experience in the treatment of mental and nervous diseases, or two years' experience in the treatment of committed insane.

TWO CENTENARIANS.—Martin Dyer died in New York on March 3d, at the age of one hundred and one years. He was born in Ireland, November 24, 1800, and came to America in 1835. His descendants number 40 grandchildren and 110 great-grandchildren. Mrs. Harriet Matteson has recently died at Dunkirk, N. Y., at the reputed age of one hundred and four.

RESIGNATION OF FRANCIS DELAFIELD, M.D.—Dr. Francis Delafield, who has been the honored incumbent for many years, has resigned the chair of practice of medicine in the College of Physicians and Surgeons, and Dr. Walter B. James, one of the instructors in general diagnosis, has been appointed to the position.

MIDDLETON GOLDSMITH LECTURE.—The Middleton Goldsmith Lecture, for 1901, the full text of which is given in this issue, was delivered March 26th by Prof. Charles S. Minot, of the Harvard Medical School, on the subject, "The Embryological Basis of Pathology."

AMENDMENTS TO BY-LAWS OF BOSTON MEDICAL LIBRARY.

The following amendments to the By-Laws of the Boston Medical Library were made at a special meeting Tuesday, March 26, 1901:

Wherever the word "Association" occurs in the By-Laws it shall be omitted and the word "Library" inserted.

Amend Article XIII, so that it shall read as follows:—

The Membership of the Library shall consist of Active Members, Associate Members, and Life Members.

Any member of the Massachusetts Medical Society, Massachusetts Dental Society, Massachusetts College of Pharmacy, and such other person as may, on application, be approved by the Executive Committee, may become an active member by enrolling his name in the list of active members at the Library and paying the assessment for the current year.

Any person eligible to active membership, provided that not more than five years have elapsed since he received his medical degree, may become an associate member for all or any part of the said term of five years by enrolling his name in the list of associate members at the Library and paying one-half the assessment for active members yearly.

Any person eligible to active membership, provided he live outside the limits of Old Boston or that part of Roxbury now included in the Suffolk District of the Massachusetts Medical Society, may become an associate member by enrolling his name in the list of associate members at the Library and paying one-half the assessment for active members for the current year.

Associate members shall have all the privileges of active membership except the right to vote or to borrow books from the Library.

Any active or associate member, or any person eligible to active membership may, by the payment of \$150 at any one time, become a life member, and be thenceforth exempt from payment of the annual assessment. Life members shall have all the privileges enjoyed by active members except that they shall not be allowed to vote on the question of the amount of the annual assessment.

All money which shall be received for life memberships shall be invested by the Treasurer, and only the income thereof shall be employed for the uses of the Library.

Amend Article XIV, so that it shall read:—

The annual assessment for active members shall be such as is directed by vote of the active members at the annual meeting, and shall be payable in advance.

THE RIGHT TO WILL ONE'S BODY FOR SCIENTIFIC INVESTIGATION.

THE *New York Medical Journal* comments as follows on a recent ruling of the Supreme Court of California: "The Supreme Court of California, in the case of *Enos versus Snyder*, has laid down a ruling, the results of which appear to us to be very regrettable from a scientific point of view. It has decided, in a contest between next of kin, on the one hand, and claimants under a will, on the other hand, for the possession of a corpse, that a man cannot by will dispose of that which, after his death, will be his corpse. The custody of the corpse and the right of burial belong to the next of kin in preference to the administrator. This view is based on the fact that the general English and American legal authorities establish the rule that, in the absence of statutory provisions, there is no property in a dead body. If this ruling is correct, the sooner statutory provisions are obtained enabling a man who feels that a great benefit to humanity will accrue, through increase of medical knowledge, by the continuance post mortem of an investigation into his case, or that new light may be shed upon anthropological, psychological, or other scientific problems, to authorize by will such use of his corpse, the better. We commend this subject to the consideration of the Medico-Legal Society."

Correspondence.

NOTES ON X-LIGHT: THE CONTROL GUINEA PIGS.

MR. EDITOR:—In this journal for February 14th I showed that x-light could kill. That an invisible radiation of which none of our senses make us conscious should be able to produce death, leaving no sign to the eye, is one of the most remarkable facts in the domain of medicine, and full of promise for therapeutics.

These experiments were published chiefly because: (1) in them for the first time the participation of electricity in the results was certainly excluded; (2) they were the first that proved that x-light could act below the surface of the body; (3) they showed that x-light had the power to profoundly affect the life processes. As the experiments have been doubted, the deaths being attributed to other causes, I report the condition of the control guinea pigs. These were kept in the same pen with those exposed to x-light. All were given the same food and care. I took entire charge of the animals during the whole of all the investigations, that nothing might escape my observation. Some of the control guinea pigs gave birth to young that have now reached the adult stage. No death or visible sickness has occurred except in those exposed to x-light. If activity, appetite, fine coats and bright eyes are signs of health, these control animals are well. My chief object in these investigations was this: A friend had been operated on for cancer, which I expected would return. As no second operation would have been practical, I desired to know whether x-light could be used to affect cell growth in the interior of the body; and if it could, whether the results could be accomplished without danger of burning. The experiments cause me to believe that internal cancers beyond the reach of the knife will be favorably affected by x-light. There is no more important investigation in the realm of medicine than the study of the effects of x-light on internal cancer.

Very truly yours,

WILLIAM ROLLINS.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, MARCH 16, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.	
New York . .	3,487,292	1,459	432	24.87	20.41	1.99	.69	3.97	
Chicago . .	1,688,575	—	—	—	—	—	—	—	
Philadelphia .	1,293,697	526	122	21.28	14.63	1.71	.57	1.71	
St. Louis . .	575,238	—	—	—	—	—	—	—	
Baltimore . .	508,957	214	71	18.68	20.55	—	—	1.86	
Cleveland . .	381,768	—	—	—	—	—	—	—	
Buffalo . .	352,387	—	—	—	—	—	—	—	
Cincinnati . .	325,962	—	—	—	—	—	—	—	
Pittsburg . .	321,016	125	39	25.60	18.40	2.40	7.20	.80	
Washington .	278,718	—	—	—	—	—	—	—	
Milwaukee . .	285,315	—	—	—	—	—	—	—	
Providence . .	175,097	92	25	21.80	22.89	—	1.09	2.18	
Boston . .	560,892	238	77	18.06	25.29	2.10	—	5.46	
Worcester . .	118,424	40	16	18.75	37.50	—	—	—	
River River .	104,863	13	—	49.20	30.75	—	6.15	—	
Lowell . .	94,969	30	9	23.31	23.31	—	6.67	—	
Cambridge . .	91,886	29	6	13.80	6.50	—	—	—	
Lynn . .	68,813	14	4	7.14	21.42	—	—	—	
Lawrence . .	62,559	20	8	10.00	30.00	—	—	—	
New Bedford .	62,442	27	6	3.70	3.70	—	—	—	
Springfield .	62,059	28	11	3.57	21.42	—	—	—	
Somerville . .	61,643	16	4	7.14	21.42	—	—	6.25	
Holyoke . .	45,712	12	9	24.99	33.33	—	—	16.66	
Brookton . .	40,063	8	2	12.50	25.00	12.50	—	—	
Haverhill . .	37,175	8	—	12.50	50.00	—	—	—	
Salem . .	35,656	11	5	18.18	9.09	—	—	9.09	
Chelsea . .	34,972	15	2	6.67	6.67	—	—	—	
Malden . .	33,664	19	6	10.52	26.30	—	—	—	
Newton . .	33,587	11	4	9.09	9.09	—	—	—	
Fitchburg . .	31,531	12	5	16.67	16.67	—	—	8.33	
Taunton . .	31,036	—	—	—	—	—	—	15.38	
Gloucester . .	26,121	5	3	20.00	—	—	—	—	
Everett . .	24,536	14	4	21.42	7.14	—	—	—	
North Adams .	24,200	9	4	11.18	9.09	—	—	—	
Quincy . .	23,899	7	1	14.28	42.84	—	—	—	
Waltham . .	23,481	10	2	20.00	10.00	—	—	—	
Pittsfield . .	21,766	4	—	75.00	25.00	—	—	50.00	
Brookline . .	19,935	8	—	—	16.67	—	—	—	
Chicopee . .	19,167	7	4	14.28	14.28	—	—	—	
Medford . .	18,244	4	2	—	—	—	—	—	
Newburyport .	14,478	13	4	7.69	15.38	—	7.69	—	
Melrose . .	12,962	—	—	—	—	—	—	—	

Deaths reported 3,062; under five years of age 889; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whoop-

ing cough, erysipelas, fevers and consumption) 667, acute lung diseases 603, smallpox 6, measles 12, diphtheria and croup 94, cerebro-spinal meningitis 29, diarrheal diseases 49, whooping cough 20, erysipelas 19, consumption 367, scarlet fever 47, typhoid fever 37.

From whooping cough, New York, 5, Baltimore, 3, Pittsburgh, 3, Philadelphia, 2, Providence, Boston, Worcester, Chelsea, Malden, Chicopee and Springfield, 1 each. From cerebro-spinal meningitis New York, 5, Baltimore, 3, Boston, 2, Somerville, 2, Pittsburgh, Providence, Lowell, Gloucester, Everett, North Adams, Clinton, and Fitchburg, 1 each. Measles, New York, 6, Pittsburgh, 3, Boston, 2, Lawrence, 1. From scarlet fever, New York, 29, Philadelphia, 9, Pittsburgh, 3, Boston, 5, Brockton, 1. From typhoid fever, New York, 10, Pittsburgh, 9, Philadelphia, 3, Providence, 1, Lowell, 2, Fall River and Newburyport, 1 each. From smallpox, 6 cases in New York City.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,000, for the week ending March 24, the death rate was 215. Deaths reported, 4,838; acute diseases of the respiratory organs, (London) 501, whooping cough 129, diphtheria 62, measles 109, fever 25, diarrheal 47, scarlet fever 23.

The death rates ranged from 14.1 in Oldham to 38.2, in Plymouth, Birkenhead, 22.7, Birmingham, 21.4, Blackburn, 21.7, Bolton, 19.1, Bradford, 19.1, Brighton, 19.2, Bristol, 24.7, Cardiff, 19.8, Croydon, 15.5, Derby, 18.1, Halifax, 25.4, Hull, 22.3, Leeds, 22.2, Leicester, 13.9, Liverpool, 3.10, London, 29.9, Manchester, 22.8, Norwich, 17.0, Nottingham, 22.0, Portsmouth, 21.2, Preston, 16.1, Salford, 22.6, Swansea, 21.3, West Ham, 16.9, Wolverhampton, 26.0.

METEOROLOGICAL RECORD.

For the week ending March 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Baro-	Ther-	Relative		Direction		Velocity		Wet'h'r		Rainfall		
	meter	mo-mer.	humidity		of wind.		of Wind.		* in inches.				
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.	
S., 10	30.38	34	20	30	79	68	74	N.E.	E.	18	21	O.	.91
M., 11	29.61	40	48	32	63	39	56	E.	N.W.	24	14	R.	.04
T., 12	29.65	38	42	34	67	71	70	W.	W.	29	14	O.	.01
W., 13	29.96	37	43	31	61	66	68	N.W.	E.	16	6	O.	.01
T., 14	29.92	34	38	31	61	59	60	N.E.	E.	12	4	N.	.14
F., 15	29.82	32	35	30	58	59	58	N.	N.E.	6	5	O.	.01
S., 16	29.90	34	38	31	63	59	61	N.	N.W.	6	6	O.	.01
☾ 17*	29.88	40	31		78								

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☾ 17* Mean for week.

SOCIETY NOTICES.

SURGICAL SECTION OF THE SPOKANE DISTRICT MEDICAL SOCIETY.—The Surgical Section will meet at the Medical Library, Number 8, The Fenway, on Wednesday evening, April 5, 1901, at 8.15 o'clock.

Papers: "A Case of Fracture of Cervical Vertebra. Operation. Recovery."

"A Case of Hemorrhage from the Middle Meningeal Artery. Operation. Recovery." Both cases reported by Dr. S. J. Mixer.

"Two Cases of Operation for Ruptured Aneurism of the Abdominal Aorta." By Dr. J. C. Munro.

"A Case of Intussusception in a Girl of Sixteen." By Dr. F. G. Balch.

F. G. BALCH, M.D., Secretary,
279 Chardon Street.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the society will be held in Sprague Hall, Medical Library Building, Fenway, on Monday, April 1st, at 8.15 P.M. Subject, "Inebriety." By Dr. V. A. Ellsworth. "Treatment of Delirium Tremens."

To take part in the discussion: Dr. J. Frank Perry, Dr. Charles E. Woodbury, Dr. Owen Copp, Dr. H. G. Beyer, Dr. George A. Sargent, Dr. F. M. Johnson, Dr. Charles F. Folsom and others.

ARTHUR K. STONE, M.D., Secretary,
657 Boylston Street.

AMERICAN SURGICAL ASSOCIATION.—The American Surgical Association will hold its annual meeting at Baltimore, Maryland, May 7, 8, 9, 1901.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.—The American Association of Pathologists and Bacteriologists will hold its first Annual Meeting in Boston, April 5, 6, 1901.

AMERICAN LARYNGOLOGICAL ASSOCIATION.—The Twenty-third annual meeting of the Association will be held at New Haven, Conn., Monday, Tuesday and Wednesday, May 27, 28, 29, 1901, under the presidency of Dr. Henry L. Swain, of New Haven.

RECENT DEATHS.

DR. JOHN SARGENT, the oldest physician in Jefferson County, died March 19th, at his home in Woodville, N. Y., at the age of eighty-seven.

DR. G. W. C. WREN, aged twenty-seven years, of the house-staff of St. Vincent's Hospital, New York, died in the hospital on March 23d, of typhoid fever.

DR. HUGO A. LEVISON, a promising young New York physician, died on March 17. He was graduated from the College of Physicians and Surgeons, New York, and afterwards pursued a course of post-graduate study in Europe. At the time of his death he was connected with the Vanderbilt Clinic, the West Side German Dispensary, and the outdoor department of Roosevelt Hospital.

BOOKS AND PAMPHLETS RECEIVED.

Tuberculosis in Pennsylvania. Guy Hinsdale, A.M., M.D., Philadelphia.

Surgical Operations in Hospitals for the Insane. By William Mabon, M.D. Reprint, 1900.

Contribution to the Therapy of Encephalocele. By Carl Beck, M.D., New York. Reprint, 1900.

Transactions of the American Climatological Association for the Year 1900. Vol. XVI. Philadelphia. 1900.

Two Hundred and Thirty-seven Consecutive Abdominal Sections. By Charles Gilbert Davis, M.D., Chicago. Reprint.

The Circulation in the Nervous System. By Herman Gasser, M.D., Platteville, Wisconsin. Journal Publishing Co., 1901.

Tuberculosis, and How to Combat It. Prize Essay. By S. A. Knopf, M.D., New York. New York: M. Fiestack. 1901.

Case of Gastric Carcinoma, Treated Successfully with Platinic Chloride. By John Murray, M.D., Carbon Hill, Ill. Reprint.

Hypnotism and Suggestion. In Therapeutics, Education and Reform. By R. Osmond Mason, A.M., M.D. New York: Henry Holt & Co., 1901.

Chloroform. A Manual for Students and Practitioners. By Edward Laurie, M. B., Edin., M.R.C.S., Eng. London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co., 1901.

Diet and Food, Considered in Relation to Strength and Power of Endurance, Training and Athletics. By Alexander Haig, M.A., M.D., Oxon., F.R.C.P. Third edition, illustrated. Philadelphia: P. Blakiston's Son & Co., 1901.

Hypnotism. A Complete System of Method, Application and Use, Prepared for the Self-Instruction of the Medical Profession. By L. W. DeLawrence, Instructor at the School of Hypnotism, etc., Pittsburg. Illustrated. The Henneberry Co., 1901.

A Manual of Practical Hygiene for Students, Physicians and Medical Officers. By Charles Harrington, M.D., Assistant Professor of Hygiene in Medical School of Harvard University. Illustrated. Philadelphia and New York: Lea Brothers & Co., 1901.

Aix-la-Chapelle (achen) as a Health Resort. By Drs. Alexander Reissel, Brandis, Goldstein, Mayer, Kelenker, Schunmücher and Thissen, of Aix-la-Chapelle. English edition translated with the sanction of the Civic Authorities. By James Donelan, M.B., M.C.H., B.A.O. Second print. London: J. & A. Churchill, 1899.

Original Articles.

DISEASES OF THE MYOCARDIUM.¹

BY HENRY JACKSON, M.D., BOSTON,

Assistant Visiting Physician, Boston City Hospital.

DISEASES of the heart may be broadly classified as dependent upon pathological changes in the valves of the heart, or in the muscular substance of the heart, and I wish this evening to draw your attention to the latter class of cases. We find by post-mortem examination that a pretty large number of cases, in which, during life, there have been various signs of improper or insufficient action of the heart, show no evidence of valvular lesion to account for the disturbance in the functions of the heart. Many so-called "cardiac cases," presenting during life all the signs of heart disease, show no valvular lesion, and the primary cause of the disturbance may lie far removed from the heart.

Further, in all forms of acute infectious disease, though more markedly in some, as diphtheria and typhoid fever, than in others, degeneration of the heart muscle may lead to weakness of the action of the heart, a symptom which in the individual case may far outweigh in importance any symptoms directly dependent upon the specific disease which has caused the heart failure. But this evening we wish to speak of chronic forms of disease of the myocardium which give rise to a train of symptoms properly spoken of as heart disease.

We recognize still more the value of an accurate diagnosis as to the condition of the muscular portion of the heart, when we consider that in the majority of cases valvular disease of the heart becomes of importance to the individual affected only when and in so far as the myocardium is affected, and the conservative hypertrophy, compensation, gives way to the condition known as non-compensation. Exceptions to this general rule occur, of course, in acute malignant valvular disease, and in disease of the valves which causes a roughening of the surface, which may form the nidus for the formation of emboli of dangerous import to the patient. Valvular disease in itself may exist for years without giving rise to symptoms which endanger the health or life of the patient; whereas dilatation of the heart, accompanied by irregular or intermittent action, indicates that the health of the patient is seriously impaired, whether the disturbance is dependent upon some long-standing valvular lesion or upon some pathological process outside of the heart. In the latter instance the patient has already reached the danger line, and in order to enable the patient to carry on his usual work we must, by appropriate treatment, strengthen the heart so that the weakened muscle may be able to carry on its work.

Disease of the myocardium does not receive in our textbooks the important consideration which it deserves, this branch of heart disease being

summarily despatched, while many chapters are written on the accurate differential diagnosis of the various valvular lesions, and this, too, when we know that the diagnosis is not seldom proved to be wrong by the pathologist.

Even in the consideration of a case of valvular disease the important points in the treatment and management of the individual case are not, What is the lesion? but, what effect has that lesion produced upon the heart itself, namely, the size of the heart? Is hypertrophy or dilatation the leading factor in causing enlargement of the heart? Is the action regular, and what is the character of the pulse wave?

The discovery of the probable existence of an organic valvular lesion must, of course, indicate to us that rigid rules are to be defined as to the course of life to be followed by our patient; but this fact in itself by no means proves that the patient must consider himself as an invalid or even withdraw from his usual active and, perhaps, arduous labors. Further, we must bear in mind that the existence of a murmur does not necessarily imply the presence of an organic valvular lesion. In the first place we have the many instances of the so-called "hemic" or functional murmurs. These cases form a large class in the individuals who consult us for heart trouble, in that, in anemic persons especially, we see so prominently dyspnea, palpitation, cardiac pain and rapidity of action—all symptoms associated in the mind of the laity with heart disease, and too often in the mind of physicians. In such cases, careful diagnosis as to the size of the heart, and proof that the heart is capable of doing a proper or sufficient amount of work, show us that the alarming symptoms are dependent upon some functional disturbance of the heart, and not upon organic disease of the valves or myocardium.

In the second place, murmurs are frequently heard in disease of the myocardium where no valvular lesions are found post mortem; this applies, in my experience, to murmurs heard in the mitral and tricuspid areas. The murmurs heard in such cases are not comparable to hemic murmurs, in that they indicate a real regurgitation dependent upon non-closure of the valves, but the failure of the valves to close is dependent upon a relative insufficiency of the valves; with the dilatation of the ventricle, the ring of the valvular orifice is enlarged, and the valve curtains that formerly sufficed to close the opening are no longer capable of meeting across the enlarged area, and so a leak occurs.

Therefore, in the consideration of a case of heart disease, two prominent facts should always be before us: (1) That heart disease does not mean valvular disease, and (2) that murmurs evidently pathognomonic of regurgitation do not prove the existence of organic disease of the valve curtains.

Pathologically, diseases of the myocardium may be classified under the following heads: (1) Disturbance of the circulation; (2) inflammatory processes; (3) degeneration; (4) various new

¹ Read before the Boston Society for Medical Improvement, February 4, 1901.

formations—tumors; (5) hypertrophy and dilatation.

I intend this evening to speak only of the changes which give rise to symptoms which produce the clinical picture of "heart disease."

(1) *Disturbances of the circulation.*—Local anemia, dependent upon stoppage of one of the branches of the coronary arteries, is always of serious import in that these are terminal arteries. The usual pathological cause is sclerosis, calcification and thrombosis, this being the natural sequence of events. If the disturbance takes place near the beginning of the artery, large areas may be affected and sudden death may occur. Where sudden death occurs without other demonstrable cause, it is always important to examine with care the coronary arteries in search of embolism or thrombosis. If the closure be more gradual, and the artery affected of smaller size, we have as the result a gradual degeneration of the muscles supplied by that artery, and the formation of a fibrous tissue which in time causes a weakness of the heart wall, and may lead to the so-called aneurism of the heart substance. If the closure be sudden of the smaller branches, we may have acute softening of the heart muscle and rupture. I have seen, in consultation, a lady who was suddenly awakened at night by a sharp pain in the cardiac area. When I saw her the next day there was much pain, a weak, irregular heart action, with feeble pulse; only a portion of the cardiac beats produced a pulsation at the wrist. Three days later she died suddenly, and the pericardium was found filled with blood; the heart was ruptured in two places, and there was found a complete stoppage of the left coronary artery.

Again we may have, as the result of embolism or thrombosis of the smaller branches of the coronary arteries, the formation of a hemorrhagic infarction, which in turn may be absorbed and give rise to a chronic localized myocarditis, with the formation of cicatricial tissue in place of the destroyed muscular tissue, this being one of the causes of aneurism of the heart. Such cases have been admitted to my wards with all the signs and symptoms of chronic heart disease.

(2) *Inflammatory processes.*—In acute parenchymatous disease we find the pathological cause of the disturbance associated with many acute infections diseases. Purulent myocarditis may be dependent upon the ordinary pus-producing bacteria, as seen in sepsis, or may be due to the gonococcus, as in a unique case reported by Dr. Councilman, in which sudden death occurred from rupture of the heart. Chronic fibrous myocarditis may lead to a gradual weakening of the heart by the replacing of the muscular substance by the newly formed fibrous tissue; the essential cause of such a process usually lies in sclerosis of the coronary arteries, as already described.

(3) *Degeneration.*—Under the head of what Orth calls "regressive disturbance of nutrition," we place simple atrophy and brown atrophy, pathological processes which possess but little clinical interest. Of great importance is fatty degenera-

tion, a condition usually found to a greater or less degree on microscopic examination of all cases of dilatation of the heart.

(4) *Tumors.*—Tumors may be varied, but are rare, and when present do not usually give a picture of chronic heart disease, with the single exception of gummata; cases of syphilis of the heart have come under my notice in individual practice or consultation, which presented the usual symptoms of heart disease.

(5) *Hypertrophy and dilatation.*—The conditions just mentioned are those which may, and occasionally do, give rise to symptoms classified as "cardiac," presenting a picture of heart disease, broadly speaking; but under the pathological classification of hypertrophy and dilatation we find the vast number of cases which during life have presented all the classical features of heart disease—dyspnea, edema, weak and rapid pulse with gradual failure—in which the question arises whether our patient be suffering from valvular disease, or some disease of the myocardium, a condition for which I prefer the name "parietal disease of the heart," as not limiting us in diagnosis to any one pathological condition, as the cause of the disturbance may be varied.

Hypertrophy is dependent upon increase in size of each individual muscular fibre, and dilatation is due to enlargement of the cavities. With the increase in size of the muscular fibres, we have, as I have stated, in most cases more or less fatty degeneration of the individual fibres. Pathologically and clinically the two conditions go hand in hand, a certain degree of dilatation being usually associated with hypertrophy. Clinically it is of much importance to bear in mind that, when by percussion we find that the heart area is enlarged, we have already a certain degree of dilatation of the cavities. Hypertrophy is conservative, the index of nature's effort to overcome the obstruction which interferes with the proper action of the heart; whereas dilatation is evidence that the time is coming when the heart muscle will fail to respond to the call for extra work made upon it. So long as hypertrophy predominates over dilatation, we have "compensation."

The normal adult heart may be considered as weighing from 270–310 grammes, the size varying within certain limits with the age and size of the individual.

I wish to draw your attention to some of the most important factors causative of hypertrophy and dilatation, always bearing in mind that this condition is not a disease in itself, but is the result of various pathological conditions, often far removed from the heart itself.

Clinically, we recognize hypertrophy by the strength of the pulse, the heaving of the apex beat, and the force of the heart sounds; note, I do not say by the size of the cardiac dullness, as this bears no relation at all to the thickness of the muscular walls of the heart. Percussion of the heart area gives no data to determine the amount of hypertrophy, for if the ventricle be increased in thickness half a centimetre, we have a great increase

in the muscular substance; whereas an increase in the area of cardiac dullness of this extent would be scarcely perceptible. As soon as the area of cardiac dullness is perceptibly increased to the right or left, we have already an increase in the size of the ventricle. The recognition of hypertrophy is not of such importance to the individual as dilatation, as his safety lies in hypertrophy, whereas in dilatation we have a sign which may threaten his life.

By percussion we determine the size of the heart, while by auscultation and by the character of the pulse we determine whether the hypertrophy or the dilatation be the predominate factor. By auscultation we find in dilatation that the normal booming character of the heart sounds is lost; the sounds are often described as "valvular," whatever that may mean. A marked sign of cardiac weakness is found in reduplication of the sounds, a condition well described as the gallop rhythm, as this term expresses exactly what we hear; the normal sound of lub-dub is replaced by the abnormal sound lub-a-dub. We often find that after the proper use of digitalis, the gallop rhythm entirely disappears, to appear again only when the heart muscle no longer responds properly to the work it is called upon to perform. The pulse is weak, rapid, irregular or intermittent; irregularity of rate and rhythm is of far greater importance as an index of weakness of the heart than occasional intermittency.

The most important condition indicative of cardiac weakness is met with when there is a marked discrepancy between the number of beats of the heart and the pulsation transmitted to the radial artery. Though this may be spoken of as the acme of cardiac weakness, it is a sign which has apparently received but little attention from writers on diseases of the heart. It may be seen not only in marked dilatation of the cavities of the heart, but also in advanced degeneration of the heart muscle, the result of acute infectious diseases. I have seen this phenomenon in typhoid fever, in diphtheria, and in many cases of advanced heart disease with great dilatation of the cavities. I have, within a few weeks, seen a lady with excessive dilatation: the pulse was 80-90 per minute, the apex beat 130-140 per minute.

The causes of enlargement of the heart may lie within the heart itself, or outside of the heart. Taking up the first factors we have: (1) Valvular disease; (2) diseases of heart wall, including chronic myocarditis; (3) new growth in the heart.

In this paper I do not intend to speak of the effects of valvular disease upon the heart.

Howard, in his article upon hypertrophy of the heart, found in 100 cases at autopsy that valvular disease was the etiological factor in only 13, or 12% of the total number. Some years ago I examined the autopsy records of the Boston City Hospital; taking 100 consecutive cases where there was disease of the heart, I found that in 75 cases where the weight of the heart was given, that valvular disease was the cause of the enlargement

in 22 or nearly 30%, a much larger proportion than Howard found, yet leaving many cases where the disturbance lay without the heart.

The causes outside of the heart may be: (1) Pericardial adhesions; (2) disease of the kidneys; (3) chronic pulmonary disease; (4) actions of drugs and poisons, especially alcohol; (5) overwork, the so-called "soldier's heart;" (6) a few cases in which the etiology is obscure; (7) last, and by far most important, arteriosclerosis, arterio capillary fibrosis.

(1) *Pericardial adhesions.*—In chronic fibrous pericarditis with adhesions, we have a most potent factor in causing enlargement of the heart. In my list of 100 cases from the City Hospital were 5 cases dependent upon adherent pericardium, and in all the heart was enormous, the weight being respectively 930, 900, 1,300, 1,090 and 800 grammes; in 3 cases there was in addition some valvular disease. In all of the cases there were marked symptoms of cardiac failure; great dyspnea, cyanosis, edema; in each instance the heart was found to be much enlarged and its action was weak and irregular. Howard reports 8 cases in 105 of enlargement due to adherent pericardium.

(2) *Diseases of kidney.*—In my series of 100 cases I have 5 cases of enlargement of the heart dependent upon renal disease, in which there was no general arteriosclerosis, and no disease of the coronary arteries to cause the enlargement. These cases are of far less importance than the large number of cases in which there is general arteriosclerosis with more or less secondary disease of the kidneys.

(3) *Chronic pulmonary disease.*—The enlargement due to chronic pulmonary disease is limited to the right heart, and the symptoms are usually marked by those dependent upon the primary disease. I have seen in private practice such a case in which the dilatation of the heart caused the most prominent symptoms. A man of sixty came to my office suffering from extreme dyspnea; he was cyanotic; there was marked pulsation of the vessels of the neck, enlargement of the right side of the heart and a loud murmur in the tricuspid area. There was consolidation of half the right lung. Under the exhibition of digitalis the venous pulse and tricuspid murmur disappeared, and the man returned to work for two years.

(4) *Systemic poisons.*—Alcohol, and perhaps the excessive use of tobacco, though the latter is much more apt to give rise to functional disturbances. Alcohol used to excess plays an important rôle in the etiology of enlargement of the heart. In excessive drinkers it is not rare to find symptoms pointing to great enlargement of the heart with entire loss of compensatory hypertrophy. Dyspnea is often extreme with cyanosis and general anasarca, independent of lesions in any organs other than the heart.

Aufrecht has called attention to this disease, giving the name "alcoholic myocarditis." He considers the first lesion to be a dilatation of the cavities of the heart, the first pathological lesion

being interstitial inflammation with fragmentation of the muscular fibres. In my review of the hospital cases, I found 3 well marked cases. In all these was marked enlargement of the heart; in none of the cases was there any anatomical lesion found sufficient to account for the increase in size, no arterial, renal or valvular disease.

CASE I. A man, age twenty-nine. Great alcoholic excess. For several weeks dyspnea and cough. Examination showed a pale, fat, cyanotic man. The heart was much enlarged to the right and left; it was irregular and intermittent; no murmurs. The heart weighed 575 grammes. Dr. Councilman added the following note to the autopsy: "This case is obscure. Death has apparently been the result of a loading of a weak heart." There was no anatomical lesion so far as could be ascertained, of heart hypertrophy. It is possible it was hypertrophy from alcohol, similar to the "Munich heart." In the other similar cases the hearts weighed, respectively 450 and 590 grammes.

Clinically it is not unusual in hard drinkers to find a moderate grade of cyanosis, some dyspnea and enlargement of the cardiac area, with a corresponding weakness of the action of the heart. It is probable that the majority of such cases are the result of such a pathological lesion as I have described, a dilatation of the cavities of the heart, rather than upon fatty degeneration of the muscle. The diagnosis of "fatty heart" is common, but pathological records do not confirm the supposed frequency of this lesion.

Fraentzel is inclined to entirely deny that fatty overgrowth of the heart, the so-called infiltration, has any importance in the etiology of cardiac disease. A marked overgrowth of fat is frequently found at autopsy in individuals who have given no signs of insufficiency of the heart during life.

(5) *Hypertrophied heart from overwork.*—Under this head we class cases which present symptoms of disturbance in the action of the heart, apparently the result of excessive bodily work. The matter was first brought to the attention of the profession after the Rebellion, the name "soldier's heart" being given by Weir Mitchell and Da Costa. Similar cases were seen in Germany after the Franco-Prussian War. Howard gives 5 cases of this category in his list of 105 cases of hypertrophy of the heart.

I have had under my care at the hospital a man of forty-five years, who had done especially laborious work; no history of alcohol; no renal or pulmonary disease. He had great dilatation, rapid, irregular heart, and finally death from pulmonary infections. No arteriosclerosis.

(6) *Cases obscure in etiology.*—As in these cases of "overwork," so there are others in which enlargement of the heart is found without well marked pathological cause. Hydremic, general plethora and disturbance of the nerves which regulate the action of the heart may be called up to explain the condition, all of the cause being, perhaps, rather suggestive than capable of demonstration. The enlarged heart of the Munich beer drinkers may, perhaps, be more properly classified

under "Plethora" than under the cases of direct alcoholic poisoning, as the disease seems to be dependent rather upon the excessive amount of fluid ingested than upon the small amount of alcohol which that fluid contains.

The enlargement in Graves' disease in exophthalmic goitre, may properly be cited as an instance of the result of an interference with the cardionervous supply. For several years I have had under observation a case of this disease with a considerable enlargement of the heart and the attendant symptoms of weakness of the heart.

A very interesting example of cases of this indefinite etiology has come under my personal observation. A lady, of fifty odd years, had been for many years short of breath on exertion. During the last year of her life she suffered severely, and for many months before her death was unable to lie down at night, and slept in an armchair. She was stout, of florid complexion; the smaller veins were prominent. On the slightest exertion her respiration was labored. She was of the so-called "apoplectic type." The heart was much enlarged and its action weak and irregular; for many months before her death there was great edema of the legs, so that serum constantly oozed from the broken skin. A more marked picture of the extreme sufferings of "heart disease" it is difficult to imagine. The autopsy was made by Dr. Councilman, and I give you the notes which bear upon the subject in hand: "Body small." Edema of lower extremities. Subcutaneous fat abundant. Liver large with corset furrow well marked. In each pleural cavity a small amount of slightly blood-stained fluid. Lungs somewhat emphysematous, and a slight bronchitis in lower lobes. Both layers of pericardium smooth. Heart enormously enlarged; the cavities distended with fluid blood; weight 720 grammes (normal 280 for women of this size). The entire heart hypertrophied and dilated, especially the left side. Aortic valve competent; the orifices of the heart share in the dilatation; coronary arteries normal, splenic, mesenteric and renal arteries normal.

Microscopic examination.—Diffuse fatty degeneration of the heart. Diffuse increase in the connective tissue and a slight fatty degeneration of the kidney.

Dr. Councilman adds: "I am somewhat at a loss to explain the excessive hypertrophy of the heart. There is not any valvular lesion sufficient to cause it; there is no arteriosclerosis. There is no more disease of the kidney than we would expect in a person of that age. It is possible that the hypertrophy might be due to excessive action of the heart brought about by nervous excitability, or possibly to a condition of plethora. It is one of those rare cases of heart hypertrophy for which no sufficient mechanical cause can be found."

(7) *Arteriosclerosis.*—We come now to the last, and by far the most important, cause of enlargement of the heart, to a cause explanatory of a large proportion of cases classified clinically as "cardiac," "weak heart," "cardiorenal," or "fatty heart," namely arteriosclerosis.

In my list of 100 autopsies I find a record of 32 cases of disease of the heart dependent upon arteriosclerosis, and in only 4 was the weight of the heart under 400 grammes. Arterio capillary fibrosis, a thickening of the intima and middle coat of the smaller arteries, whereby their lumen is diminished in size and the work of the heart much increased. Physiologically, in old age there is a certain grade of this process which in youth is pathological. It is when the disease appears in youth that it becomes of importance and gives rise to the axiom, "That a man is as old as his arteries."

As to the etiology of the disease, in one-third of the cases there is a history of great alcoholic excess, but in 11 of the 32 cases the statement is made that no apparent cause for the disease was found. It is noteworthy that articular rheumatism had preceded the onset of symptoms in only 2 cases; in neither was there valvular disease, as no valvular cases are reported in the class of heart disease dependent upon arteriosclerosis.

As to age, these cases do not correspond with Howard's, who reports that the greater proportion of his cases of arteriosclerosis were in the prime of life, where the age is given in my cases the following data may be cited: Twenty to thirty, 3 cases; thirty to forty, 4 cases; forty to fifty, 3 cases; fifty to sixty, 9 cases; sixty to seventy, 6 cases. In all of the younger cases alcoholic excess was a marked feature in the probable etiological factors. In 4 of the cases dilatation is not mentioned: in the others there was general hypertrophy and dilatation of both sides of the heart.

In 5 cases there was such a marked dilatation of the cavities that there was a relative insufficiency of the valves demonstrable at post-mortem examination. In all of these cases there were loud murmurs heard during life.

The following is a brief history of one of these cases:

Man, age forty-nine. Hard drinker. For many months he had suffered from dyspnea; marked edema of the extremities; heart enlarged $1\frac{1}{2}$ inches to the left of the nipple line, and 1 inch to the right of the sternum. Systolic murmur at the apex. Pulse irregular and intermittent. Nine months later he again entered the hospital, when his symptoms had increased to severe orthopnea with deep cyanosis. There was a loud systolic murmur at the apex transmitted to the axilla and a double murmur at the base in the aortic area. The action of the heart was very irregular and intermittent. In the urine was a trace of albumin with a few casts. He suffered from dyspnea for three months and died.

Autopsy.—Heart, 820 grammes. General hypertrophy and dilatation; relative insufficiency of the mitral and aortic valves; chronic passive congestion of the kidneys.

This case may be well cited a typical, though extreme case of arteriosclerosis. The man was a hard drinker, no history of rheumatism, dyspnea, increasing to orthopnea, cyanosis, great enlargement of the heart and death. It is a good exam-

ple of the cases in which murmurs are heard, and yet there is no valvular lesion.

Several of the cases recorded died of cerebral hemorrhage or entered unconscious: all who were in a condition to give an intelligent account of their symptoms gave a history of shortness of breath or dyspnea, extending over a considerable period; in several instances for years. Several of the cases were cyanotic, and orthopnea was noted so severe that the patients were unable to lie down in bed. In half the cases there was marked edema, and in several general anasarca. Associated with the dyspnea were the usual symptoms of cough, expectoration—at times bloody—and the presence of râles in the chest indicative of bronchitis.

Examination of the heart.—It was enlarged in 16 cases according to clinical observation. In 6 cases the heart area is described as normal. In many of the cases the action was weak and the heart markedly irregular and intermittent. The pulse was usually weak, rapid, intermittent and irregular, though in 8 cases it is mentioned as regular and of good strength. Murmurs were detected in 10 of the cases. In 7 of these cases the murmur was situated at the apex and was transmitted into the axilla, as is the case in the murmur of mitral regurgitation. In none of these cases was there found, post mortem, a pathological condition explanatory of the cause of the murmur. In one case there was a systolic murmur in the aortic area where post-mortem there was found a slight sclerosis of the aortic valve which probably gave rise to a certain degree of constriction. In 2 cases a double murmur was heard at the aortic area and post-mortem the aortic valve was demonstrated to be relatively insufficient, as a result of the dilatation of the left side of the heart. As murmurs indicative of imperfect closure of the valves were heard in one-third of the cases of arteriosclerosis, it is evident that the presence of such murmurs cannot be offered as evidence of structural lesions of the valves.

In 16 of the cases a trace of albumin with casts was found in the urine. In 14 of the cases there was structural disease of the kidney, consisting of chronic diffuse nephritis of moderate grade in the majority of the cases, while in 3 instances a small granular kidney was found post mortem. The immediate cause of death was cutaneous hemorrhage in 4 cases, and lobar pneumonia causing death in 4 other cases. In 9 cases the essential symptoms were dyspnea, goitre, cyanosis and edema. These latter cases are of course the one which interest us as clinicians.

In only a few of the cases are recorded accurate data as to the condition of the arteries; when the arteries are mentioned they are spoken of as hard, sclerotic, tortuous. From these data we may draw the picture of arteriosclerosis as follows: A man of forty years or more, though younger cases are seen. Alcohol used to excess. No rheumatism; dyspnea, cough, cyanosis, edema of long standing; enlarged heart, action feeble, irregular and intermittent pulse, murmurs present or not; edema;

trace of albumin with casts. The arteries are hardened, tense, tortuous, and the pulse usually of high tension.

As to treatment, several of the cases had been in the hospital previous to their fatal illness, and had then improved greatly in all respects after the exhibition of digitalis, cathartics, diuretics, and especially rest in bed.

In arteriosclerosis we find, as a rule, a much greater enlargement of the heart than in valvular disease. In 27 cases of arteriosclerosis, out of the whole series of 32, we find that on the average the weight is greater than in diseases dependent upon pathological defect of the valves. Twelve hearts weighed more than 500 grammes, and in 12 instances the heart weighed over 550 grammes, reaching the enormous weight of 800 grammes or more in 2 instances. In only 3 instances did the weight of the heart exceed 550 grammes in enlargement due to valvular disease, uncomplicated by pericarditis.

THE CONDITION OF THE MYOCARDIUM AS AFFECTING CARDIAC MURMURS.*

BY H. D. ARNOLD, M.D., BOSTON.

Physician to Out-Patients, Boston City Hospital; Professor of Clinical Medicine, Tufts College Medical School.

THE importance of the condition of the myocardium in valvular disease of the heart is, I believe, generally recognized by the medical profession. We all know that the gravity of a case depends not alone on the valve lesion itself, but on the extent to which compensation has been established or is capable of being established by the myocardium. Yet the average practitioner is too apt to rest satisfied if, by discovering a murmur, he is able to point out the site of the lesion and can give an anatomical name to the disease. Fortunately for both patient and physician, the heart generally has wonderful recuperative powers, if given half a chance. Rest, with or without medication, — and sometimes in spite of bad medication, — furnishes the opportunity; and we take credit to ourselves for an improvement which was due to Nature, and neither to our thorough understanding of the condition, nor to an intelligent application of remedies.

If by accurate percussion you determine the area of the heart, if by inspection and palpation you learn its strength and its regularity of action, if you carefully observe the characteristics of the pulse, if you examine the lungs, liver, kidneys, and extremities for evidence of passive congestion, and if you think logically and intelligently about these physical signs and the symptoms learned from the patient, you will understand your case better and treat it more intelligently than if you depend solely or chiefly on auscultation of the heart. And when you auscult the heart it is of even more importance to rightly interpret the cardiac sounds than to detect the murmurs. In

fact, an understanding of the condition of the myocardium is the key to the situation.

Nevertheless, the right interpretation of cardiac murmurs is a matter of great importance, and I invite your attention to a consideration of this subject as throwing additional light on the state of the myocardium.

It has been demonstrated experimentally¹ that when fluid confined in chambers or tubes passes through an opening into a wider space beyond, the particles of the fluid are thrown into vibration beyond the opening; and if the force of the current is sufficiently strong these vibrations attain an intensity which enables them to be transmitted to the ear, where they become audible as sound. To this sound we give the name murmur. These are the physical conditions which underlie the existence of a cardiac murmur in most if not in all cases. The vibrations originate in the fluid itself, in the wider space beyond the narrower opening, and are not caused by friction between the fluid and the confining walls.² Whether a stiffened valve may be thrown into vibration by the current of blood passing over it, and may thus contribute to the sound perceived by the ear, has not yet been experimentally proven, as far as I know, but the peculiar character of some murmurs and their peculiar path of conduction lead me to suspect that such may be the case.

It has been proved that a murmur may be produced in a straight tube, without any narrowing of the lumen, provided the fluid is forced with sufficient velocity. This velocity, however, is greater than that known to be attained by the circulating blood, and this explanation may practically be disregarded in interpreting cardiac murmurs. A lessened density of the fluid enables a murmur to be produced with less velocity. It is possible that this fact may have something to do with the production of anemic murmurs, but it has not yet been proved that the density of the blood or its velocity in cases of anemia come within the limits required by the experiments.

It is reasonably safe to assume, then, that when we hear a cardiac murmur the blood is passing through some opening into a chamber beyond which has a larger diameter than that opening. A narrowing of any of the valvular orifices presents this condition for the blood in its onward progress. A leakage through any of the valves furnishes the condition in a reversed direction. In the aortic area a widening of the aorta beyond the orifice furnishes the necessary condition, even if the aortic valve is normal. I believe it is the dilatation of the aorta, accompanying arteriosclerotic changes, rather than the roughening of the lining of the valve and blood vessel, which accounts for the frequency of the aortic systolic murmur beyond middle life, a murmur which is so seldom explained at the autopsy by a true stenosis of the aortic valve.

Regurgitant murmurs may be caused at any of the valve orifices without disease of the valve itself, provided the orifice is sufficiently dilated to prevent the proper apposition of the valve curtains. We shall see later that this is a common

*Read before the Boston Society for Medical Improvement, February 4, 1901.

occurrence at the mitral valve. At the aortic valve, however, the tissues surrounding the orifice are so strong that they do not yield readily, and as a rule an aortic regurgitant murmur indicates disease of the valve curtains. Likewise a presystolic murmur at or near the apex indicates disease of the mitral valve, except in the rare instances where it is caused by free aortic regurgitation. What has been said of the aortic and mitral valves applies respectively to the pulmonary and tricuspid valves in the rarer cases in which they are concerned.

Such are the conditions under which cardiac murmurs arise. Their existence always indicates an abnormal though not necessarily a diseased condition. The point of maximum intensity of the murmur and its area of distribution enable us to locate the site of the trouble with some accuracy. In our present enquiry, however, we wish to know what further light murmurs may throw on the cardiac condition.

The loudness of a murmur is not a satisfactory guide to the seriousness of the lesion. Neither is the quality of the murmur. Yet variations in the intensity of a given murmur from time to time may give us information of the greatest value in estimating the condition of the heart. Under these conditions changes in the intensity of a murmur are to a certain extent a measure of changes in the strength of the cardiac muscle. If, with rest and treatment, a weak, dilated heart develops a murmur which was not audible before, or if a faint murmur becomes louder, it is a favorable sign, for it means stronger heart action and implies the beginning of compensatory hypertrophy. The diminution or disappearance of a murmur may also mean improvement, through the removal of the condition causing the murmur, but it may mean a weakening of the cardiac power. The decision lies in the other evidence obtainable, not in the change in the murmur itself. Even organic murmurs sometimes disappear, especially with improvement of the general cardiac condition, and yet the diseased condition of the valve remains. If you have had good reason to decide that a murmur indicated an organic valve lesion, do not give too favorable a prognosis simply because the murmur disappears, and do not conclude that your diagnosis was necessarily wrong. You must, however, be sure that your reasons for calling the murmur organic were well grounded. It does not mean that the valve is diseased, simply because the characteristics of the murmur are marked, nor is it necessarily organic because it lasts weeks or even months.

Mitral murmurs are much more liable to variation and disappearance than are aortic murmurs. Of all cardiac murmurs, the presystolic murmur of mitral stenosis is the most variable. Yet, once definitely heard, it indicates more surely than any other murmur an incurable valvular lesion. Mitral stenosis, moreover, exists more frequently without any murmur whatever than does any other valvular lesion. These peculiarities depend upon the fact that the force which produces the murmur

is derived from the auricle, whose action is weaker than that of the ventricle, and perhaps more variable.

Mitral regurgitant murmurs are the commonest of cardiac murmurs, but their real significance is not always as easily determined as in the case of some other murmurs. Of the latter the aortic diastolic and mitral presystolic clearly indicate valvular disease. The aortic systolic usually indicates aortic stenosis or arteriosclerosis of the aorta. All these conditions are incurable, although a stage of tolerance and comfort may be established. I am leaving out the so-called anemic or hemic murmur heard at the aortic area, because it is almost invariably accompanied by murmurs at other cardiac orifices, or by vascular murmurs, or by marked anemia in such a way as to make the condition clear. The prognosis in this case turns on the cause of the anemia rather than on the cardiac condition, and the murmur generally represents a curable condition. Contrasted with these rather definite indications of other murmurs, we find that a mitral regurgitant murmur may be due to an incurable valvular lesion or to conditions which are perfectly curable. The characteristics of the murmur may be the same in both instances. I have found exceptions to every rule laid down for the distinction of organic and functional murmurs at this orifice, provided the rule was based on the character of the murmur alone. We must take other factors into account, and a decision should be formed only after carefully weighing all the evidence obtainable. Is the mitral regurgitant murmur curable, or is it incurable? That is the question raised by the commonest cardiac murmur. The answer is not always easy.

One source of confusion lies in our failure to fully appreciate the difference between the anatomical relations of the aortic and the mitral valves. We are apt to think of them as differing only in the size of the opening and in the number of cusps to the valve. The aortic valve may be described as mechanical and automatic. The cusps are so shaped that they are brought into close apposition with each other by the mere pressure of the arterial blood. They accurately close the opening, and as the thick, fibrous wall of the base of the aorta does not yield readily to pressure, leakage between the cusps from dilatation of the orifice is of relatively uncommon occurrence. Furthermore, the method of attachment of the cusps to the aortic wall, with the corners higher up than the bellying margin, effectually prevents the edge of the cusp from being forced down beyond the orifice. Regurgitation from this cause occurs only with such extreme blood pressure as will tear the valve from its fastenings. This occurs rarely in the strain of sudden extreme muscular exertion.

The mitral valve differs from the aortic in two important respects: (1) There is a less marked development of fibrous tissue at its ring, and the maintenance of its calibre depends to a considerable extent on the cardiac muscle which surrounds

it. It is therefore much more yielding, and is easily dilatable. (2) The mitral curtains, flexible and lying flat in one plane, would not in themselves offer any resistance to the regurgitation of blood through the mitral orifice, whereas the aortic curtains are so attached as to prevent regurgitation. The prevention of this mitral regurgitation depends on the chordæ tendineæ and the papillary muscles, which act as a set of guys to keep the valve curtains from being forced beyond the orifice. The steadiness of the support of these guys depends on the papillary muscles; for the ventricular wall, to which attachment is made, is constantly moving, and would furnish an unsteady support were it not that the action of the papillary muscles just counterbalances that of the ventricular wall. This nice adjustment between the contractile forces of the ventricular wall and the papillary muscles is essential for the perfect closure of the mitral valve, and its practical importance in accounting for murmurs is shown by the fact that it has been demonstrated³ experimentally that the papillary muscles show diminished power of contraction, as a result of fatigue, quicker than any other part of the cardiac muscle.

More than this, it has been demonstrated⁴ experimentally that the size of the normal mitral valve is considerably smaller in systole than in diastole. In other words, the mitral orifice is compressed and narrowed by the contraction of the muscular wall about it during systole, and this narrowing of the mitral orifice is as essential for the perfect closure of the valve as is any other part of the mechanism. The mechanism for the closure of the mitral valve is not, then, automatic in the sense that we used the term for the aortic valve, where the essential factors all lay in the valve curtains themselves. We may say that the closure of the aortic valve is a matter of fibrous mechanism, while the closure of the mitral valve depends largely on muscular mechanism. The one is rigid, the other is yielding in character.

It becomes clear, then, that a weakened action of the cardiac muscle which failed to narrow the mitral orifice sufficiently, or a weakened action of papillary muscles failing to hold the valve curtains firmly, might either one be a sufficient cause for mitral regurgitation. It is probable that both conditions are acting together in most cases. We can thus demonstrate that a weakened or debilitated condition of the cardiac muscle is a sufficient cause for mitral regurgitation, even when no demonstrable dilatation of the ventricular cavity exists, although dilatation will ensue if the weakness is very marked or is prolonged over a long period.

Such regurgitation at the mitral orifice, due merely to a weakened or debilitated condition of the cardiac muscle, is generally curable, because its cause is generally curable. This is true whether dilatation of the ventricle exists or not. If dilatation has existed a sufficiently long time, a cure can be effected only through the development of hypertrophy. The existence of such hypertrophy need not deter us from pronouncing the cardiac

trouble cured. For we have assumed that the cause of the trouble is removed; the heart has returned to a condition in which it performs its functions normally; and there is no apparent reason why it should not continue to do so as long and as well as any normal heart. If we must still call it diseased because somewhat hypertrophied, then we must assume that all athletes have diseased hearts, for in them we shall find the heart always more or less hypertrophied. Although, from its frequent association with disease of the heart, we commonly think of hypertrophy of the heart as a pathological lesion, it is rather a manifestation of the normal physiological power of the heart (like any muscle) to develop in proportion to the amount of exercise it performs, provided it is well nourished. It is to be regarded as a pathological condition rather from the conditions with which it is associated than from its mere existence as such. Mitral regurgitation, then, in debilitated or in dilated hearts may be entirely curable if the cause is curable, though the question evidently depends also on the myocardium and its capabilities.

We have been speaking of cases in which the valve curtains themselves were free from disease. Where these are diseased the condition of the myocardium is of equal or even greater importance, for on it the problem of compensation depends. The amount of damage done to the valve is, of course, a very important factor in the problem. Sometimes the damage is so great that compensation is out of the question. At the other extreme lie the cases in which the post mortem examination shows that an old endocarditis has left some traces of its existence on the valve curtains, but of such slight degree that there is no evidence that they were incompetent, and clinically no evidence of heart trouble existed. The occurrence of these lighter cases brings up the question whether a mitral regurgitant murmur may accompany endocarditis and yet represent a curable condition.

Before answering this question, we must consider the significance of the systolic apex murmur so often heard in acute rheumatism. Does it always mean endocarditis? Does it always mean mitral regurgitation?

When I was a medical student, I was taught that oftentimes the only evidence of an endocarditis in an attack of acute rheumatism is to be found in a systolic murmur at the apex of the heart. This is undoubtedly correct. I was also taught that such a murmur arising in the course of acute rheumatism means endocarditis. This view I have come to consider incorrect. The murmur often does mean endocarditis, but not necessarily.

I find a footnote in my textbook of that time wherein my instructor stated that when this murmur does not exhibit the characteristics of mitral regurgitation, it is to be considered an example of Flint's "Mitral Systolic Non-regurgitant Murmur." This is described by Flint⁵ as a systolic murmur, heard within a limited area at the apex,

arising within the ventricle and not at the mitral orifice, and due to the roughness of the endocardial membrane and not to mitral incompetence. Flint says this "is the murmur present in endocarditis." He adds significantly: "This murmur cannot always be discriminated from a feeble mitral regurgitant murmur."

Careful analysis of this view shows that it is based entirely on the area of distribution of the murmur. Because it has not the classical distribution of a mitral regurgitant murmur, namely, to the left axilla and perhaps to the angle of the left scapula, it is argued that it cannot be due to mitral regurgitation, and another theory must be advanced to account for it. The first premise of this argument is wrong. Even a cursory examination of the area of distribution of mitral regurgitant murmurs shows that it may vary widely from the classical description. It need not necessarily be transmitted as far as the axilla. Furthermore, the explanation offered, that it is due to the blood passing over the roughened endocardium, is much less probable than that a mitral regurgitant murmur should have a limited area of distribution. This attempt to account for the murmur is a leap from the frying pan of difficult, but possible, explanation, into the fire of well-nigh impossible theory. For the weight of experimental evidence is against mere roughening of the wall as an adequate explanation of a murmur by friction between the fluid and the wall; and the velocity of the blood within the ventricle itself, before it is forced through the narrower opening of the aorta, is too slight to account for the murmur in any other way. I believe we should distinguish between the facts in cardiodynamics, which have been proved by pathological demonstration and by physical or physiological experiment, and the theories which, though originating in the imagination of some of our greatest medical minds, form an insecure and unreliable foundation on which to base our knowledge of cardiac disease.

The confusion of theory and fact in our mental processes is a serious fault of much of our medical thought; it explains much of our loose and illogical methods of reasoning, and is responsible in part, I believe, for the cloudiness which involves some of the questions of cardiac physics. Because some cases of rheumatism have endocarditis, and because some systolic murmurs at the apex indicate endocarditis, we are too apt to draw the illogical conclusion that in rheumatism all systolic murmurs at the apex mean endocarditis. We forget that the autopsy sometimes fails to confirm this view, and we forget that a systolic murmur with the same characteristics is often found in other diseases, which are not prone to develop endocarditis. These other diseases have, in common with rheumatism, a toxic state of the blood, fever, and general prostration — conditions under which weakness of the cardiac muscle is apt to develop, and in which, therefore, mitral regurgitation may occur without endocarditis or any affection of the valve itself. Many of the systolic apex murmurs heard in rheumatism are, I believe, due to the

muscular weakness and relaxation from these causes and not to endocarditis. The indication for treatment is the same in both cases; the need of watchfulness to detect this condition of the myocardium is as great in cardiac weakness as in a mild endocarditis, but the prognosis is different. The lesson to be learned from this view is not that we may neglect watching for murmurs in rheumatism because they may be less serious than we supposed, but that a state of the myocardium as bad as often exists in rheumatism exists in other infectious febrile diseases, and that we should watch the heart as closely in these diseases as we have been taught to do in rheumatism.

With reference to the diagnosis of endocarditis from the murmurs in rheumatism, I wish to quote what Gibson says: "On auscultation there are great possibilities of error. In all febrile conditions, such as so often lead to endocarditis, the heart is apt to undergo dilatation, and not only is there a change in the cardiac sounds, but systolic murmurs are extremely common at the auriculo-ventricular orifices, along with accentuation of the pulmonary second sound. Such murmurs may obviously be caused by changes in the cardiac walls, or in the papillary muscles, and therefore have no necessary connection with endocarditis; as has already been remarked, reliance upon these murmurs as an indication of endocarditis has rendered most clinical statistics connected with the subject open to the gravest suspicion. It cannot be urged too strongly that the only absolute diagnostic means consists in the appearance of murmurs of obstruction at one or the other of the orifices." . . . "The determination of the probable condition in any given case can only be attained by carefully weighing the whole evidence available, and the possibility that murmurs of incompetence at the venous valves may be due to acute myocarditis must not be overlooked."

We can now answer the questions which we propounded about the systolic apex murmurs in rheumatism. They are not necessarily due to endocarditis. They do mean mitral regurgitation, but not necessarily a diseased valve. As to the question whether a mitral regurgitant murmur may represent a curable condition if accompanying endocarditis, it is conceivable that it may, for we have seen that the amount of endocarditis may be too slight to make the valve incompetent, and yet an accompanying muscular weakness might allow the blood to regurgitate. This condition, however, we cannot distinguish clinically from a case in which the murmur is due to incurable endocarditis, nor from one where we have only muscular relaxation without any endocarditis. Time alone will solve the whole problem of these mitral regurgitant murmurs, and an absolute decision as to their curability should be reserved. More or less probability we may attain by a consideration of all the circumstances, and of these the most important is the condition of the myocardium.

We have been considering mitral regurgitation with reference to its ultimate curability or incurability. This is not the whole problem, for in the

incurable cases we may attain a condition of relative health of the heart which will last for a longer or shorter time—perhaps for years. Whether in an acute attack or an exacerbation we can attain this condition of compensation depends entirely on the capacity of the myocardium.

We have still one class of cardiac murmurs to consider—the so-called functional murmurs. The best definition of a functional murmur is that it is not organic. A murmur due to a physical change in the heart, like valvular disease, is called organic. We can account for it satisfactorily by demonstrable physical change. When we cannot so account for the murmur we call it functional—and then begin to invent theories to explain its occurrence. As we did not find the heart diseased, we theorize that the trouble lies in the blood, but we deceive ourselves if we think we have added anything but an unproved theory to our knowledge by calling it a hemic murmur. When anemia is present we call it an anemic murmur—but that explains nothing. It may yet be proved that such occurrences are caused by some condition of the blood, but in the meantime let us confess that by a functional, hemic or anemic murmur we really mean a murmur which we cannot satisfactorily explain.

In anemia we have a most confused state of affairs as to the murmurs. Anemia is supposed to furnish the most typical examples of purely functional murmurs, and yet many of the murmurs are as clearly organic as in valvular disease. It is well known that in severe anemia the heart may become dilated, and in fatal anemia we may find extreme fatty degeneration as well as dilatation. Murmurs due to these conditions are clearly organic. In less marked conditions the murmurs are generally admitted to have all the characteristics of mitral regurgitation. If there is dilatation, the explanation is easy, and the murmur is a mitral regurgitant murmur and is organic. If there is no demonstrable dilatation it is still mitral regurgitation, I believe, due to the fact that in anemia the heart muscle is poorly nourished and weak and the muscular part of the closure of the orifice is imperfectly performed.

The next grade is where the murmur is systolic but has not the classical distribution of mitral regurgitation. Then comes the grand dispute about anemic murmurs. Because generally heard best at the left base of the heart, they are ascribed to the pulmonary artery. Then the fact that there is no change at the pulmonary orifice is adduced to prove that the trouble lies in the state of the blood itself. The point of maximum intensity is quarrelled over to the fraction of an inch, and then every one admits that it is frequently heard loudest somewhere else.

The trouble lies, it seems to me, in the attempt to gauge these anemic murmurs by imperfect standards. We do not as yet fully understand the path of conduction of murmurs, nor the area of distribution, yet these are the means by which we try to determine where a murmur originates. Until our knowledge on these points is clearer, we should not attempt to dogmatize.

I have spent some little time studying cases of this sort, and two things have been impressed upon me. One is that murmurs which I had every reason to suppose were from mitral regurgitation often had the point of maximum intensity higher up than the apex, along the left border of the heart, and might have an irregular distribution on the chest wall. The other was that I found in anemia murmurs showing every gradation in area of distribution from a clearly recognized mitral regurgitation to what is usually called a typical anemic murmur in the second left interspace. Where shall we draw the line? When do we cease to have mitral regurgitation as an explanation? I am not at all sure that we do. I am inclined to the belief that all the anemic murmurs on the left side of the heart are really due to mitral regurgitation, showing various areas of distribution according to the means by which the vibrations travel from the left auricle to the surface.

This view is as yet far from proven. It is only a working hypothesis. I would prolong the paper too much to attempt to discuss further the reasons for this view. But this much may be said confidently of the anemic or other functional murmurs; that, whatever their cause, the important thing to understand is the state of the myocardium. Is the heart dilated? Is its action strong or weak? These are the essential features to learn, and the conditions that determine treatment.

Whenever a murmur exists, then, it is of great importance to investigate the condition of the myocardium. By so doing we may find the cause of the murmur in an entirely remediable condition of the cardiac muscle, and we may save ourselves the mortification of ascribing it to incurable valvular disease, and we may spare our patient from a life of worry and dread which the latter diagnosis so often inspires. Whether the disease be curable or not, we find in the condition of the myocardium fully as important data on which to base prognosis as is found in the cardiac murmurs. The existence of a murmur gives us in itself little aid in determining the proper line of treatment. That is determined by other factors, chief among which is the condition of the cardiac muscle. Let us not, then, rest content with an examination of the heart for murmurs. That is important, of course. If discovered they throw valuable light on the diagnosis and, to some extent, on the prognosis. But when we have done so much we have only begun the investigation—not ended it; we have only learned that there is something about the heart to investigate; let us investigate it thoroughly, with every means at our command.

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FIG. 1. — Epidermoid cancer of the lip before treatment by the x-rays.



FIGS. 2 and 3. — Cuts of photographs taken directly after healing. The induration had wholly disappeared; the lip where the growth had been was without scar and perfectly smooth and soft; it was a little wider on the right side, otherwise there was nothing abnormal in its appearance. Some weeks later this increase in width had diminished so that the cosmetic result was perfectly satisfactory, even better than is shown in the cut. The patient shaved off his mustache the day before the photographs from which these cuts were made, were taken.

Certain Abnormal Cardiac Sounds. *British Medical Journal*, May 23, 1891.

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7. The dispute about anemic murmurs is well summarized in Gibson's book (just mentioned), pp. 630-634; also in an article by G. W. Webster, *Accidental Heart Murmurs*, *Journal American Medical Association*, vol. xxxiii, p. 290.

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A FURTHER NOTE ON THE TREATMENT OF EPIDERMOID CANCER.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

In a note published in this journal January 17, 1901, I stated that I had treated cases of epidermoid cancer by exposure to the radiation from an excited Crookes' tube, and that these cases had yielded to treatment without accompanying or subsequent pain or irritation.

The results produced by this method of treatment are seen in the accompanying cuts, which are taken from my forthcoming book on the uses of the Roentgen rays, by permission of The Macmillan Company. The photographs were made from one of the patients, whom I presented at the meeting of the Medical Society of the Boston City Hospital, in February last. The diagnosis of epidermoid cancer in this patient was confirmed by Dr. Mallory, pathologist at the Boston City Hospital, to whom a small piece of the growth was submitted. Fig. 1 is a cut of the photograph which was made before exposure to the x-rays; Figs. 2 and 3 from photographs taken after treatment. The induration on the lip extended beyond the affected area shown in the half-tone. The gland under the inferior maxilla, to the right of the symphysis, had been enlarged; but the enlargement disappeared after the lip had healed.

The exposure to the rays lasted usually five minutes, and was given nearly every day for some weeks, but further experience has suggested that so long a period of treatment is unnecessary. The cuts here presented were taken from the smallest growth that I have treated.

This patient, together with others, demonstrated, as I have previously stated, that we have in the radiation from an excited Crookes' tube, in all probability the x-rays themselves, a therapeutic agent which is of value in the treatment of at least superficial cancer in its early stage, and that healing takes place without any caustic action.

In some of my patients the treatment, given nearly every day, was stopped after improvement had well begun; in one patient the treatment given at intervals of a day or two was stopped after a few exposures only, but in all of these cases the improvement steadily continued without renewal of treatment. From this I infer that the rays interfere, probably directly, with the life,

whatever it may be, which causes the cancer. Further, as this is accomplished without much difficulty in superficial growths, penetrating to a depth of two centimetres at least, it gives ground for hope that something may be done for patients in whom the disease is deeper seated.

Clinical Department.

REPORT OF CASES FROM THE SECOND SURGICAL SERVICE OF THE CHILDREN'S HOSPITAL, BOSTON.

BY H. L. BURRILL, M.D., R. W. LOVETT, M.D., AND J. E. GOLDTHWAIT, M.D., BOSTON.

CASE 1. MULTIPLE PLEXIFORM FIBROMATA.

S. M., age ten years, entered the hospital November 7, 1899. Her mother was a prostitute, who probably had syphilis. Her father was a mulatto, who died of phthisis. The child was adopted when small. Since then she has had no children's diseases, but has had trouble with her eyes and has had sores about the anus. For seven years she has had increasing swelling and stiffness of left leg. Some pain has accompanied this trouble.

Examination showed a well developed and nourished girl. Her skin presented numerous yellow patches varying from $\frac{1}{4}$ to $\frac{3}{4}$ inch in size. And about the anus was more or less scar tissue. Glands were found in both groins. The left knee presented a fusiform swelling, involving the thigh and calf. Some bony thickening of the knee existed, and there was some limitation of motion. A large tumor mass with hard kernels in it involved the popliteal space and pressure over the mass elicited some pain. The left leg was 3 inches longer than the right. The left knee was 4 inches and the left calf $1\frac{3}{4}$ inches greater in circumference than the right. The left thigh was $\frac{3}{4}$ inch smaller than the right. The right foot was in an equinus position (Fig. 1).

The child was given iodide of potash, so that by November 20th she was taking 30 grains three times daily. This was omitted December 6th.

December 1st. The patient was etherized and an Esmarch bandage and a tourniquet were applied, the legs being measured both before and after. The measurements of the left leg were considerably lessened after the application, the knee diminishing 1 inch in circumference. The measurements of the right leg were barely altered. On December 12th an incision was made on the outside of the middle of calf and some of the hard masses that had been felt were removed for diagnosis. These were "found to consist of small kernels, resembling sago, in a network or stroma." On December 23d the iodide of potash treatment was started again, increasing doses being given. By January 30, 1900, 150 grains were given daily. On February 10th the iodide was stopped.

On February 28th an incision was made on the inner side of calf, and a dissection was carried

through the superficial fascia and a mass of translucent tissue was removed from between the muscles and about the vessels. The mass was encapsulated as it could be shelled out of its bed. The whole of the mass was not removed, owing to its extent, but the child improved and was discharged relieved on March 21, 1900.

The tissue which was removed was examined by Dr. R. M. Pearce. His report is as follows:

Boston, February 28, 1901.

Tissue to be examined consists of fascia, muscle and connective tissues of leg. Throughout the mass are seen small, firm, round or oval, glistening bodies. Upon dissecting the mass these bodies are found to be small tumor masses apparently developing about nerve



FIG. 1.

bundles, the whole forming a plexiform network with varicosities. These masses are exceedingly firm and opalescent, often spindle-shaped, varying in circumference and covered by a thin capsule. They lie principally in the intermuscular septa (Fig. 2).

Diagnosis.—Multiple fibromatoma of nerves.

R. M. PEARCE, M.D.

This case belongs to the class described in the literature as neuroma cirsoideum, plexiform neuroma, or Ranken neurom. Many of these cases are evidently described clinically as congenital elephantiasis—congenital hypertrophy¹, etc. The growth is a rare one, but so striking and unusual

in character that cases are reported, and since Bruns in 1870 gave the first competent description, some 40 to 50 cases are on record. Bruns² himself in a later paper tabulates 42 cases.

A recent paper by Preble and Hektoen³ gives the summary of reported cases as well as the report of a case with autopsy.

The growth under consideration is even clinically characteristic. If the tumor is single it may be of any size up to the largest; is apt to be flattish in general form with or without overhanging sacklike edges, and it is often lobulated and the skin over it apt to be adherent and changed in character. It may have an increased hair growth, and is often pigmented with brownish mole-like pigment. On palpation the tumor as a whole is soft, usually not adherent to deeper structures, and fairly movable to the touch and is of uneven consistency, and on manipulation suggests the worm-like feel of a varicocele, save that the individual



FIG. 2.

cords in this case are of hard, tough consistency.

The most usual site of the tumors is, according to Bruns, the temporal region or the head and nape behind the ear. They may, however, appear on the back, trunk, face, arms, legs, or even as sacral growths, or in the perineum. As a rule there is not more than one conspicuous tumor, but in the majority of cases other growths are to be found under the skin, often irregularly following nerve trunks, or actually showing as rosary-like beadings along the nerves themselves. The tumor may lie beneath as well as above the fascia. Pomorski records a case where the pleura was invaded from without, or they may form an elephantiasis consisting of an actual tumor formation about the distribution and endings of the skin nerves over a considerable area. The growths may involve the deeper plexuses (solar plexus: Robin; mesenteric nerves: Hektoen), or they may invade

¹ So for example a case by Jonan, Rev. d'orth, January, 1900, p. 61, described as hypertrophy apparently belongs here.

² *Beitrag z. kl. chir.*, VIII, 1891-1892, p. 1.

³ *American Journal Medical Science*, January, 1901, p. 1.

the spinal canal along the nerve roots (Hektoen), or even exist within the cranium (Berggrün). In cases with these multiform multiple tumors there are likely to be associated with them both scattered pigmentation (as in the present case) and skin tumors of the sort known as fibroma molluscum long since shown (Recklinghausen, 1882), to be actually neurofibromata.

Surgically, the growth is usually reasonably well limited, mobile, and vascular.

Pathologically, the whole series — Ranken-neurom, general neuromatosis, fibroma molluscum or congenital elephantiasis — have one basal structure, and differ only in the place and arrangement of their growth. They consist of fibrous growth of the nerve sheaths about the nerve endings of smaller or larger nerves, penetrating between and enclosing the nerve fibres, and often causing their entire atrophy. The growth increases by concentric increase in size or by invasion along previously unaffected nerve trunks, but only in this way. It has nothing, really, in common with the sarcoma, but belongs to a sort of neuro- and fibromatous diathesis, manifesting itself at varying periods, but often, as Bruns has conclusively shown, is of hereditary origin, apparently (usually at last), fatal in character, and declaring itself in one way or another at birth or in very early life.

The growths *per se* cause no symptoms, and curiously enough almost no interference with nerve function except when they invade spinal canal or cranium, which is excessively rare. They are important through the deformity and inconvenience, and through the late danger of sloughing and sepsis. The prognosis of spontaneous cure is very slight, though individual tumors may decrease or disappear.

H. L. B.

CASE II. PARAPLEGIA EXISTING FROM BIRTH; LAMINECTOMY AT THE AGE OF FIVE AND ONE-HALF MONTHS.

X. Y., who was five and one-half months old, was admitted to the hospital May 4, 1900, for a paralysis of both legs, existing since birth. The labor had been a difficult one, inasmuch as placenta previa existed and delivery was performed by rapid version. The version was performed by a skilful obstetrician, who was present in consultation.

After delivery the child progressed favorably, but when two or three weeks old it was noticed that it did not move the legs. There was at no time soreness of the back, or pain at being lifted, and nothing abnormal in the spine was noticed by the parents or nurse.

When it was a few weeks old the child was seen by one of the surgical staff of the hospital, and a neurologist was called in consultation. The examination showed apparent abolition of reflexes in the lower half of the body, together with a disappearance of sensation and motion nearly to the level of the umbilicus. There was some swelling of the legs, and the child, although well developed and healthy in other respects, was somewhat ner-

vous, starting in its sleep and giving signs of undue nervous activity. The bowels were constipated, the bladder had little or no power of retaining urine, the back was normally movable, and there was no undue prominence anywhere, or evidence of anything wrong, with the exception of a slight fullness in the lumbar region.

In the hope of contributing something to the diagnosis and possibly demonstrating the existence of incomplete spina bifida, the child was chloroformed and an x-ray photograph taken, which showed nothing abnormal in regard to the bony structure of the spine. An unfavorable prognosis was given, and it was decided that the affection was probably not traumatic, but more probably some congenital malformation.

The child did not improve, and at the age of five months the parents were told that an operation offered some slight prospect of relief, in case there was anything pressing upon the spinal cord. The operation was not advised, but the parents were told that it was perfectly proper that it should be done if they so wished. Inasmuch as they knew that the prognosis was definitely bad, the parents were desirous of having the operation performed.

The child was admitted to the hospital on the 5th of May, 1900. She was etherized, and a straight incision made at the dorso lumbar junction, and the spinous processes of three laminae removed, the site of the operation being located by the neurologist. The spinal canal was opened without difficulty and considerable fatty tissue was found outside of the dura. The dura was opened and much clear fluid escaped, a surprising amount welling up from the wound and flowing off at the sides. A director was passed up and down the spinal canal to see that there was no pressure existing, and the nerves coming off from the spinal cord appeared to be small and adherent to the dura. So far as it seemed proper the nerves were freed from the dura, the dura was left open, and the muscles and skin were sewed up separately. No evidence of traumatism existed and the condition seemed to be a congenital deficiency or malformation of the spinal cord. The spinal cord itself looked very small, but of course one could not say that it was more than relatively so.

The child made a perfect convalescence; there was little or no rise of temperature, and at the end of a week it was sent home with the wound healed. The swelling in the legs immediately diminished, and the child's nervous irritability disappeared. In two weeks it was distinctly better than before operation. There has, however, been no further improvement; the paralysis continues and the swelling exists in a moderate degree. R. W. L.

CASE III. A CASE OF UNUNITED FRACTURE OF THE FEMUR IN A CHILD IN WHICH THE NON-UNION WAS DUE TO THE FORMATION OF A CYST AT THE ENDS OF THE FRAGMENTS.

A girl, eleven years of age, having been previously well, in May, 1900, was run over by a wagon and the right femur broken at about the

middle of the shaft. She was under careful treatment for thirteen weeks, after which she was allowed up, the leg being straight, but a lump on the middle of the thigh was noticed by the mother. The child had been able to move about freely with the aid of crutches, leaning some weight upon the leg, but the mother is confident that the bunch in the middle of the thigh had gradually increased. In the middle of October the leg gave way and the child fell to the sidewalk.

One week later she was brought to the Children's Hospital, with a definite fracture in the middle of the shaft of the femur, and with $\frac{3}{4}$ of an inch shortening of the right leg, the shortening all being between the anterior superior spine and the inner condyle of the femur. Aside from this condition the child seemed well. The x-ray examination revealed an ununited fracture with overriding of the fragments. Traction in bed was attempted, but after several days there was no increase in the length of the leg. Ether manipulation was then attempted, but even though considerable force was used it was impossible to bring the fragments into the correct position. After one week more of trial of bed treatment without result, the patient was operated upon, and at the seat of the break a swelling as large as a lemon was found which contained about an ounce of clear, straw-colored fluid. The fluid was under so much pressure that when the cyst was punctured it spurted for several feet. The wall of the cyst was made of a thin, hard and brittle substance, which the pathologist reported to be bone callus. All of this wall was removed, the edges of the bone refreshed and brought together, the wound closed and traction and coaptation splints applied. Seven weeks later there is no yielding at the seat of fracture, the length of the legs is exactly the same, and the healing has apparently gone on without any departure from the normal course.

J. E. G.

Medical Progress.

RECENT PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

(Continued from No. 13, p. 313.)

FOOD AND DRUGS.

*Inspection of American Meat.*¹³

The number of live cattle intended for slaughter inspected by the U. S. Government in 1900 was 53,087,994. Every case of preserved canned beef exported from the canneries of the Great West, bears evidence of official inspection, and therefore proof that the contents of those cases were taken from sound and healthy animals. Consideration of the facts and figures presented suggests to meat inspectors everywhere that the Americans are fully alive to the value of the great demand which they have created in Great Britain for their meat

products. The New Zealand Government is about to adopt inspection of all meats which are exported from that colony. It is well to know that the United States have for many years past inspected the meat they have used at home and supplied to England.

The Hygiene of Bread Manufacture.

Drs. Waldo and Walsh¹⁴ suggested two methods by which a loaf of bread might convey specific organisms capable of causing injury to consumers.

(1) Organisms that have lodged on the crust of the loaf from surface contamination in an infected bakery; (2) organisms that have possibly escaped destruction in the interior of the loaf during the process of baking.

The authors carried out a series of experiments to determine the second of these possible modes of infection.

Experiments upon temperature:

(1) There is an average temperature in the middle of an ordinary quarter loaf of 75° to 86°C. (163° to 187°F.), and in smaller loaves of 86° to 95°C. (187° to 203°F.). (2) There is a steady increase in the temperature in the middle of a loaf during the baking. The highest of these temperatures are only maintained for a short time, and are not high enough nor maintained for a sufficient time to destroy all bacilli and their spores.

Loaves were obtained from different bakeries in London, and examined by direct microscopic examination and by cultivation. The former method proved unsatisfactory, while the latter under two methods of examination yielded thirteen species of bacteria from 62 loaves of bread. These were non-pathogenic organisms. The authors argued that if these could survive the heat of baking, certain pathogenic forms might pass the same ordeal.

In a later chapter (page 41) the statement is made that the cholera bacillus has been cultivated from bread made of dough infected with a pure culture of that organism. (This subject is worthy of further investigation.)

*Pathogenic Microbes in Milk.*¹⁵

The medical officer of the London County Council caused an examination of London milk to be made last year, with the following result:

These samples were taken by an inspector in sterile glass-stoppered bottles from milk churns sent from country farms to the principal stations in London, before being handed over to the agents. Immediately after filling, the bottles were carefully stoppered, sealed, tied and brought directly to the laboratory. The bacteriological analysis was undertaken chiefly with the view of seeing whether or not any sample of the milk contained the tubercle bacillus, but during the inquiry some other microbes were detected now and again, which on account of their specific pathogenicity to animals, at any rate, deserve consideration.

¹³ Bread, Bakerhouses and Bacteria, London.

¹⁴ The Journal of Hygiene, vol. 1, No. 1, January, 1901, p. 78.

¹⁵ British Food Journal, February 1901, p. 51.

(1) Seven per cent. of the samples of "country" milk produced typical true tubercle in the guinea pig; (2) 8% of the samples of "country" milk produced typical pseudotuberculosis (non-acid fast bacillus of pseudotuberculosis. — A. Pfeiffer.); (3) 1% of milk samples produced diphtheria in the guinea pig, yielding the typical true bacillus diphtheria; (4) 1% of milk samples caused a chronic disease (in most cases with fatal results) due to a pathogenic torula apparently differing in cultural and physiological characteristics from the torula (pathogenic blastomycetes) obtained by Sanfelice, Plimmer and others, from human cancer; (5) out of the secretions of the cow's udder two pyogenic microbes were obtained: *Bacillus diphtherioides* and *streptococcus radiatus* (pyogenes).

Death Due to Lead in Beer.¹⁶

A case is reported which occurred in Glamorgan-shire, England, of a fatal case of lead poisoning from the following cause: A workman, who went to his work early in the morning, drank each morning a glass of beer at a certain public house, receiving beer which had been in contact with lead pipes over night. The patient died, as was believed, of lead poisoning. A sample of this beer gave abundant evidence of the presence of lead.

Effect of Food Prepared with Alum Baking Powder upon Digestion.

Dr. E. E. Smith¹⁷ reports the results of experiments made to determine the healthfulness of alum baking powders.

The first set of experiments was made to determine the influence of this food on secretion in the stomach. Test breakfasts of baking-powder bread and control bread were given to healthy individuals. The contents of the stomach were withdrawn an hour afterward and examined for acid and pepsin.

A more elaborate experiment was conducted to determine whether the baking-powder bread was absorbed from the digestive tract to the same extent as the control bread, and whether, in the process of digestion and absorption, there was any evidence of disturbing influence. The procedure was based upon the method for determining the co-efficient of availability of a dietary.

The result of these experiments was that food prepared with alum baking powder did not interfere with gastric secretion, and that it was utilized by the body in the same way and to the same extent, as other bread. The investigation revealed no reason for believing such food at all injurious or unwholesome.

Royal Commission on Beer Poisoning.¹⁸

A Royal commission of six persons has been appointed with the following instructions:

To ascertain with respect to England and Wales. (1) The amount of recent exceptional

sickness and death attributable to poisoning by arsenic.

(2) Whether such exceptional sickness and death have been due to arsenic in beer or in other articles of food or drink, and if so (a) to what extent; (b) by what ingredients, or in what manner the arsenic was conveyed; and (c) in what way may such ingredients become arsenicated.

(3) If it is found that exceptional sickness and death have been due to arsenic in beer or in other articles of food or drink, by what safeguards the introduction of arsenic therein can be prevented.

NOTES UPON THE GERMAN LAWS¹⁹ RELATING TO THE SALE OF PROPRIETARY MEDICINES.

The following comments upon the German laws relating to the sale of drugs, are worthy of notice, and in many particulars such laws might be copied in America.

The statutes have only forbidden the trade in and the sale of unapproved remedies. Private individuals may order them from foreign countries. (Ministerial Rescript of 1842.)

Since the effort to increase one's income by illegally advertising remedies which in themselves are worthless, but are recommended for a host of diseases, has greatly increased, these preparations should be suppressed as a measure of public welfare. Therefore, not only requests for the right to prepare and sell secret remedies, although shown to be harmless, will be denied, but concessions granted exceptionally in previous years, must expire with the decease of the persons to whom they were granted, and are not to be transmitted to others. (Rescript of October 12, 1867).

All advertisements or private announcements of proprietary medicines, of whatever name are forbidden, and offences will be punished according to Article 83 of the Code. Similar action can be taken by the local police. (Rescript of February 20, 1885.)

For the purpose of suppressing the growing evil of proprietary preparations, the Royal Police Board in Berlin causes such remedies to be analyzed by experts with reference to their constituents, and also with reference to their actual cost, and if necessary obtains information as to their manufacturers. A criminal suit may be founded upon the results of this investigation, under Section 367 (3) of the Criminal Code. In case of a successful suit, the composition of the remedy, its actual value, its healing qualities, and under certain circumstances the previous life of the manufacturer, may be published, and the community may be warned against purchasing it.

These precautions, and especially the injunction and the warning given to the public have had a very beneficial effect in Berlin.

On the other hand, in consequence of the vigorous application of these regulations in Berlin, the manufacturers, hard pressed by the police authori-

¹⁶ British Food Journal, February, 1901, p. 45.

¹⁷ New York Medical Journal, October 27, 1900.

¹⁸ Public Health, February, 1901, p. 334.

¹⁹ Die Apotheker Gesetze, nach Deutsch. Reichs, u. Preussischen Landes-Recht. W. Staats, Berlin.

ties, have carried on their business and plundered the people in the outlying districts.

HYGIENE OF INFANTS AND SCHOOL CHILDREN.

The Teeth of School Children.

Spokes²⁰ gives the following figures as the result of examination of 10,500 English and Scotch boys and girls of an average age of twelve years: These children had 37,000 unsound teeth. There were 18,000 decayed temporary teeth, more than half of which should have been filled. There were 19,000 permanent teeth, 13,000 of which should have been saved, and 6,000 required extraction. Only 14% had teeth free from decay.

The Eyes of School Children.

Butler states that (1) Refractive errors are extremely common among school children, being present in as many as 50%. (2) These errors are of great importance, on account of the immediate symptoms and disabilities which follow their neglect. (3) They are important factors in the production of many painful and disabling affections. Common enough in children, but still more so in adult life. (4) This early correction is demanded not merely as a means of therapeutics, but as an important measure of preventive medicine.

The Inability of Mothers to Nurse Their Offspring.

Von Bunge²¹ presents the results of an investigation in which he shows that the increasing inability of mothers to nurse their infants is a matter of inheritance.

He obtained information relative to 665 cases with the following result:

The daughter was able to nurse her offspring in 182 cases. The mother was able in 99.3% and unable in only 0.8%.

The mother was able in 237 cases. The daughter was able in 53.2% and unable in 46.8%.

The daughter was unable to nurse her offspring in 483 cases. The mother was able in 43.3% and unable in 56.8%.

The mother was unable in 147 cases. The daughter was able in 9.5% and unable in 90.5%.

He concludes from the foregoing figures that inability to nurse is largely a matter of inheritance. Further inquiries also led him to believe that tuberculosis and nervous diseases were to a considerable extent associated with inability to nurse one's offspring.

But much more prominent appears to be the relation of intemperance. Where the mother and daughter were both able to nurse he found that the fathers were usually, at least, moderate in the use of alcohol, and only in 4.5% were they hard drinkers. On the other hand, when the mother was able to nurse, but the daughter was unable, it was found that the father was often intemperate and in 46.8% was an actual drunkard.

In this inquiry the author considered those only as able to nurse who could nurse all their children for a period of nine months, and all others as unable.

Infant Hygiene.

Dr. Charles Porter,²² in a paper on the teaching of "Infant Hygiene," showed that the chief causes of infant mortality in his city (Stockport) were, in the order of their intensity: (1) Diarrheal diseases and the effects of malnutrition which together are responsible for 50% of such deaths; (2) respiratory diseases; (3) prematurity at birth. "But the mere number of deaths of infants is a very inadequate expression of the evil wrought by the conditions responsible for them. The wholesale rejection in manufacturing districts of war volunteers has made it conspicuously evident that the survivors of an unhealthy infancy too frequently develop into puny and physically deficient adults. From the recent analysis above referred to, I have no hesitation in saying that more than half the infant deaths in Stockport and a corresponding proportion of non-fatal damage to child life are (in the words of Herbert Spencer) the result of 'unreasoning custom, impulse, fancy, joined with the suggestions of ignorant nurses, and the prejudiced counsels of grandmothers.'"

Impressed with the gravity of this matter and having long and carefully considered the various means suggested for checking this evil, and especially the provision of crèches (which when established are often strangely unpopular or ignored) the Sanitary Committee became increasingly convinced that there is no royal road to improvement, and that any change for the better must be commensurate with the spread of knowledge of infant hygiene amongst mothers and those who, in the natural course of events, will become mothers. Accordingly it was decided to circulate twice yearly, a handbook of suggestions as to the "Feeding and Care of Infants."²³ It was further resolved to invite the co-operation of the school teachers, and to offer prizes for competition in each school undertaking to impart such instruction to the older girls.

The appointment of a female sanitary inspector was also recommended, whose duty it should be to visit houses in which there were newly born infants, and give directions as to their care and inquire as to the cause of infant deaths.

*Infant Life Protection.*²³

The *Local Government Chronicle* (England) makes the following just comments upon the Infant Life Protection Law, enacted by Parliament in 1897, and upon certain proposed amendments now being considered for further legislation:

The act of 1897 was a tentative act, and it was apparently believed by its framers that it would be sufficient—in the first instance, at any rate—to deal with wholesale baby farming, and to leave retail baby farming to take care of itself. Experience has shown that, as a matter of fact, the retail baby farming trade requires to be supervised quite as much, if not more, than the wholesale trade. At present, inspectors under the act may

²⁰ Journal Sanitary Institute; April, 1900, p. 2.

²¹ Die zunehmende Unfähigkeit der Frauen, ihre Kinder zu stillen. München, 1900.

²² Public Health, February, 1901, p. 344.

²³ Local Government Chronicle, March 2, 1901.

intervene if they find more than one farmed-out infant under five years of age kept in any house or premises which are so unfit or overcrowded as to endanger their health, and may obtain orders for the removal of the children to the workhouse or a place of safety until the children can be restored to their relatives or guardians, or otherwise lawfully disposed. By the bill it is proposed to extend these powers to children boarded out singly. It is not easy to see what valid objection can be raised to this extension of the principal act. It is also proposed to extend the age for the supervision of the children to whom the act applies from five to seven years. This also seems to us to be an unobjectionable proposal. The remaining proposal is to make the act apply in the case of all children under two years of age who are farmed out in consideration of a lump sum, whatever the amount of the lump sum may be, where no agreement has been made for any further payment. The act at present applies to these children only in cases where the lump sum does not exceed twenty pounds. It is very difficult to defend this limitation. Whatever the lump sum may be, it is equally to the interest of the person receiving the child that its life should be as short as possible, if it is clear that no further payments will be made in respect of its maintenance.

(To be continued.)

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

A. K. STONE, M.D., SECRETARY.

REGULAR meeting, Monday, February 4, 1901, DR. E. H. BRADFORD in the chair.

DR. HENRY JACKSON read a paper entitled

DISEASES OF THE MYOCARDIUM.¹

DR. H. D. ARNOLD read a paper on

THE CONDITION OF THE MYOCARDIUM AS AFFECTING CARDIAC MURMURS.²

DR. H. F. VICKERY: The extent and thoroughness of the papers which have been read to-night makes it, it seems to me, almost impossible to discuss them in any true sense. With regard to the study of the heart muscle there are two things which have struck me. One is that a heart which proves upon autopsy to be badly degenerated may beat very well, regularly, fairly strongly, up to death. I have seen such a case, a heart looking almost like fat after death, and pronounced to be in a state of fatty degeneration, not mere fatty infiltration, yet in the hour of death the pulse, as I remember, about 84. Then I have known cases in which the clinical diagnosis seemed to be myocardial disease, and the pathologist found no changes in the heart. The difficulty of finding

changes in the heart in cases regarded as myocarditis would seem to have been experienced by more than one observer. I remember some European authority says that in order to exclude myocarditis one should make microscopic sections of the whole heart and search all those pieces—which, as it seems to me, indicates a great deal of difficulty in finding the lesion. That brings me to the importance of a disorder of the heart which I do not think has yet been mentioned to-night. The effect of the nerves upon the production of myocarditis has been mentioned, but I believe that the heart may be macroscopically and microscopically normal and nevertheless fatally disturbed on account of ganglionic or nervous derangement. This seems to me a very difficult subject to determine about, and I think a great deal more study and investigation will have to be made before we can form definite and invariably reliable opinions with regard to the working state of the myocardium. This last year Dr. Cheadle of St. Mary's, in a course of lectures, spoke about the fatty degeneration of the heart in cirrhosis of the liver, the cases in which he had noticed it being mainly those due to alcohol, the liver sometimes being large and sometimes small. I was much interested in reading this because I had noticed, in several cases of cirrhotic disease with ascites and an alcoholic history, a mitral regurgitant murmur and an enfeebled heart. He says that the combination is rather common, and has a great bearing upon prognosis and upon treatment.

DR. SEARS: The whole subject of failing heart is introduced by Dr. Jackson's paper, which has greatly interested as well as instructed me. Yet I had hoped for still further instruction which might assist in distinguishing between its various forms. Cardiac failure is a convenient term to append to a certificate of death, but it is frowned upon by the Board of Health as too vague; it may, nevertheless, express the limit of our clinical knowledge, and in the absence of an autopsy be quite as accurate as if a more specific diagnosis were attempted, which we must regretfully admit is often beyond our capabilities. It is occasionally possible to get some help from the etiology, for a history of prolonged strain, or of a sudden effort followed by cardiac symptoms and only partial recovery, would suggest simple cardiac dilatation without degenerative changes, but unfortunately in all the conditions of which Dr. Jackson has spoken the same factors are at times operative and can seldom aid in making a distinction.

If the diagnosis between these conditions is difficult, the prognosis is scarcely easier. I have been struck, as Dr. Vickery has hinted, by the marked ability which some of these weakened hearts possess of resisting further strain. I can remember, for instance, a case which, as there was no autopsy, I will call one of cardiac weakness, occurring in an elderly man with marked arteriosclerosis, whose pulse was frequently 30 and never above 36 per minute, who successfully weathered an attack of double pneumonia. Two months

¹ See page 319 of the Journal.

² See page 324 of the Journal.

later after a walk of half a block he fell dead upon the sidewalk.

Dr. Jackson also speaks of the enlargement of the heart which followed arteriosclerosis in all cases among those which he analyzed. It is certainly not a necessary result of that condition when present only in the peripheral arteries as one might theoretically expect to find from the increased work thrown upon the heart. Hasenfeld, in an interesting paper, shows that it leads to hypertrophy of the left ventricle only when the splanchnics or the aorta above the diaphragm are markedly affected. Sclerosis of other vessels did not appear to alter the conditions. In the cases of contracted kidney which he examined, all portions of the heart were invariably hypertrophied, but if at the same time the splanchnic vessels were greatly altered, hypertrophy of the left ventricle predominated. Marked changes in the aorta would probably act in the same way.

Dr. Arnold speaks of the importance of recognizing the fact that cardiac murmurs alone mean little. He might also have emphasized the fact that valvular lesions are occasionally present when there are no murmurs which testify to them. He mentioned this particularly in cases of mitral stenosis. Dr. Shattuck may, perhaps, remember a patient which we saw together two years ago, where we both came to the conclusion that mitral stenosis was present although careful examination then and later, with the exception of one occasion when a slight presystolic thrill was noted, failed to detect a murmur. There was, however, some lateral enlargement and a sharp pulmonary second sound. She was then four months pregnant. On the occasion of the first visit the exertion of walking up the few steps leading to my office brought on so severe an attack of dyspnea and cyanosis that I feared she would die before she could be relieved. On his advice, which agreed fully with my opinion, a miscarriage was immediately induced. She visited me a few weeks ago, and her dyspnea was still very marked after slight exercise, but no change was detected in the physical examination.

Dr. WINTINGTON: I suppose we all agree with Drs. Arnold and Sears as to the relative unimportance of cardiac murmurs compared with the condition of the myocardium, and yet, while under careful observation of cases, we are able to say that some disease of the myocardium does exist. I for one do not feel able to differentiate fatty cases from cases of fibroid myocarditis, and I should like to have somebody tell me how to do it. I have known cases in which definite myocardial disease was present and no recognition of that fact was made during life. I recall a case — reported some time ago — in which a patient came from the country and was examined by somebody in town, who assured him he had no cardiac disease whatever, no murmurs being present. The patient went away very much cheered, and died in the cars on his way home of myocardial disease.

One of the results of myocardial disease which has interested me a good deal is the somewhat

rare one of cardiac rupture. I knew of a case some years ago — I was not the attending physician — which occurred in a man of seventy-one or seventy-two years, of spare habit, a man of perfectly correct habits, who had never used alcohol at all, who was agile and active, who got up one morning with a sense of oppression at the epigastrium, which was made light of at the time, and was afterwards considered to be due to an overloaded stomach. He stayed in bed during the day; about six o'clock in the evening was taken with severe pain and died in about ten minutes. He was found to have a rupture of the left ventricle, which apparently was due to fatty degeneration of the heart muscle. He had never had any symptoms, whatever, and had been in active life. Looking up other cases of this sort I have found an inaugural dissertation by Dr. Abbt, of Erlanger, in which he gathered some odd cases of cardiac rupture, and in 8 no disease of the myocardium was discovered on post-mortem examination. Of course, there is room for doubt as to how careful an examination was made. It does not appear, for instance, that in all these cases the suggestion just made by Dr. Vickery was followed, to examine every atom of the heart muscle. One of Abbt's cases interested me particularly, that of a man who consulted a physician for some cardiac uneasiness and was found to have rather a weak pulse. He was helped home and got better, and lived about two days, at the end of which time he died suddenly, and a rupture was found in the septum between the two ventricles which contained a thrombus.

In some of these cases it was curious to observe that the rupture, as in the case I first spoke of, took place not under violent exertion, but with the patient in bed and perfectly quiet.

The general subject of the condition of the myocardium is one of the very greatest importance, and one I am glad to hear emphasized as it has been tonight. It seems to me probable that the causation of these cases is very largely toxic. In influenza, diphtheria and pneumonia we know an acute myocarditis is present, undoubtedly of toxic causation, and that the same causation plays a part, directly or indirectly, in the more chronic cases seems probable. Alcohol has been spoken of as one of the great factors. Possibly ptomaine poisoning may play a part in other cases. These toxic agents may either affect the heart muscle directly and primarily, or else secondarily through an intermediate affection of the blood vessels.

Dr. F. C. SHATTUCK: There is an embarrassment of riches, Mr. Chairman, and it is very difficult to select any subjects for remark, because I have not any serious criticism on either of the papers which we have heard. Dr. Jackson said that the books did not give enough relative attention to myocarditis. It is perfectly true, but the trouble lies in our lack of knowledge. The accuracy, as it seems to me, is surprising with which we can determine the state of the heart valves considering the conditions under which we work. It seems to me very remarkable how closely in the majority of cases we

can determine the condition of valves by, as Dr. Arnold well said, a careful consideration of all the factors in the case; the murmur, as I said years ago in a paper on this subject, being the smallest part of the evidence on which we convict a valve. When we come to the condition of the heart wall we have not the same data to go upon; we have got to do lots of guesswork. It is very largely a matter of inference. Dr. Withington said he should be glad to have some one tell him how to distinguish between a heart degenerated from fibroid and one degenerated from fatty change. We should all be glad to have a revelation from on high or any other place on that subject. It appears to me absolutely a matter of surmise, and Bramwell puts it very well: "we can say that a heart is weak, but whether due to fibroid or fatty degeneration is sheer guesswork in the vast majority of cases." It is a pity that it should be so, because, of course, as has been already emphasized, it is the myocardium which is the vital thing. The valves play a passive, a purely mechanical part as it were. It is the condition of the myocardium we want to determine, and yet that is so difficult; and here comes in the proverbial uncertainty of prognosis in heart disease. What the condition of the myocardium is, whether dilatation is so predominant over hypertrophy that the heart is nothing but a stretched old rubber bag, whether the degenerative or inflammatory changes have passed the stage of even partial remedy is purely a matter of inference. There is nobody in this room who has not seen cases of heart disease do much better than he supposed they were going to, and has not seen other cases of cardiac disease do less well than he thought they would. It seems to me that one very important factor in prognosis should always be the chance which the patient has had up to that time.

DR. ARNOLD: I am very glad Dr. Sears spoke of the question of cardiac valvular disease without murmurs. I agree with him thoroughly as to the importance of the subject. The condition of the myocardium in the case Dr. Withington spoke of, where there was no valvular disease and no murmurs, brings up another important topic in this connection. It is well to have these points emphasized, though lack of time prevented their due consideration in a paper on the murmurs themselves. It has been shown experimentally that the mitral orifice contracts in systole. Examination of the heart with the x-ray shows that a marked contraction of the heart occurs laterally at the base in normal cases, so that it seems to me that the evidence that some contraction takes place is pretty clear. Furthermore, we find that these murmurs of mitral regurgitation occur in mild attacks of influenza, in measles, and in cases of mild debility so that it would seem that very slight disturbance of the myocardium is enough to disturb the perfect closure of that valve. That is the reason why I have assumed that some narrowing of the mitral orifice really is necessary for the perfect closure of the valve.

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THE ETIOLOGY OF YELLOW FEVER.

Drs. REED, CARROLL and AGRAMONTE, of the U. S. Army, detail in the *Journal of the American Medical Association* for February 16th the results of an interesting series of experiments made in Cuba, to which we have already briefly alluded, for the purpose of determining certain questions relating to the transmission of the infection of yellow fever.

An experimental camp was established in an open field, under good sanitary conditions, about a mile from the town of Quemados. The persons selected for experiment were non-immunes who were each paid a fee for the purpose of the experiment, and the experiments were performed with their full knowledge and consent in each case. Mosquitoes were obtained which had already been in contact with and had bitten persons ill with yellow fever and were allowed to bite these men who were thus selected.

The authors write as follows:

In considering the character of the attacks and the course of the disease in these five cases of experimental yellow fever, it must be borne in mind that these infected individuals were all young men, in good general physical condition and placed amid excellent hygienic surroundings. In our opinion the experiment above described conclusively demonstrates that an attack of yellow fever may be readily induced in the healthy subject by the bite of mosquitoes (*Culex fasciatus*) which have been previously contaminated by being fed with the blood of those sick with yellow fever, provided the insects are kept a sufficient length of time after contamination before being applied to the person to be infected.

Our observations do not confirm Finlay's statement that the bite of the mosquito may confer an abortive attack of yellow fever, when applied to the healthy subject two to six days after it has bitten a yellow fever patient. We have always failed to induce an attack, even of the mildest description, when we have used mosquitoes within less than twelve days from the time of contamination, although the insects were constantly kept at summer temperature. We could cite instances

where we have applied mosquitoes at intervals of two, three, four, five, six, nine and eleven days from the time of contamination of the insect with the blood of well-marked cases of yellow fever, early in the disease, without any effect whatever being produced by the bite. Thus in one case no result followed the bite of fourteen mosquitoes which four days previously had been contaminated by biting a case of yellow fever on the first day. Again, seven days later, or eleven days after the contamination, the surviving seven of these insects failed to infect an individual. On the seventeenth day after contamination, however, the bite of four of these mosquitoes—all that remained of the original fourteen—was promptly followed by an attack of yellow fever in the same individual. These insects had been kept, during the whole of this time, at an average temperature of 82° F.

Our observations would seem to indicate that after the parasite has been taken into the mosquito's stomach, a certain number of days must elapse before the insect is capable of re-conveying it to man. This period doubtless represents the time required for the parasite to pass from the insect's stomach to the salivary glands, and would appear to be about twelve days in summer weather, and most probably about eighteen or more days during the cooler winter months. It follows, also, that our observations do not confirm Finlay's opinion that the bite of the contaminated mosquito may confer immunity against a subsequent attack of yellow fever. In our experience, an individual may be bitten on three or more occasions by contaminated mosquitoes without manifesting any symptoms of disturbance to health, and yet promptly sicken with yellow fever within a few days after being bitten by an insect capable of conveying the infection.

Another series of experiments was devoted to the task of determining whether clothing and bedding that have been contaminated by contact with yellow fever patients and their discharges can convey the disease. Hitherto great importance has been accorded by boards of health to the question of disinfecting all the clothing and bedding of persons coming from yellow fever districts. The mere fact that such persons had resided, even for a day, in a yellow fever district has been sufficient cause to subject their baggage to rigid disinfection by sanitary authorities. For purpose of these experiments a building was erected having a capacity of 2,800 cubic feet. Clothing and bedding thoroughly infected with yellow fever excreta were placed in this room after having been shaken out in the room to disseminate the specific agent of yellow fever. Various soiled articles were hung about the room and placed about the beds. Seven non-immunes slept in this room each night for a period of twenty days, and in some instances they slept with heads upon towels thoroughly soaked with infected blood drawn from patients during an attack of yellow fever. This attempt to infect by means of fomites proved an entire failure.

Other experiments were tried to determine the answer to the question, "How does a house become infected with yellow fever?" In this instance, a

room was divided by a mosquito-proof screen, but so arranged that the air could circulate freely from one side to the other, windows being placed on opposite sides of the apartment. On one side of this screen fifteen mosquitoes were set free, which had been previously contaminated by biting yellow fever patients at different intervals before the experiment. A non-immune entered the room, remained thirty minutes and was bitten by several insects. He entered the room again in the afternoon and again the next day, and was bitten each time. On the fourth day this man was taken ill with yellow fever. Another man entered the same apartment, but was bitten by only one insect, and he entered the next day with the same result, but this man was not taken ill. It was quite possible that he was bitten by insects which had bitten yellow fever patients less than thirteen days before. During these experiments, two other non-immunes entered the same apartment, but on the other side of the screen, where there were no mosquitoes; and slept in this apartment eighteen nights with the result of remaining in perfect health.

As a result of this series of experiments the authors formulated the following conclusions:

(1) The mosquito (*Culex fuscipes*) serves as the intermediate host for the parasite of yellow fever.

(2) Yellow fever is transmitted to the non-immune individual by means of the bite of the mosquito that has previously fed on the blood of those sick with this disease.

(3) An interval of about twelve days or more after the contamination appears to be necessary before the mosquito is capable of conveying the infection.

(4) The bite of the mosquito at an earlier period after contamination does not appear to confer any immunity against a subsequent attack.

(5) Yellow fever can also be experimentally produced by the subcutaneous injection of blood taken from the general circulation during the first and second days of this disease.

(6) An attack of yellow fever, produced by the bite of a mosquito, confers immunity against the subsequent injection of blood of an individual suffering from the non-experimental form of this disease.

(7) The period of incubation in thirteen cases of experimental yellow fever has varied from forty-one hours to five days and seventeen hours.

(8) Yellow fever is not conveyed by fomites, and hence disinfection of articles of clothing, bedding or merchandise, supposedly contaminated by contact with those sick with this disease, is unnecessary.

(9) A house may be said to be infected with

yellow fever only when there are present within its walls contaminated mosquitoes capable of conveying the parasite of this disease.

(10) The spread of yellow fever can be most effectually controlled by measures directed to the destruction of mosquitoes and the protection of the sick against the bite of these insects.

(11) While the mode of propagation of yellow fever has now been definitely determined, the specific cause of this disease remains to be discovered.

THE AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.

It is significant of the progress in the differentiation of the medical sciences that the time has come for the formation of a new national society, devoted to pathology and bacteriology. In the preliminary announcement the object of this new association is simply stated to be the advancement of the knowledge of disease, without further statement as to its scope of activity. The promoters of the new society have no doubt considered carefully the arguments now so frequently heard for and against the multiplication of medical associations, and have, wisely we think, in this instance, decided to add another to the constantly growing list. The need of a new society must be determined essentially by the enthusiasm of its members, and their capacity for producing work of merit. If new societies, by limiting themselves to certain fields, can encourage men who have already gained a place for themselves, and especially those just entering upon their professional lives, to do really good research work, we have no right to call them unnecessary or superfluous. Time alone can show how far any given society will accomplish this object; it depends, naturally, upon many conditions, but we are confident, if the topics discussed are fundamentally important, that the gathering of men interested in the same general subject into a society is the best possible way to forward the progress of medicine at large. Men who take part in such meetings demand an intelligently sympathetic audience. Nothing is more harassing to a reader than the consciousness of lack of interest on the part of his auditors, and nothing is more irksome to an audience than a paper in which it has no interest. For all concerned, then, whether we relish the prospect or not, the special society composed of men interested in the same subjects is an institution which has come to stay. The more special the topic the more limited will be the membership; but it must always be remembered that the ultimate product of these deliberations, so far as they are valuable, must finally become common property, and so justify the seeming exclusiveness which gave them

birth. We have no doubt the new society of Pathologists and Bacteriologists, standing as it does in intimate relation with every branch of so-called practical medicine, will at once justify its separate existence.

MEDICAL NOTES.

PLAGUE SITUATION AT CAPE TOWN.—Recent reports from South Africa regarding plague are somewhat disquieting. A number of natives and a few Europeans are being attacked by the disease. There is 1 case in the Queen's regiment at Simons Town, 1 in the First Royal Irish, at the Greenpoint camp, and 1 in the Royal Garrison Artillery, at Castle, one of the suburbs of Cape Town. Some of the Malays have offered opposition to the removal of plague patients, and also of the bodies of those who have died of the disease. The government has informed these people that if this obstruction continues, the Malay community will be isolated outside the city. The latest report gives 17 new cases. Four are Europeans. The total number of cases thus far is 287 and the deaths 99. One of the doctors attending the plague patients has contracted the disease.

HOSPITAL AT THE PAN-AMERICAN EXPOSITION.—The management of the coming Pan-American Exposition at Buffalo proposes to maintain on the grounds a fully equipped hospital during the progress of the Exposition. It has already been used to a considerable extent as shown by the fact that up to the first of March, five hundred and four cases have been treated on the grounds, only one of which proved fatal. These include all forms of sickness and accidents to workmen employed upon the construction work. The hospital is under the directorship of Dr. Roswell Park.

DEATH RATE FROM PLAGUE IN BENGAL.—A despatch from Calcutta announces that last week 8,000 persons died of plague in Bengal alone, including Calcutta. Towns are being deserted, but there is said to be no panic.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, April 3, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 88, scarlatina 27, measles 103, typhoid fever 4, smallpox 1.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending March 30th, was 244, against 316 the corresponding week last year, showing a decrease of 72 deaths, and making the death rate

for the week 22.7. The deaths from consumption were 31, pneumonia 43, whooping cough 1, heart disease 30, bronchitis 8 and marasmus 1. There were 10 deaths from violent causes. The number of children who died under one year was 39, the number under five years 66. The number of persons who died over sixty years of age was 52. The deaths in public institutions were 84. There were 5 deaths from influenza during the week, all complicated with other diseases.

OPPOSITION TO MAINE EYE AND EAR INFIRMARY.—By a large majority the Maine House of Representatives has voted not to appropriate \$5,000 annually, which has been asked for the support of the Maine Eye and Ear Infirmary, located at Portland.

NEW YORK.

INCREASE OF SCARLET FEVER AND DIPHTHERIA.—There has of late been a considerable increase in both scarlet fever and diphtheria. In the week ending March 16th there were 608 cases of the former reported, an increase of 46 over the previous week, and 324 cases of the latter, an increase of 63. Since January 1st 4,959 cases of scarlet fever have been reported in the city, and a noteworthy fact in connection with the present epidemic of the disease is the unusually large proportion of adults attacked. It is however of a comparatively mild type. Thus, while there were 29 deaths from scarlet fever in the week ending March 16th, against 15 for the corresponding week of last year, the cases reported during the week in 1901 were nearly three times as large as in 1900.

OSTEOPATHY: ASEPTIC VACCINATION.—At a meeting of the Medical Society of the County of New York, held March 25th, a resolution was adopted protesting, in view of the recent introduction of bills legalizing the practice of osteopathy, against the enactment of any measure giving the right to treat disease unless a compliance with the medical laws of the state is a prerequisite. The paper of the evening was by Dr. W. K. Kubin, on "The Importance of Aseptic Vaccination." In the discussion which followed it was agreed that vaccination shields were a source of more injury than benefit, and Dr. George H. Fox suggested that the scab should be removed artificially by the physician.

ENTIRE STOMACH REMOVED.—On March 29th Dr. George R. Fowler, at the German Hospital in Williamsburgh, Borough of Brooklyn, removed the entire stomach of a patient, sixty years of age, for cancer. Two malignant growths were found in the organ, one situated near the cardiac orifice and one near the pylorus.

THE ETIOLOGY OF CANCER.—Dr. H. R. Gaylord, who has been in charge of the New York State Cancer Laboratory, at Buffalo, since its establishment three years ago, has just made public a report of the most recent investigations conducted at the institution, and announces with positiveness that he has identified the parasite claimed to be the essential organism of the disease.

APPROPRIATION FOR NEW SMALLPOX PAVILION.—The Board of Estimate and Apportionment has recently made an appropriation of \$10,000 for a new smallpox pavilion on North Brother Island to accommodate 50 patients.

Miscellany.

EXTENSION OF MEMBERSHIP OF BOSTON MEDICAL LIBRARY.

The following circular letter has been sent to certain physicians in and about Boston, with the purpose of exciting a greater interest in the library and its objects than at present exists:

Twenty-five years ago the tireless energy of a small group of Boston doctors who had the foresight to realize that a good medical library was essential to medical growth, set in motion the enterprise which has just given birth to the new and beautiful library building on the Fenway. As a warrant to high standards of medical education, and as a means to bind together men by whom knowledge is held in respect, this movement is second in importance only to the founding of the medical school itself, and because it has been felt to be of this significance, it has secured the generous support in time and money, even, of many physicians who rarely have the opportunity to consult the books upon the library shelves.

At the last meeting of the library a new departure, alluded to in our issue of last week, was decided on, for the success of which your co-operation is required. The library was never intended to be an institution of Boston only, but an institution of Massachusetts or of New England. We wish a wider sympathy and support from physicians of towns and cities outside of Suffolk County, for they too, for their own sake and the credit of the profession, and for the sake of the coming generations are bound to have the success of this movement at heart. The new building, erected almost wholly through the devotion of members of the profession, offers you a convenient and pleasant place for friendly meeting; the information which will some day be indispensable to you is here ready to your hand; those of your sons who follow in your steps will find here the inspiration essential to their success.

Correspondence.

WHEY CREAM MODIFICATIONS IN INFANT FEEDING.

PHILADELPHIA, PA., March 19, 1901.

MR. EDITOR: In the report, in your issue of March 7th, of the discussion following the paper of Drs. White and Ladd on "Whey Cream Modifications in Infant Feeding," the impression is given that the use of whey as a substitute for, or modifier of, cows' milk in the artificial feeding of infants, was regarded as a new device by

some of the debaters. Any one, however, at all familiar with the history of infant feeding, must know that whey has been used as a substitute for milk in infants with feeble digestion for fully forty or fifty years; also, that the employment of whey as a modifier of cow's milk, so as to reduce the casein of the latter, and, at the same time, maintain the nutritive value of the mixture by the use of the proteids of the whey, dates, likewise, from an early period. Mixtures of whey and cream are recommended in the first edition of Eustace Smith's "Wasting Diseases of Children" (1868), while the earliest mention I can find of Dr. Frankland's method of treating milk for infants is in Routh's "Infant Feeding," published in 1860. This method consisted in removing the cream from a given quantity of milk, separating the casein from the remaining skim milk by the action of rennet, scalding this whey and adding milk sugar, mixing this with an equal or twice its quantity of whole milk, and finally adding the removed cream. A modification of this method has long been in use throughout Great Britain under the name of "Humanized Milk." Whey and cream mixtures have also for many years been a favorite resource of Louis Starr in difficult cases. A process similar to that of Backhaus (described by Dr. Wentworth in the discussion of Drs. White and Ladd's paper) is given by Henry Ashby in the *Edinburgh Medical Journal* (N. S., 5, p. 389, 1899). The following formulae are recommended by this author for infants who have difficulty in digesting the curd of cow's milk:

I.	
Milk, 10 ounces,	} Proteids, 1.75. Fat, 2.50. Sugar, 6.00. Salts, .60.
Sterilized Whey, 20 ounces,	
Sugar of Milk, 1-2 ounce,	
II.	
Top Milk, or 8% Cream, 10 ounces,	} Proteids, 1.75. Fat, 4.00. Sugar, 6.00. Salts, .60.
Sterilized Whey, 20 ounces,	
Sugar of Milk, 1-2 ounce,	

The high proportion of fat in these mixtures is due to vigorous agitation of the curd before straining, whereby, according to Ashby, the whey is made to take up more fat (1.75% to 2.00%) than is accomplished by the ordinary method of preparation. It is thus quite evident that the idea of utilizing the whey proteids in reducing the casein of cow's milk is not of recent date. The older pediatricists, of course, did not do this in any accurate or scientific manner. This was reserved for Backhaus, to be still further elaborated by Westcott, Rotch, White and Ladd. The objection to the method, as far as the home modification of milk is concerned, is that it would complicate still more an already somewhat complicated process, when our aim should be in the direction of simplicity. Moreover, it does not seem to me to be necessary. I have not found that healthy infants usually have difficulty in digesting the casein of properly modified cow's milk, nor does there seem to be any reason why we should aim, as Dr. Rotch suggests, to give 2% of total proteids by the fourth or fifth month, as this process is said to enable us to do, when breast-fed infants are well nourished with from 1.25% to 1.50% at the same age. In feeble and dyspeptic infants, however, who cannot digest the casein of cow's milk, sometimes even when given in the weakest dilutions, these whey cream modifications will undoubtedly be of the utmost value; but outside of the laboratories I fear their general use will be postponed until a ready method of calculation at the bedside can be obtained.

Very truly yours,
D. J. MILTON MILLER.

THE USE OF ANTITOXIN.

MR. ERROR.—The blast against the use of antitoxin which was published in the *Boston Evening Record* of Friday, March 29th, by Rev. D. S. Coles, A.M., M.D., etc., etc., has the familiar stamp of a very small number of physicians who, in America, have condemned antitoxin from the outset. One would suppose from

the tone of this article that patients and physicians were compelled to use antitoxin. We are not aware, however, that such is the case in any country.

In this article the following statement runs: "I predict that in a few short years this horse serum fad will be relegated to the same medical dump, etc." This same writer used precisely the same language in one of his publications in 1896. Now, what are the facts? In the last report of the State Board of Health the number of packages of antitoxin issued has been as follows: 1895, 1,724 bottles; 1896, 3,219 bottles; 1897, 4,068 bottles; 1898, 12,491 bottles; 1899, 31,967 bottles. That is to say, beginning with 0 in 1894 the board has issued nearly 55,000 packages, not in a decreasing ratio, but in a rapidly increasing one from year to year, a fact which does not look much like going to the "dump heap."

It would be interesting, though perhaps impossible, to ascertain the actual fatality of diphtheria in the hands of physicians who still reject the use of antitoxin, of which fortunately there are very few in Massachusetts. There is, however, on record the experience of at least one suburban town. In this town there were in all 124 deaths in 1900. Out of this number 5 were deaths from diphtheria, and of these 5, 3 occurred in the practice of the only physician who persisted in his opposition to the use of antitoxin. It is also quite remarkable that these 3 deaths were all of persons who were over ten years old—an age when deaths from diphtheria are quite uncommon.

PHYSICIAN.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, MARCH 23, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Whooping cough.	Diphtheria and croup.	
New York . .	3,437,202	1,487	464	23.04	19.17	2.67	.25	3.94	
Chicago . .	1,886,575	—	—	—	—	—	—	—	
Philadelphia .	1,283,697	—	—	—	—	—	—	—	
St. Louis . .	555,238	—	—	—	—	—	—	—	
Baltimore . .	508,357	245	69	20.00	23.66	—	.41	1.22	
Cleveland . .	387,728	—	—	—	—	—	—	—	
Buffalo . .	352,387	—	—	—	—	—	—	—	
Cincinnati . .	325,962	—	—	—	—	—	—	—	
Pittsburg . .	321,616	148	58	27.67	16.20	.67	1.35	3.27	
Washington .	275,718	—	—	—	—	—	—	—	
Milwaukee . .	285,315	—	—	—	—	—	—	—	
Providence . .	175,597	89	20	22.40	18.08	—	1.12	2.25	
Boston . .	560,892	222	56	26.10	18.00	1.80	—	6.30	
Worcester . .	115,421	35	14	9.58	31.46	—	—	—	
Fall River . .	104,863	29	11	27.60	6.90	—	—	—	
Lowell . .	94,969	31	12	19.38	25.84	—	3.23	3.23	
Cambridge . .	94,886	31	9	22.61	12.92	—	—	3.23	
Lynn . .	62,415	—	—	—	—	—	—	—	
Lawrence . .	62,559	23	10	—	17.40	—	—	—	
New Bedford .	62,442	20	9	20.00	15.00	—	—	5.00	
Springfield .	62,069	19	5	15.78	15.78	—	—	—	
Sumerville . .	61,443	19	4	9.09	26.30	—	—	5.26	
Holyoke . .	45,712	17	8	11.76	35.28	—	—	5.88	
Brookton . .	40,063	13	3	15.38	23.07	15.38	—	—	
Haverhill . .	37,175	16	3	31.25	6.25	—	6.25	6.25	
Salem . .	36,566	13	5	38.45	38.45	—	—	—	
Chelsea . .	34,072	10	2	20.00	—	—	—	—	
Malden . .	33,664	13	5	23.07	15.39	—	15.39	7.69	
Newton . .	33,587	12	2	8.33	—	—	—	—	
Fitchburg . .	31,624	11	2	9.09	36.36	—	—	—	
Taunton . .	31,036	11	3	9.09	—	—	—	—	
Gloucester . .	26,121	7	1	14.28	—	—	—	—	
Everett . .	24,536	9	3	22.22	22.22	—	—	11.11	
North Adams .	24,300	6	3	16.67	33.34	—	—	—	
Quincy . .	23,899	5	3	—	20.00	—	—	—	
Waltham . .	23,481	8	2	12.50	12.50	—	—	—	
Pittsfield . .	21,766	4	1	25.00	—	—	—	25.00	
Brookline . .	19,935	—	—	—	—	—	—	—	
Chicopee . .	19,167	9	5	44.45	—	—	22.22	22.22	
Medford . .	18,244	6	1	33.33	50.00	16.67	—	—	
Newburyport .	14,478	—	—	—	—	—	—	—	
Melrose . .	12,962	—	—	—	—	—	—	—	

Deaths reported 2,619; under five years of age 803; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 582, acute

tung diseases 506, consumption 299, diphtheria and croup 165, diarrheal diseases 60, scarlet fever 49, typhoid fever 21, whooping cough 14, cerebro-spinal meningitis 8, measles 6, erysipelas 12, influenza 12.

From whooping cough, New York, 4, Baltimore, 1, Pittsburgh, 2, Providence, 1, Lowell, 1, Haverhill, 1, Malden, 2. From cerebro-spinal meningitis New York, 4, Baltimore, 1, Worcester, New Bedford and Medford, 1 each. From scarlet fever, New York, 40, Pittsburgh, 1, Boston, 4, Brockton, 2, Medford and Revere 1 each. From typhoid fever, New York, 5, Baltimore, 1, Pittsburgh, 12, Providence, 1, Boston, 2. From erysipelas, New York, 7, Baltimore, 2, Boston, 3. Measles, New York, 4, Pittsburgh, 2. From smallpox, New York 6.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,099, for the week ending March 9th, the death rate was 19.5. Deaths reported, 4,419; acute diseases of the respiratory organs (London), 467, whooping cough 91, diphtheria 74, measles 118, diarrheal diseases, 39, fever 22, scarlet fever 32.

The death rates ranged from 8.9, in Croydon to 34.2, in Plymouth, Birkenhead, 16.2, Birmingham, 21.0, Bolton, 17.2, Bradford, 16.3, Brighton, 17.5, Bristol, 21.9, Burnley, 16.9, Cardiff, 20.0, Derby, 15.2, Gateshead, 19.0, Halifax, 23.4, Hull, 21.2, Leeds, 18.7, Leicester, 18.3, Liverpool, 26.3, London, 19.3, Manchester, 23.6, Newcastle-on-Tyne, 17.6, Norwich, 16.1 Oldham, 18.7, Portsmouth, 17.5, Preston, 18.2, Salford, 23.5, Sheffield, 19.7, Swansea, 20.9, West Ham, 11.6, Wolverhampton, 13.3.

METEOROLOGICAL RECORD.

For the week ending March 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Baro- meter	Ther- mometer.	Relative humidity		Direction of wind.		Velocity of Wind.		We'th'r		Rainfall in inches.
	Daily mean.	Daily mean. Maximum. Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 P. M.	
S., 17	29.90	34 43 25	64	32	58 W.	W.	10	8	C.	C.	T
M., 18	30.05	42 54 43	63	54	56 W.	S.W.	16	16	C.	9.	—
T., 19	30.30	37 44 30	66	56	51 N.	N.E.	29	10	C.	F.	—
W., 20	30.33	33 39 30	76	—	88 E.	S.	26	16	C.	R.	.02
T., 21	29.80	41 58 36	72	—	90 S.	S.	20	18	C.	R.	.14
F., 22	29.90	42 48 36	78	64	67 W.	W.	12	9	C.	C.	.11
S., 23	30.18	41 59 32	61	48	54 N.W.	S.W.	10	10	C.	C.	—
Mean	30.08	48 33	67								

* O., cloudy; C., clear; F., fog; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
Mean for week.

SOCIETY NOTICE.

CHANGE OF DATE OF ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.—Owing to conflict with the date of meeting of the American Gynaecological Society the annual meeting will be held at the New York Academy of Medicine in New York City on May 23, 24 and 25, 1901, instead of at the time previously announced.

RECENT DEATHS.

DR. JOHN HENRY HOWART BURGE, a physician who had been in practice in Brooklyn, New York, for fifty years, died on March 21st, in the seventy-eighth year of his age. He was born at Wickford, R. I., August 12, 1823, and studied at the Harvard Medical School and the Medical Department of the University of the City of New York. At the time of his death he was consulting surgeon to the Long Island College Hospital, St. John's Hospital and the Sheltering Arms Nursery.

DR. MYRON H. PARKHILL, Coroner of Steuben County, died at his home in Howard, N. Y., on March 26th of pneumonia after a brief illness, at the age of thirty-five.

GEORGE HAYWARD, M.D., M.M.S.S., died in Boston, March 20, 1901, aged eighty-one years.

BOOKS AND PAMPHLETS RECEIVED.

On the Treatment of Metacarpal Fracture. By Carl Beck, M.D., New York. Illustrated. Reprint. 1900.

On a Grave Possible Error in Skiagraphy. By Carl Beck, M.D., New York. Illustrated. Reprint. 1900.

Registration of Tuberculosis. Published for Gratuitous Distribution by the Pennsylvania Society for the Prevention of Tuberculosis. Reprint. 1901.

The General Practitioner. By James Tyson, M.D., Philadelphia, Professor of Medicine in the University of Pennsylvania, etc. Reprint. 1898.

How to Avoid Contracting Tuberculosis (Consumption). Published for Gratuitous Distribution by the Pennsylvania Society for the Prevention of Tuberculosis. Reprint. 1901.

The Operation for Hypospadias, with the Demonstration of Three Cases, Successfully Treated by the Forward Dislocation of the Urethra. By Carl Beck, M.D., New York. Illustrated. Reprint. 1900.

Predisposing Causes of Tuberculosis and How to Avoid or Overcome Them. Published for Gratuitous Distribution by the Pennsylvania Society for the Prevention of Tuberculosis. Reprint.

How Persons Suffering from Tuberculosis can Avoid Giving the Disease to Others. Published for Gratuitous Distribution by the Pennsylvania Society for the Prevention of Tuberculosis. Reprint. 1901.

A Scientific Basis for Medicine. Life and Its Association with Matter: Matter not Vital but Absolutely Chemical. By E. C. Hebbard, M.D., Boston, Mass.; Member Massachusetts Medical Society. Reprint. 1901.

How Storekeepers and Manufacturers Can Help to Prevent the Spread of Tuberculosis. Published for Gratuitous Distribution by the Pennsylvania Society for the Prevention of Tuberculosis. Reprint.

A Treatise on Appendicitis. By George Ryerson Fowler, M.D., Professor of Surgery in the New York Polyclinic, etc. Second edition, revised and enlarged. Philadelphia and London: J. B. Lippincott Company. 1900.

Manual of the Diseases of Children. By John Madison Taylor, A.M., M.D., and William H. Wells, M.D. Second edition, thoroughly revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

The History of Medicine in the United States. A Collection of Facts and Documents relating to the History of Medical Science in this Country, from the earliest English colonization to the year 1800. With a supplemental chapter on The Discovery of Anesthesia. By Francis Randolph Packard, M.D. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1901.

The Position of Ophthalmology in the Curriculum of the Modern Medical School, with some Suggestions as to the method of teaching it. By Swan M. Barnett, M.D., Ph.D., Professor of Ophthalmology in the Medical School of Georgetown University; Director of the Eye and Ear Clinic, Central Dispensary and Emergency Hospital, etc., Washington, D. C. Reprint. 1901.

Sonderabdruck aus dem Archiv für Laryngologie. Ein Wort zu Gunsten der Diagnose mit blossem Auge und der Entfernung des ganzen Organs mit einem dem Nachbargebiete möglicher lymphatischer Infektion bei Kehlkopfkrebs. By Prof. Dr. John N. Mackenzie, Prof. der Laryngologie u. Rhinologie an der Aerzte-Schule der Johns Hopkins Universität und Laryngologie am Johns Hopkins Hospital. Reprint. 1901.

The American Yearbook of Medicine and Surgery: Being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from Journals, Monographs and Textbooks of the Leading American and Foreign Authors and Investigators. Collected and arranged with critical comment by various authors under the general charge of George M. Gould, M.D. In two volumes. Philadelphia and London: W. B. Saunders & Co. 1901.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Assisted by H. R. M. Landis, M.D. Volume I., March, 1901. Surgery of the Head, Neck and Chest; Infectious Diseases, including Acute Rheumatism, Erysipelas, Pneumonia and Influenza; Diseases of Children; Pathology, Laryngology and Rhinology; Otolaryngology. Lea Brothers & Co. Philadelphia and New York. 1901.

Original Articles.

A REVIEW OF THE LITERATURE OF THE THERAPEUTIC USE OF THE X-RAYS.

BY HARVEY P. TOWLE, M.D., BOSTON.

Assistant to the Physicians for Diseases of the Skin, Boston City Hospital; Assistant, Curney Hospital, Skin Out-Patient Department.

As all will remember it is now six years since Röntgen startled the world by the announcement of his discovery of a new form of energy, which, because of its unknown character, he called the x-rays. These rays had the power of penetrating the human body, and were recognized at once as a most efficient aid to diagnosis. The use of them speedily became general. It was not long, however, before it was recognized that care must be exercised in the use or harm might result. The medical press began to receive report after report of injuries attributed to the x-rays. These injuries it was noted were all of the same type, varying only in degree. As the reports multiplied it gradually became known that the x-rays, or something accompanying them, had a distinct action upon the skin. Freund was the first to recognize this action and to suggest the use of the rays for the treatment of diseases of the skin. It was in connection with their use in dermatology that I was led to investigate the reports of the cases of skin disease, in the treatment of which the x-rays had been used as a therapeutic measure, in order to learn, as far as was possible through the literature, the theory of their action; the changes induced by them in the skin; in which diseases they had been used; the value of the treatment and the method of using them. The following is an attempt to show what has been found, without going into unnecessary detail or multiplying examples, giving, merely, an illustrative case under each topic and a very brief statement of the facts.

As has been already hinted, a vigorous discussion arose, which is still in progress as to the real nature of the rays, and as to whether the results obtained arose from the action of the rays themselves, or of something accompanying them. One early opinion was that the effects were due to the generation of ozone upon the skin.¹ There was another theory that the rays were chemical, like the ultraviolet.² In this connection it is interesting to note that Dr. Bowles, who has been investigating the effects of sunlight on the human body, and especially of the reflected rays from snow, concludes³ that he cannot avoid the feeling that the x-rays will be shown to be modifications, only, of ordinary light. It was also asserted by another observer that the spot treated was bombarded by particles from the platinum electrode. Eder and Freund⁴ advanced the theory that there is a disturbance of the electrical equilibrium of each molecule causing it to yield up its electricity. Still another theory was that the x-ray was a combination of different rays each doing its own work. Jutassy⁵, among others, supports the theory that the changes are due to the x-rays themselves. Bal-

thazard, as reported by Jutassy,⁴ thinks that the effects are produced by the electric zone which arises about the Röntgen lamp. In an article published May, 1900, Schiff⁶ quotes Freund's opinion as being that there is ground for assuming that the therapeutical effects obtained are due to electric waves, arising, in the case of the electric discharges, in the vacuum tubes under the same potential of discharge as the x-rays. Hall-Edwards⁷ states that Tesla has shown that the placing of a sheet of aluminum between the tube in action and the skin has the effect of stopping all danger of burns. "Now, as aluminum is exceedingly transparent to the x-rays and allows them to pass through with great freedom, it is safe to say that the x-rays themselves play little or no part in the process." He is inclined to think that the effects produced are entirely electrical in their origin. (Further observations having a bearing on this point will be given in the description of the histological changes.)

In the earlier days of the use of the rays, before their management was as well understood as at present, "accidents," *i.e.*: cases of dermatitis, were not uncommon. Every author now emphasizes the fact that great care must be exercised in the use of the x-rays and that no one without experience in the use of the rays should attempt to employ them. As it was these so-called accidents which first called attention to the possibility of using the x-rays therapeutically, and as they present certain features which throw light on the peculiar effects of the x-rays, and which help to explain why they are used as a curative agent, it will be profitable to consider rapidly this x-ray dermatitis.

It has been noticed that a certain sequence of events always follows on the continued use of the rays when the use is pushed to the point of visible reaction. Albers-Schönberg describes the process as follows:⁷ "First, a slight yellow coloring appears growing to a diffuse redness which later becomes a darker red. Light itching and prickling are experienced by many at this stage. Next there is a general feeling of warmth. With increasing redness comes edema of the skin. On continued exposure the skin becomes even darker. Small vesicles appear which become excoriated and the process spreads all over the exposed area. The process resembles that in burns. This may go on until a gangrenous ulceration results which has absolutely no tendency to heal. Over the excoriated parts healing is extraordinarily slow and it is months before a normal skin is reproduced."

I wish to give a few cases of x-ray dermatitis to illustrate the points given above, particularly the slowness of recovery. Drury⁸ reports a case which was exposed for one hour, tube distant one to two inches. Three hours later nausea. Later, case exposed one and one-half hours. Redness next day which increased (without further exposure) until, on the fourth day, vesicles appeared which ruptured, leaving excoriations with a profuse discharge. Healing was very slow. Sixteen weeks after exposure the ulcer was still open and

it became necessary to etherize and curette. Crocker⁹ reported the case of a boy who had one exposure of one hour. Tube distance, 5 inches. Next day, skin red; sixth day, skin stiff; ninth and tenth days, vesicles; eleventh day, vesicles began to rupture, leaving an excoriated surface which healed very slowly. The ulcer was not entirely healed three months later. Hannister¹⁰ reports the case of an army officer who was exposed for a radiograph to locate a bullet. As attempts to get a good picture failed the patient was given eleven sittings with a total exposure of over fifteen hours. On the first day of the last series the skin began to show signs of inflammation which extended during the trial. The epidermis was shed leaving exposed a red hyperesthetic area one-half the size of a man's hand. There was also a profuse outpouring of serum. Large blisters formed rapidly such as are seen in scabls. The man had been in bed for a month at the time of the report and the wound was still so tender that he could not endure a dressing upon it. Apostoli¹¹ reports a case where the wound was open for over one year.

These cases will serve to show the caution that care must be exercised in using the rays no idle one. Mies,¹² Schrwald,¹³ Fuchs,¹⁴ Lee,¹⁵ King,¹⁶ Gilchrist,¹⁷ and Bronson,¹⁸ among others, have reported cases of x-ray dermatitis in which serious injury with a very slow recovery was a marked feature. These cases recovered and I have not yet come upon a case in which death has resulted directly from the x-rays, but reprinted in a recent number of the *Boston Medical and Surgical Journal* was a case, taken from the *Lancet*, of an old lady of sixty-eight who was exposed by a layman several times. A large slough developed and several months later she died, being unable to stand the drain in her enfeebled condition.

It is only fair to state at this point that accidents are now rare, the knowledge that they may occur enabling the present day operator to guard against them. All operators now insist that a patient's susceptibility to the rays must be determined before further treatment is carried on, a measure taken to prevent such injuries as those mentioned above.

Before leaving these cases I wish to call attention to the variability of the time of the appearance of the first symptoms, the similarity of the lesions to those produced by burns and the marked tendency to a slow recovery. These points are still further brought out in a series of 69 cases reported by Dr. Scott,¹⁹ especially the varying susceptibility to the rays as shown by the time of the appearance of the first symptoms and the varied lengths of exposure which caused symptoms. In this series the average is three and one-half hours—the longest was twenty-four hours, the shortest twelve minutes. The average distance of the tube from the part exposed was in 25 cases a little over 6 inches—the greatest 18 inches with 19 exposures; the shortest $\frac{1}{2}$ inch with one exposure of half an hour. The shortest time noted for the first appearance of symptoms was

during exposure, the longest four weeks(?), the average in 31 cases being one and two-sevenths days. These figures are taken from cases collected in 1897. Today, as will be shown later, in speaking of the method of using, the length of exposure and the tube distance have been very much modified.

In addition to this review of the macroscopical changes a closer study of the microscopical changes is necessary in order to understand on exactly what grounds the therapeutical use of the x-rays is based. Kaposi² had explained on clinical grounds the effects produced. He said, there is caused first a fleeting hyperemia then a paresis of the deeper vessels of the skin, which change then extends to the superficial vessels and induces a true hyperemia. It is interesting here to compare this opinion given early with one given lately by Schiff and Freund²⁰ that according to present knowledge and experiments the greater part of the action is upon the vessels of the skin. Since Kaposi's explanation was made many microscopical examinations have been made. In a recent article by Allibers-Schönberg and Hahn⁷ it is said that Oudin, Barthélemy and Darier found a thickening of the epidermis, increase of keratohyalin and atrophy and disappearance of the hair follicles and glands. Kibbe²¹ in a mild case of dermatitis found changes in the outer cells of the rete especially in the nuclei, increase in the keratohyalin. The corium showed the ordinary changes of a mild dermatitis, capillary dilatation with rounded infiltration most marked about the hair follicles. Gassman⁷ in an ulcer caused by the x-rays found that "repair was by granulation tissue not different from that in ordinary ulcers; the vessels of the cutis and subcutis showed characteristic changes—growth and vacuolizing degeneration of the intima." According to Jutassy⁴ most authors are agreed that the histological changes are the same as those in ordinary inflammation. He also found the hair papillae atrophied and the hair follicles filled with a connective tissue rich in cells. Unna was the first to discover special changes in the collagen. He also found that the lymph spaces had nearly disappeared and that the elastic fibres could not be demonstrated.

It is interesting at this point to compare the changes caused by the use of the x-ray with changes caused by the direct spark as given by Freund²⁰ as the result of some experiments made by him. He says that the direct spark, whether as a direct discharge from the pole or as an "affluvium," will cause in animals a falling of the hair; that the direct spark will kill bacteria; that the effect can be produced through thin sheets of wood, paper, aluminum and the human skin; that the physiological effect of the negative spark is greater than that of the positive; that the x-rays, according to these researches, have themselves no physiological meaning; that the pathological changes in the skin, caused by the direct spark, consist of hemorrhages into the cutis, in inflammation and in vacuolization of the vessels.

As the x-rays seem to have an especial value in the treatment of certain diseases due to bacteria,

certain investigators made a study of their bactericidal powers. The only positive result which I have seen was that obtained by Rieder.²⁷ He used different culture media, such as agar, gelatine and serum, spread on glass plates. Over these was placed a sheet of lead in which was a circular aperture. The whole was so arranged that a portion of the culture was freely exposed to the x-rays through the aperture, the rest being protected by the lead. Ordinary light was excluded by pasting black paper over the hole. Cultures of cholera bacilli, anthrax, diphtheria and bacterium coli were exposed from one to three hours to the x-rays from a very powerful machine. The vacuum tube was distant 12 inches. Under the protecting lead the bacteria developed freely; under the aperture no colonies or only a few developed. The x-rays were also effective in stopping the growth of colonies and in this respect were more effective than sunlight. There was no change induced in the gelatine as was shown by the fact that bacteria afterward grew upon it. Wolfenden and Ross,²² Lyon,²³ Delepine,²⁴ Sabrazes and Rivi re,²⁵ and Wolff,²⁶ all made similar experiments. Various cultures of anthrax, bacillus prodigiosus, diphtheria, cholera vibrio and typhoid bacilli were exposed in test tubes to the x-rays. The results were all negative, growth not being interfered with. The weight of the evidence, therefore, would seem to be against the x-rays having any direct bactericidal power.

We have now seen upon what grounds the theory arose that the x-rays might be of therapeutic service in diseases of the skin. This theory was based, not upon a bactericidal power of the x-rays but upon the changes induced in the tissues, especially in the vessels and hair follicles. Freund was the pioneer in the application of the rays to therapeutic uses. His first case was one of nevus Pigmentosus Piliferosus of the back. This being his first case he had not then perfected the method he now uses, so that, in consequence of too long and too intense exposure a dermatitis developed. Notwithstanding this, he considered the results obtained so encouraging that he was led to institute further experiments, both alone and with Schiff, in the removal of hair and in other diseases, notably lupus, until now they have published more cases than any other experimenters. Their reports are especially instructive because they note the strength of current used, the tube distance, the length and number of exposures and the results, with the time elapsed since last treatment, necessary details which many omit from their reports. In June, 1898,²⁹ they published a series of cases of the removal of hair by means of the x-rays. Similar cases have been reported by others — Behring,³⁰ Daniel,³¹ Wood,³² Kolle,³³ Gocht.³⁵ In addition, the falling of the hair has been incidentally noticed by observers who were using the rays for another purpose. In most of these cases and in Schiff and Freund's earlier ones the hair showed signs of returning. Kaposi predicted that in such cases, as soon as the paresis of the vessels had worn off, the tissues would re-

gain their tone and the hair would return. As has been shown in the cases of dermatitis given, the process of repair is a very slow one so that cases now apparently successful may later on show themselves unsuccessful. Freund and Schiff have recognized this fact and have accordingly instituted a method which they think renders the effects permanent. They say in an article, published on June 28, 1898,³⁴ that it is probable that the hair bulbs and papillae never will regain their functions because of the changes caused in them by the inflammation. So, by short sittings at the time the return of the hair may be expected, they hope to so upset, and to keep upset, the nutritive condition that the functions will be destroyed either by mechanical alteration or by a paresis of the vessels. They consider that they are borne out in this hope by the fact that the only return was in a case in which these supplementary sittings were omitted. Their cases were, however, reported within a few weeks after the cessation of treatment. In a supplementary report it was stated that six weeks after the first report 1 case was beginning to show a return. This would seem to show that the fact of no return in six or eight weeks is not conclusive. Since then, however, they have reported cases in which there had been no return in two years. One case which has come under my own observation seems to cast some doubt upon the permanency of the effect produced even by repeated series of exposures. The man operated an x-ray machine for a large institution and in the course of his work suffered many and repeated exposures. A very severe dermatitis of the hands resulted but he did not give up his work permanently until he was forced to enter a hospital as a patient. In addition to the dermatitis of the hands, he had lost most of the hair of the face. He did not use the x-ray machine again for several months. Toward the end of this period it was noticed that the hair was returning again. Upon resuming his work the hair fell out again, but when he once more gave up his work the hair returned. This process has been repeated several times. Upon exposure the hair would fall, upon the cessation of work the hair would return slowly after some time. This would seem to indicate that even after the severest injury and when to all appearances the loss of hair is permanent a long time must elapse before the apparent result is accepted as a permanent result.

One case will serve to show the method used by Schiff and Freund in removing hair. A woman applied for the removal of hair on the upper lip and chin. She was given seventeen sittings of ten minutes each from January 4th to 31st: Tube distant, 15 to 20 centimetres; volts, 10 to 11½; amperes, 1½ to 2; intensity medium, 30 centimetres. January 29th: Most of the hair snow white; skin with a dark pigmentation. January 30th: Hair falling. February 3d: Skin smooth, bald; no trace of brown color or erythema. March 20th: About twenty hairs returned. March 20th and 21st: Two sittings of ten minutes each. March

23d: Hair white; fell spontaneously. April 23d: About five hairs to be seen on the chin. April 23d and 24th: Two sittings. April 25th: Hair fell out; no return at the end of May.

The chief therapeutic use of the x-rays, however, has been in the treatment of lupus vulgaris. Freund and Schiff,^{3,34} Kummell,³⁶ Gocht, Albers-Schönberg,⁷ Jutassy,⁴ Hall-Edwards,⁶ Jones,³⁷ Himmel³⁸ and several others have reported cases treated by the x-rays. Schiff and Freund report 2 cases in May, 1898. In the first case treatment was given from January 8th to February 18th. Nineteen sittings of twenty to twenty-five minutes each. March 6th it was noted that there was complete healing over. Smooth white scar. Isolated nodules in surroundings. The second case was treated from December 30, 1897, to April 4, 1898. Forty sittings of ten minutes each. Slight dermatitis interrupted sittings for a time. Result, cure. Schiff³ reports the case of a girl with two lupus ulcers. One ulcer healed in two months, the other in five months. Also, the case of a boy who was exposed one-half hour to one hour daily for ten days only. Nevertheless the therapeutic action continued, and the lupus was healed in four months without further treatment. Kummell³⁶ has treated 16 lupus patients, in whom there was at least improvement in all but one. Cures in from four weeks to several months. He then states that the time elapsed is too short to claim too much as to results. Albers-Schönberg⁷ reports 12 cases. He has had some returns, "but what procedure has not." Of these 12 cases he considers 7 absolutely cured. Several have remained free for over one year, and one for one and a half years. The opponents of this method of treatment, he says, will not consider a period of from nine months to one and a half years long enough. He looked with suspicion on the other 5 cases—some had returned, and all were unsatisfactory. Hall-Edwards⁶ reports 3 cases, in only one of which was the result considered satisfactory, "due perhaps to defective procedure." Jutassy⁴ reports 2 cases cured. In commenting upon the published cases he says, "that a large part of the lupus cases reported are still too recent to be judged. In about one-half of the older cases there has been a return." Many other cases have been reported as cured by the x-rays, but all are recent. The oldest cases which I have seen reported are those of Schiff, Gocht, Kummell and Albers-Schönberg. These men have reported cases in which there has been no return in over one year, and a few cases in which there has been no return in two years. These cases are surely encouraging, but remembering the peculiar delayed healing as shown in the cases of dermatitis, and how slowly the changes set up are overcome, perhaps, as Jutassy has said, the time is still too short to allow of an absolute judgment.

The reaction of the lupus tissue to the x-rays is considered by Freund and Schiff to be characteristic. They describe this reaction as follows: The visible lupus nodules grow gradually dark red and turgid. Then there appear, on places apparently

normal, dark spots, which gradually assume the characteristics of lupus nodules. Later the nodules fall out, leaving a hole the size of a pin's head, which looks as if it were made by a curette. In the place of the nodules are left fine subcutaneous scars. The intervening skin is white and smooth. Himmel concludes that the x-rays exert a greater and deeper action upon the lupus tissue than upon the healthy skin.

Lupus vulgaris and cases of hypertrichosis are the diseases in which the x-rays have been used therapeutically most often, but there are also several other diseases in which they have been used more or less.

A few cases of lupus erythematosus have been reported. Jutassy claims better results in the treatment of this disease from the x-rays than from any other treatment.

Gocht reports a case where hairs growing in a wound prevented healing. The hairs were removed by the x-rays, and the wound then healed. This use of the x-rays is similar to a suggested use in removing the hair in certain parasitic diseases, such as tinea, favus, etc., where a permanent removal is not desired, but merely a temporary removal, to enable treatment to be carried out more easily and effectively.

Before the French Academy of Sciences, on behalf of Dr. Sorel and Professor Soret of Havre, M. Mascat³⁹ showed a series of photographs of the hand of a patient who had been suffering from elephantiasis. The patient had recovered, and solely by the use of the x-rays, after three sittings of a few minutes each.

A few cases of eczema have been treated by the x-rays. According to Albers-Schönberg⁷ the x-rays remove absolutely and surely the eczema accompanying lupus. Dr. Pusey⁴⁰ states that "the cases of eczema in which this method has a field of usefulness, are the very intractable cases of chronic eczema, in which there is a necessity for a marked stimulation of the skin, in order to get absorption of the inflammatory products." He concludes that the field of usefulness in eczema will be limited.

A few cases have been reported recently of the use of the x-rays in cutaneous cancer. Stenbeck claims to be the first in this field. He reports⁴¹ a case of a woman with two ulcerations on the dorsum and right half of the nose. At first, daily sessions of ten to twelve minutes each were given; lamp distance fifteen to twenty centimetres. Reaction began after four sessions. After eight or ten exposures profuse suppuration ensued. After thirty-five exposures the ulcers began to look clean and smooth, the epidermal islets were cast off, and new epithelial tissue began to form. Treatment now began to be more vigorous, and the exposures were prolonged to fifteen minutes each, with the lamp at ten centimetres. A weak reaction appeared, but the newly formed epidermis was not affected. The greatest resistance was offered by the wall-like circumference of the ulcers. An entire month was required to overcome it. It decreased in height and width, and then broke up

into individual segments, which in time completely disappeared. Sequira⁴² has reported a like case. Against these cases can be urged the same objection as against many of the lupus cases, time enough has not elapsed to judge of the final results, but even so, they are encouraging enough to warrant further trial.

Enough has been said to show the nature of the changes in the skin set up by the use of the x-rays and of the diseases in which advantage has been taken of these changes to apply them to therapeutic use. It remains but to speak briefly of the method of using the rays. The necessity of care to prevent injury has been spoken of already. To avoid such injuries Freund and Schiff have published a method of procedure which, if followed, they think will render the use of the rays perfectly safe. They state that for epilation without inflammation the maximum limit of strength of current should be 2 amperes; tension, $1\frac{1}{2}$ volts; tube distance, 20 to 25 centimetres. The length of exposure should not be over ten minutes. To excite inflammation as in the treatment of lupus, increase the strength to $3\frac{1}{2}$ amperes and the tension to 12½ volts. Shorten the tube distance to 10 centimetres or less. Length of exposure should be the same. Protect the parts not to be treated with sheets of lead. To test the patient's resistance to the rays, give one or two test sittings with the tube distant 20 centimetres. If there is no reaction in three weeks, it shows that the patient can stand the treatment. All observers unite in saying that care is necessary, and that treatment must be suspended upon the first appearance of dermatitis. By observing these rules it is claimed that the treatment is rendered entirely safe; indeed, a number of men who have exposed hundreds of cases to the x-rays say that they have never had a case of dermatitis follow.

We may conclude: (1) That the real nature of the x-rays is not yet determined definitely, nor whether the therapeutic action following their use is due to the action of the rays themselves or of something of electrical origin accompanying them; (2) that the treatment is not without danger, unless the greatest care is used; (3) that the effects of the x-rays remain for a long time, and recovery is very slow; (4) that whatever may be the exact origin of the effects produced, a definite reaction is caused in the skin by the use of the x-rays; (5) that the changes induced in the skin are similar histologically to those seen in ordinary inflammation; (6) that the x-rays are not proved to have any bactericidal power; (7) that their therapeutic effect is probably due to the inflammation excited; (8) that hair can be removed by their use, and that lupus and several other diseases can be healed over; (9) that in a few reported cases we may fairly assume that a permanent cure has been effected, but that in a majority of the reported cases too little time has elapsed to rule out the possibility of a return of the disease; (10) that the effect of exposure to the x-rays is so extraordinarily slow in disappearing that months should elapse before an absolute cure is assumed; (11)

that while the permanency of the cure effected may perhaps be doubtful as yet, it is certainly desirable to experiment further.

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PATHOLOGY OF THE NEWBORN AS ILLUSTRATED IN THE PRACTICE OF THE WRITER.¹

BY FREDERIC W. TAYLOR, M.D., CAMBRIDGE, MASS.

WHEN your president did me the honor to request from me a paper for this meeting, he suggested that it be clinical rather than scientific. Acting on this suggestion I have chosen to look over my records of obstetric cases with reference to the condition of the children.

The cases number in all 654, 563 being cases of which I was in charge, and 91 being cases at which I was present as assistant or consultant. I find that 64—nearly 10%—of the children were abnormal either at birth or during the first few days of life, and it is a report of these that I present for your consideration tonight. All had been carried at least seven months.

¹ Read before the Obstetrical Society of Boston, January 15, 1901.

The classification which I have made is a purely clinical one. It is as follows: Children stillborn, 23; children born alive, dying within a few days, 22; children whose respiration was delayed, 10.

Of cases not included in these groups there are: deformity, 2; ophthalmia, 3; melena, 2; fracture of clavicle, same child as one melena, 1; depression in skull, 1; facial paralysis, 1.

Less serious conditions, as icterus and fungus of the navel were not noted.

Children stillborn.—Of the 23 stillborn infants 9 were delivered by forceps. In 8 of these cases the forceps were applied high. Four of these 8 cases required extreme force for delivery. The other 4 were delivered without difficulty; in 1 the cord was at the side of the head. In the ninth case the head descended well into the pelvis with occiput posterior, and did not rotate. The labor was long, about thirty-six hours. The mother's abdomen was very large and legs edematous. The urine examined two weeks before labor contained no albumin. The quantity of liquor amnii was estimated to be 6 quarts. The entire body of the child was very edematous, and the abdomen much distended. The placenta was adherent over its whole extent, and was very large and spongy. The cause of the edema of the child was not apparent. If maternal it must have been a temporary condition, as previous children, 6 in number, had been healthy, and the mother gave birth to healthy twins in less than thirteen months after this delivery. Two of the 23 stillborn children were delivered only after the head had been crushed. In each case the mother's pelvis was narrow. One child was turned with the expectation of extracting it alive. This proved to be impossible. The child died during the unavailing efforts to deliver the head. The other child died probably thirty-six hours before delivery. It weighed 10 pounds without the brain. The cause of its death was not discovered. The only abnormal condition of the mother, beside the narrow pelvis, was an acute universal eczema which began about ten days before the labor.

In 2 cases the position was transverse. In each the physician on his arrival found an arm presenting and the membranes ruptured.

In 2 cases the mothers were uremic, but had no convulsion. One of the children was delivered spontaneously, the other by podalic version. In the latter case the cord was pulseless when the hand was introduced into the uterus. Therefore in neither did operative interference cause the death of the child. The uremia of the mothers is the only condition that was apparent that would act unfavorably on the children.

An abnormal placenta existed in 3 cases. One was fatty; a second was large and contained an unusually large proportion of connective tissue. In this case the mother had mumps when several months pregnant. The attack was followed by extreme tenderness in both ovarian regions. The third placenta was hard, white and thin over more than half its area. In each case the delivery was premature.

Antepartum hemorrhage occurred in 1 case, beginning fifteen hours before delivery, and continuing eleven hours. It was probably the cause of the child's death, although fetal movements had not been felt for seventeen hours before the appearance of the flow which was synchronous with the onset of labor.

In 2 cases in which macerated children were born, one at seven and one-half months, the other at nine, the mothers had each been pregnant twice before, but had never borne healthy children. One had been delivered at six months and at four months; the other at eight months of a dead fetus, and at nine months of a child that lived only a few minutes. The reason for this habit did not appear.

Of twins born at full term, estimated to weigh 6 pounds each and apparently well developed, the epidermis was freely exfoliating from one, and there were blisters on the fingers of the other. Here also no cause of the deaths was discovered. The mother had previously borne one living child, and had miscarried once.

Children born alive but died.—The number of children born alive but dying within a few days of birth were 22. Eight were born naturally and showed no cause of death except a lack of vitality. One of them was born at seven months, 2 at seven and one-half months, and 3 at 8 months. The other 2 were probably also premature, although the length of the pregnancy was not known. They were both small. One weighed 4 pounds and 3 ounces; the other was not weighed. Three of the 22 were delivered by forceps, which were applied high in 2 cases, and low in 1. One child delivered by high forceps was apparently healthy, weighed 8½ pounds, but lived only three days. The mother found it dead soon after she had nursed it. I suspected that it accidentally smothered in the pillow on which it was laid. The second, delivered by high forceps and traction rods, had the cord twice about the neck. Artificial respiration induced a few gasps only. The mother was edematous but not albuminuric. In the third case the head was in the vagina when forceps were applied, and extraction was not difficult. The child lived five days. It appeared perfectly well until the fourth day. Then at intervals respiration became feeble and slow, and the child cyanosed. On the administration of stimulants respiration improved, and the color became good. These attacks increased in frequency and severity until death. A careful post-mortem examination of head and trunk by Dr. E. A. Darling and myself revealed no lesion, and I am at a loss to explain the condition. In the cases of 5 children, 2 being twins, the mothers were uremic. One of the 5 was born at seven months. The mother had post-partum convulsions. The twins, also born at seven months, were extracted by the feet after manual dilation of the os. One lived a few minutes. It had been laid one side on the supposition that it was in good condition, and was found dead with much blood escaped from the cord. The other lived a few hours. The mother had vomited for eleven

days previous to the labor, and continued to do so till she died. The autopsy of the mother revealed advanced chronic parenchymatous nephritis. In the fourth case the mother had convulsions several weeks before labor and again during labor. The os was dilated manually, the child was delivered by turning, and lived a few hours. In the fifth the cord was tight about the neck, but offered no serious resistance to delivery. The fetal heart was plainly heard in the early part of the labor, but the cord was pulseless at the time of delivery. The child gasped only a few times. Labor had lasted fifteen hours; delivery was spontaneous.

One mother of twins was in an advanced stage of phthisis. The children were born at eight months, and died within two days. One child developed purulent inflammation at the navel and died, aged five days. The source of the infection was not discovered.

There was one case of hemorrhage from the navel. There was no history of hemophilia in the parents or in an older child. The delivery was by breech, but was successfully accomplished. The cord was unusually long. The labor lasted only four hours. The child, a boy, was well till the morning of the fourth day. It was then reported to have fretted during the previous night and to have had two black dejections. A few stains thought by the nurse to be blood were on the napkin. The child was pale and listless. At noon it had a convulsion, and in the evening I was shown two napkins considerably stained with blood, and found the belly band which was then on extensively stained and the napkin somewhat, and the cloth about the navel saturated with blood. One or two lines from the line of demarcation of the cord from the skin was an excoriated line on the skin a quarter to a third of an inch long. The proximal part of the cord for a third of an inch was full, soft and moist. The child was pale, and cried feebly. Bleeding stopped on removal of the coverings. The next morning profuse bleeding again occurred, and in place of the excoriated line seen the day before there was a granular surface one to two lines wide, extending two-thirds the circumference of the navel. The child was pale and cold, and died at noon without recurrence of the bleeding.

There is 1 case of deformity of the esophagus and trachea. The child cried normally immediately after birth, but within two or three minutes the breathing became hoarse and squeaky, as if obstructed, and the epigastrium and suprasternal depression were deeply retracted during inspiration; then respiration ceased, and the child relaxed. Then came a discharge of perhaps 2 drachms of yellow frothy mucus from the nose while the head was dependent. Respiration returned, and was clear. In a few minutes, however, it was again obstructed, and then cleared in the same manner as before. Later an attempt to feed the child was followed by an attack of dyspnea and discharge of liquid through the nose. A bougie passed through the nose met an obstruction 5 inches from the nostril. The child lived

less than two days. An autopsy was made by Dr. Wm. D. Swan and myself. A bougie passed into the esophagus was arrested at the same point as during life. A short distance below the level of the cricoid cartilage the trachea and esophagus were firmly joined by connective tissue. The upper part of the esophagus was a blind pouch. The lower part communicated at its upper end with the trachea by an opening about a line in diameter. Above this opening, on the posterior wall of the trachea, was a shallow groove.

Another case of deformity, a meningocele, was seen with Dr. E. A. Darling, who discovered by vaginal examination that the fetus was abnormal, and feared difficulty in delivery. The tumor was pedunculated, the size of an orange, and attached at the posterior fontanelle. On the under side of the pedicle was a small opening from which a liquid drained constantly. The temperature rose to 107° F. on the second day, and death occurred on the third. The tumor contained cerebrospinal fluid and brain tissue. The cerebral hemispheres were small, and the corpus callosum absent.

Delayed Respiration.—In 10 cases there was sufficient delay in respiration to cause the fact to be noted, while not enough to prove fatal. In one of these the cord was twice about the neck; in another once, and so short that it was necessary to cut it before the shoulders could be delivered. It is probable that tension on the cords had sufficiently interfered with fetal circulation to cause asphyxia and consequent delay in respiration. At least no other cause was evident. In 6 cases the children were delivered by forceps, 4 by high, and 2 by low. These 6 labors were all long, from sixteen hours to four days, and ether was used for a considerable time. In the other 2 delivery was by podalic version. Both mothers were uremic; one of them died of eclampsia. In the case in which the mother died the delay in the establishment of natural respiration was so great that it deserves detailed notice. The mother, a primipara, was within a few days of the expected time of confinement. Symptoms of uremia appeared ten days previous, increased in spite of treatment, and culminated in blindness and convulsion. Labor had not begun. The os was dilated forcibly and the child delivered by podalic version. Dilatation and delivery occupied three-fourths of an hour. Delivery was not difficult. The child was cyanosed; the heart beat feebly about 100 a minute. After a few minutes of artificial respiration the child gasped 4 to 6 times a minute. The treatment consisted of baths of warm water alternating with sprinkling of cold, rhythmical traction of tongue, suspension by feet, artificial respiration—both the Sylvester and the Schultze methods. At the end of half an hour the pulse was 25 to 30, the respiration 4 to 6, gasping, the color not improved. Dr. Geo. P. Cogswell, who was assisting me, then began slapping rapidly and vigorously all parts of the child, head as well as trunk and limbs. In fifteen or twenty minutes the heart beat was 80 and the gasps 15. Every

remission of slapping was followed by feebler action of heart and lungs, and renewal of slapping by stronger action. Gradually the skin became mottled pink and white, and there were a few feeble cries. An hour and a half after birth, till which time this treatment was continued, the heart beat was 120 and the respiration 20, and persisted without treatment; the color was good. The child subsequently showed no ill effects of the heroic treatment. For some weeks it did not gain weight, but later thrived fairly, and when ten months old was reported to weigh between 17 and 18 pounds. When this child had repeatedly ceased to breathe as soon as vigorous treatment was withheld, I despaired of its life, assuming that a condition or lesion existed incompatible with life. Its resuscitation was to me unexpected, and may be ascribed to Dr. Cogswell's patient and enthusiastic efforts. One naturally asks what pathological condition was removed thereby. Is it not fair to suppose that in addition to asphyxia the child was suffering from uremia received from the mother, and that because of this, respiration and heart action could not be maintained except under the influence of excessive stimulation, and that during the hour and a half during which such stimulation was applied, elimination through skin, lungs and kidneys had been sufficient to bring the blood and tissues into a condition near enough normal to permit vital processes to continue spontaneously? But whatever the explanation, the result encourages longer and more energetic efforts than I believe most of us are accustomed to make in behalf of children born under similar conditions.

Deformity.—Beside the cases of deformity included in the second group, and already described, there are 2, one of hare lip and cleft palate, about which there was nothing unusual, and one of vascular nevus. The nevus was of the capillary variety. It was on the left side of the face, and made that side more prominent than the other. When the child was only a few weeks old, his mother noticed that he did not move the right hand as freely as he did the left. When five months old he screamed an hour, and then had twitching of the right leg. Subsequently he had many attacks of screaming and convulsion. The convulsion usually began in the right eye, and slowly extended over the right arm and leg. He is now seven and one-half years old, walks with a slight limp, and has but little use of right arm and hand, which are small. He is undersized, and poorly developed mentally. A recent examination shows that the nevus occupies the left cheek, left half of forehead, of nose and of upper lip, and appears irregularly on the palpebral conjunctiva of the left eye, the inside of the left cheek, and the left half of the palate. This distribution corresponds to the distribution of the ophthalmic and superior maxillary branches of the fifth cranial nerve, a correspondence which has been noted in other cases. If abnormal vascularity has followed also the distribution of the dorsal branches of the superior maxillary branch, have we not a reasonable explanation of the con-

vulsions and paralysis in the pressure which would naturally be exerted by the very vascular tissues on the motor areas?

Ophthalmia.—Three cases. None of them was of a very severe type.

Melan.—There were 2 cases. A girl, weighing 10 pounds, was born after a pregnancy of ten months. The father had had severe attacks of epistaxis during boyhood and youth. Otherwise the family history is negative. The labor was normal, except that delivery of the shoulders was difficult, requiring strong traction on the head in addition to the expulsive efforts of the mother. During traction the right clavicle broke near its outer end. The child was born at 2.30 A.M. During the following day and night she was in much distress, crying, choking and vomiting frequently. The vomitus consisted at times of brown mucus, at times of bright red blood. The junction of the umbilical cord and skin was of a slightly yellow color, of sodden appearance, and had a red areola. The yellow ring was snipped with scissors, but no pus exuded. On the second day vomiting of the same character as on the first occurred three times, and in the following night once, but not afterwards. On the fourth day the navel had a much better appearance. On the fifth a bloody vaginal flow began, and lasted four days. Vaginal examination, by means of an aural speculum, discovered the blood coming from the uterus. The cord came off on the ninth day leaving the navel normal. The temperature reached 100° F. on the second day, 101.8° on the third, and 100.2° on the fourth, and was afterward normal. The digestion was poor for several weeks, but good since then, and the child has developed satisfactorily. The clavicle united without deformity.

The other child, a boy, weighing 6 pounds, had no family history of hemophilia. The mother had serious mitral insufficiency. All over the child's head there were at birth dark reddish-brown spots, the size of an ordinary pin head, thickly placed, not disappearing on pressure. When twelve hours old he vomited dark green mucus, and did so repeatedly till the third day when he vomited 1 or 2 drachms of bright blood, and passed dejecta, the first tarry in appearance, later red and black, or dark red. There was frequent spitting of a substance streaked with blood. On the fourth day he had twelve dejections red or black. After one large one consisting of dark red liquid the extremities became cold, the face cyanosed, and the whole body limp. This condition lasted three-fourths of an hour. On the fifth day there were six dejections of the same character as before, but less in amount; vomiting of a small clot, followed by faintness. There was no further hematemesis. There were four black or red dejections on the sixth day, one on the eighth, one on the ninth, and a green one on the tenth. The temperature varied from 97° to 100°. In two weeks the macules had nearly disappeared. The child remained small, but a year afterwards was living, and considered by the mother to be well.

Depression in skull and facial paralysis.—In the 2 following I believe that the lesions were caused by the forceps. One child was born with a depression in the left frontal bone, 1 by $1\frac{1}{2}$ inches, and $\frac{1}{2}$ inch deep. Within four weeks the bone had returned nearly to its normal contour. The delivery was by means of forceps and traction rods, and considerable force was required. The other child had left facial paralysis, which had so diminished by the eleventh day as to be hardly perceptible. Forceps had been applied when the head was well in the pelvis, with occiput R. A.

I am aware that in this recital of cases there is much that is commonplace, and that from your own experiences, which in obstetrics are larger than mine, you could contribute cases of equal and greater interest. If, however, any of us shall be stimulated by it to more careful observation of the lesions and symptoms of the newborn child, this paper will have a sufficient excuse for being.

OBLIQUE SUBTROCHANTERIC OSTEOTOMY, FOR THE LENGTHENING OF THE FEMUR, AND CORRECTION OF THE DEFORMITY OF FLEXION RESULTING FROM HIP JOINT DISEASE.

BY E. G. ABBOTT, M.D., PORTLAND, ME.

OSTEOTOMY, for the correction of flexion in hip disease, has been performed in various ways on different parts of the femur, for more than a half century, and the results obtained have justified its recommendation in the majority of cases, but until recently no attempt has been made to combine lengthening of the bone with the straightening of the limb.

The earliest operators divided the bone above the trochanter major, or at least above the trochanter minor, meeting with sufficient success to warrant the continuation of experiments in this direction.

Adams' section of the neck of the femur is familiar to all, and from an anatomical standpoint it is certainly correct, but in a large percentage of cases cannot be successfully accomplished, as the neck is absent in many, while in others the pathological changes are so marked that the part is inaccessible.

Barton, Sayer, Maisonneuve and others performed the osteotomy lower down, but still above the trochanter minor, and this operation, although much less difficult than Adams' had the same disadvantage of being above the attachment of the iliopectineus muscle, which often caused a return of the flexion.

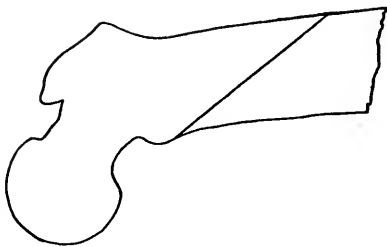
Volkman's operation, which consists of the removal of a wedge-shaped piece of bone from the trochanter major, offered no improvement over the others, and though reported successful, received but little support, soon falling into disuse.

In the year 1872, Gant devised the operation which bears his name, and the advantage gained by setting free the resistance of the contracted

iliopectineus muscle, was at once recognized, and has been almost universally used since. Although this operation removes many of the objectionable features found in the others, it still leaves much room for improvement, and while the flexion is permanently remedied, it causes a considerable shortening of the bone, necessitating the wearing of such a thick patten that it makes walking in many cases, nearly as difficult as before.

Hoffa, Lanenstein, Landeve, König, and other German savants, during the past year have successfully performed the oblique subtrochanteric osteotomy with lengthening of the femur, and strongly recommend it in preference to the so-called Gant operation. A brief outline of their procedure is as follows:

All of the contracted muscles and fascia are subcutaneously divided, and the patient is placed on the side, with a cushion between the thighs. The femur is laid bare by an incision some 3 inches in length, the centre of which is from $2\frac{1}{4}$ to 4 inches below the trochanter major. The skin and soft tissues are held to one side by retractors, and the osteotome is placed firmly against the bone, and driven at an angle, varying from 30° to



45° upward and inward through the shaft of the femur until only a thin bridge of the inner, compact tissue remains, when the division is completed by fracture. The leg is then forcibly extended by means of a screw, drawing the smooth-cut surfaces by each other, until the desired length is obtained. The wound is dressed without closing, and a plaster of Paris spica is placed on the leg with an opening over the incision, allowing easy access to it. The leg remains in this position five weeks, after which the plaster is removed, and massage and gymnastics employed, the patient meanwhile moving around with the aid of crutches, the full weight not being borne on the fracture before the twelfth week.

In undertaking this operation the writer felt that it might be much simplified by obviating the use of such powerful force in the separation of the bone, and the destruction of so much of the soft tissues subcutaneously, thereby reducing the liability of infection and injury to the blood vessels and nerves. A description of the method employed by him on a patient where flexion of 45° and actual shortening of the bone amounting to $3\frac{1}{2}$ inches were present, is given below:

The site of the operation was prepared in the usual manner, and the patient placed on the side with a large sand bag between the thighs against the perineum. The osteotome, which was of the same width as the bone, was entered through the skin, and underlying tissues, upon the femur about 4 inches below the upper border of the trochanter major, where it was firmly held at an angle of 30°. It was then driven through the bone as far as the inner compact tissue, when it was exchanged for a narrow one, and the division continued well into this, after which, it was withdrawn and the section completed by fracture. The leg was placed in the corrected position, and dressing applied. A temporary splint was bandaged to the side to prevent accident during transportation from the operating room to the ward. After the patient was in bed a Buck's extension was applied to the leg, with side plasters reaching to the fracture. A side splint which extended from the axilla to the foot was loosely bandaged to the body, and weights were placed on the end of the extension, and

tage of making a radiograph, which will enable him to determine the size of the femur, and the exact location at which the osteotomy should be entered in order to free the attachment of the ileopsoas muscle to the trochanter minor.

Another point to be considered is the width of the osteotome, which must be regulated by the size of the bone, so as to obtain a clean cut surface by one passage of the instrument. The angle at which it is to be held must also be governed by the size of the femur.

It will be found necessary to use judgment rather than any hard and fast rule in regard to the amount of weight necessary, as it varies with different patients, and must be gradually increased until results are obtained when it can be lessened and held by the side splints.

Clinical Department.

A CASE OF CHIN LEFT POSTERIOR.¹

BY H. T. SWAIN, M.D., BOSTON,

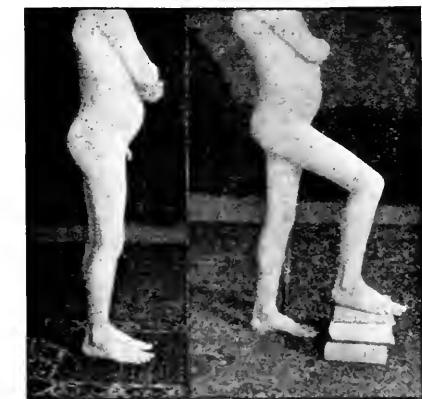
Physician to Out Patients, Boston Lying-In Hospital.

Mrs. A. P., an Italian, thirty-two years old, in her third pregnancy. Previous history negative. Previous labors normal.

When I first saw the patient in the Out-Patient Department of the Lying-in Hospital, November 15, 1900, at 8:30 p.m., she had been in labor about six hours, the membranes having ruptured three hours previously. She did not send for a doctor until she had been in labor for some time, and when first seen by the externe the head was so low that he easily made a diagnosis of face, sending at once for assistance. When seen by Dr. Cary, the out-patient house physician, the presenting part was only a little higher than the position in which I shall describe it.

Abdominal examination showed the back to be to the left, fetal heart loudest in the lower left quadrant, rate 130. During each pain the uterus contracted firmly, and the abdominal muscles were rigidly set, the patient straining violently. The intervals of the contractions were about two minutes, and they lasted a good minute. Visual examination showed considerable bulging of the external genitals during each pain.

Vaginal examination showed the os fully dilatable, membranes ruptured, and a face presenting about one and a half inches from the introitus, with the chin left and posterior. During a pain the head descended very little. There was not the least rotation. What little was gained during the pain was lost in the interval, for the head receded immediately. I tried during two or three pains to rotate the head by pressure with the hand against the posterior ramus of the lower jaw, but was unable to accomplish anything, the head being firmly wedged into the excavation. Dr. Cary's attempts



gradually increased. The muscles relaxed in thirty-six hours, when the length and position were regulated and the splint firmly applied, retaining the leg in the corrected position. Measurements were frequently made in order to ascertain if the length remained unchanged, and at the end of the eighth week all apparatus was removed, and the patient allowed to move around in bed. At the commencement of the tenth week he was given crutches and exercised freely. The femur was lengthened $1\frac{1}{2}$ inches, by actual measurement, and the flexion was completely corrected, as the adhesions were broken up by the operation, allowing movement of 15°. Recovery was uninterrupted, union being firm at end of eighth week, and the patient now walks easily with the heel of the shoe raised $\frac{3}{4}$ of an inch on inside. There are several steps in the operation which the writer considers of importance, and which should be brought to the notice of the surgeon:

Too much stress cannot be laid upon the advan-

¹ Read before the Obstetrical Society of Boston, January 15, 1901.

to flex, and then to extend and rotate had been without result.

The patient was now given full surgical anesthesia, and pressure with the hand, and then a single forceps blade failed to rotate in the least. The forceps was then applied and rotation attempted, some traction at the same time being used. However, the head being so firmly wedged in, the forceps could not be well enough applied to allow much pull, and even had I been able to get a firm application, I should not have felt like pulling much because it was evident that the unrotated head could not come down without great violence to the soft parts. I was unable to turn the head in the least by any of the methods mentioned after careful trial. I knew the child was alive, for every time that I accidentally touched her lips she sucked my finger. I disliked to think of perforation under these circumstances.

Making another attempt at manual rotation after taking off the forceps, I noticed that, while pulling hard under the chin to increase extension, the head seemed to recede a little. Following this lead, by extreme extension, the middle finger under the chin, the thumb against the forehead, and gentle pressure upward, the head was gradually slid up, and placed above the brim between an assistant's hands holding it through the abdominal wall. I then wondered as to the next step. I knew that a speedy delivery was essential to the child's life for the cord was pulsating feebly. I felt that it would be hard to bring the head down with the occiput presenting because of the extreme moulding and because the forces which made it come down as a face, would still be likely to extend the head. Feeling a foot without putting my hand above the lower uterine segment, I brought it down, my assistant turning the head up at the same time. Delivery was easy as a half breech.

The child resuscitated with some difficulty. Her face was extremely cyanotic and edematous, the lips, eyelids, and nose bulging a great deal. There was a complete subconjunctival ecchymosis in each eye. The baby weighed nine pounds, and is now well, although there is still a noticeable retraction of the head. The mother was uninjured and had a normal convalescence.

Other methods of operation have been advised. McLean, in two cases, has converted a posterior chin to an anterior occipit in the pelvis. In this case the large moulded head so filled the pelvis that it would have been necessary to disengage it before turning.

Symphyseotomy has been advocated.

I realized the dangers of replacing the head above the brim, and turning in a dry uterus, and should not have used force to accomplish them. It seems to me that the ease with which the head pushed back was due to the fact that the patient, by her own muscular force, had crowded the head down and that the uterus was not in the state of retraction that it would have been, had it been forcing the head down.

I shall attempt to draw no conclusions from

this single case. It is interesting to me as showing how easily a head well down in the pelvis in a position impossible of delivery without violence, could be replaced above the brim. It was interesting also as showing the impossibility of the commonly accepted mechanism in this case, for while the head was so far down that it could advance no farther without violence, the chin was not impinging against anything.

Medical Progress.

RECENT PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

(Concluded from No. 14, p. 335.)

WATER SUPPLY AND SEWERAGE.

A Process for Removing Iron from Water.

Messrs. Linde and Hess²⁴ describe a process for removing the iron from water by treating it in a filtering vessel filled with wood shavings free from turpentine, and impregnated with oxide of tin. The hydrated oxide of iron resulting from this process is retained by the shavings as a brownish red deposit. The shavings are renewed every two months.

Schumburg's Process for Purifying Water.

Pfuhl²⁵ states that this process consists in adding .06 gramme of free bromine in the form of bromide of potassium solution to each liter of water. A like volume of 9% solution of ammonia is added to remove the bromine and make the water palatable. This process is advocated for use in the case of suspected waters, epidemics, ships' tanks and armies in tropical countries.

Septic Tanks for Sewage Disposal.

Messrs. Alvord & Shields,²⁶ of Chicago, in commenting upon the use of septic tanks for sewage disposal, make the following statement:

"A good deal of this enthusiasm has arisen because of the unwillingness of experimenters to publish their failures, or in any way record experiences which did not come up to their expectations. The literature on this subject is oftentimes misleading, and must be read in the light of personal examination or practical experience to be of any benefit. As a sample of the overconfidence now being displayed, the interesting proposition of a village has been noticed which intends to place its septic tank and contact beds in a public park overlooking a beautiful lake, floor it over, and provide seats so that it may become a playground for the misses and children of the neighborhood, and a resting place for the pleasure seeker. Such overconfidence has arisen from repeated statements in print that no nuisance results from the process. The statement is not

²⁴ Ges. Ingenieur, April 15, 1900, p. 105.

²⁵ Zeitsch. f. Hyg., 1900, p. 53.

²⁶ Engineering Record, March 16, 1901, p. 247.

ntrue, in general, but one who had visited or operated many of these tanks would not recommend them for sites for lovers' rests or health retreats unless given the most expert management and attention. The writers have operated several septic tanks during the past three years, one of which has had close attention during the whole of that time. The first season it was thought a simple affair to manage it; the second season it was concluded nothing was definitely known about its operation at all; the third season, in humbleness of spirit, it was realized that something was being learned about it, and in the course of another season it is hoped to learn even more.

"How is it then that a septic tank of fixed dimensions succeeds at all, as in so many cases they unquestionably have, and why are some of them such undeniable failures? We think it is, so far at least, purely a matter of chance. One septic tank has been observed which was carefully designed, which has given as high purification as 80% of organic matter removed; while another tank of the same design in a neighboring city of the same size, with about the same quantity of sewage and with details almost precisely the same, has not effected so good purification, perhaps not half as good, on the average. If this is true in such an instance, how is it possible that tanks hitherto used for chemical precipitation or cisterns hitherto used for pumping reservoirs, are going to be turned into successful septic tanks at a moment's notice, and for all kinds and quantities of sewage?"

*London Sewage.*²¹

The following figures relate to the sewage of London which was treated in 1900 at the two outfalls at Barking and Crossness upon the Thames:

	Barking, Gallons.	Crossness, Gallons.	Total, Gallons.
Sewage treated,	58,209,600,000	43,321,200,000	101,530,800,000
Maximum daily flow,	316,202,400	215,368,074	
Minimum " "	87,372,000	77,847,948	
	Tons.	Tons.	Tons.
Lime used,	12,999	7,455	20,454
Sulphur, iron,	2,518	2,011	4,529
Sludge sent to sea,	1,574,000	738,000	2,312,000
Average per week,	30,270	15,346	45,616
Screenings,	4,176	813	4,989

The increase in the quantity of sewage treated, over that of the previous year was 8,315,023,000 gallons, and in the quantity of sludge sent to sea 82,000 tons.

INDUSTRIAL HYGIENE.

Industrial Lead Poisoning.

Dr. Legge, Medical Inspector of factories for England, contributes a paper²² on Lead Poisoning, the data for which were tabulated as the result of a law of 1893, which requires every physician when called to a patient whom he believes to be suffering with lead poisoning, contracted in a factory or workshop to notify the case at once to the inspector of factories. A similar obligation is imposed upon the occupier or owner

of the factory, thus constituting a close analogy between this law and that which requires notification of infectious diseases. As one main object of an infectious disease notification act is the protection of the community against such a disease as diphtheria, so repeated notifications of lead poisoning in the same trade may lead to an investigation, and to the adoption of regulations for the protection of the operatives.

The principal symptoms referable to lead poisoning were those of the digestive system, anemia, headache, parietic, encephalopathic, rheumatic and uterine.

The occupations were the following: smelting, brass working, sheet lead, printing, file cutting, plumbing, enameling of hollow ware, white lead working, red lead, earthenware, lithotransferring, glass, enameling of iron plates, electric accumulators, paints and colors, coach painting, ship building and other industries.

The methods of exposure varied, but were chiefly to the fumes, the dust, and the handling of metallic lead and paint.

The writer urges the importance of cleanliness, and not simply cleanliness of the hands, but also of the teeth, nails and clothing.

He also insists upon a periodic medical examination of workmen, by a competent medical examiner who should have power to suspend any one temporarily, or permanently, from work whom he may find is specially susceptible to poisoning.

This examination should include thorough inspection of the condition of the teeth and gums, of the pupils and muscles of the eyes, the color of the conjunctiva, the presence or absence of tremor or hysteria, and the resistance of the extensors of the wrist to forcible flexion.

A table is presented relating to 1130 cases of lead poisoning which were reported in 1899. It does not include cases reported among painters and plumbers, since the acts do not apply to these occupations.

The Dangers of Cutlery Grinding.

Dr. Moritz, of Solingen,²³ presents a statement of the dangers to which knife-grinders and those employed in similar occupations are subjected. The mortality of men employed in this work over twenty years of age, is three times as great as that of the general population of the same ages. Men in such employment rarely live to the age of fifty. The author, after examining 1,250 employes in such work, found only 16% in a healthy condition.

This industry has increased in Solingen from 1,581 workmen in 1860 to 4,027 in 1898, notwithstanding the danger to which they are exposed. The dust consists not only of the steel dust from the knives, scissors, razors, etc., but also the dust of the mill-stones upon which they are ground, which are reduced in size one-half in four weeks' usage.

The mortality from diseases of the respiratory organs among these workmen constitutes 72.5% of the total mortality, as compared with 35.3%

²¹ Engineering Record, March 16, 1901, p. 246.

²² Journal of Hygiene, vol. 1, No. 1, 1901, p. 96.

²³ Central b. f. allg. Gesundheit, 1900, p. 283.

for other occupations of the same ages. The prevention of these dangers is accomplished to some extent by moist grinding, covering the mill-stones, aspiration of the dust by various forms of apparatus, providing cuspidors, prohibiting alcoholic liquors, prescribing baths and personal cleanliness.

Dr. Kompke, of Solingen,⁸⁰ contributes a paper on the subject, in which he compares the workmen at Solingen with those at Sheffield, England, in the same industry. He compares the advantages and disadvantages in each place, and says the mortality from diseases of the chest among the grinders at Sheffield is only 61.7% of the total as compared with 72.5% among the same class of workmen at Solingen. He attributes this to several causes, among which are the position of the body while at work, the absorption of less dust at Sheffield, more regular habits, and better housing.

The Gannister Disease.

Birmingham describes this disease as produced in gannister works, or establishments for the manufacture of bricks from a hard, compact material occurring in clay. It is so hard as to require blasting, and is ground in mills. Its manufacture is attended with fine dust, the breathing of which leads to the formation of fibroid tissue.

The mortality among gannister miners is 42 per 1,000; among grinders, 180 per 1,000 and among brickmakers, 22 per 1,000. The author advises as methods of prevention: (1) The employment of adults only. (2) Medical examination before beginning work. (3) Medical examination every 3 months. All employes having bronchitis to stop work until recovery. (4) The use of respirators. (5) Frequent inspection of works. (6) Automatic machinery when practicable. (7) Use of water to allay dust. (8) Efficient ventilation.

Immunity of Oil Merchants to Plague.

Soir⁸¹ noticed that workers in oil do not contract plague. He experimented with rats. Taking a rat from a house infested with fleas, he killed it and placed it in a cage with two other rats. The skin of one of these rats had been oiled and the other left in its normal condition. All the fleas migrated to the body of the dry rat, not one being found on the oiled rat. To this aversion of fleas to oil he thought it probable the workmen owed their immunity to plague. Galli-Valerie⁸² came to similar conclusions relative to the rôle played by rats and fleas in spreading plague.

MUNICIPAL SANITATION.

Street Oiling as a Health Measure.

One of the greatest foes to good health, both indoors and outdoors, is dust; not only on account of its irritating qualities when taken into the air passages, but also on account of its property of transmitting infection. Any measure like street watering which will prevent dust from rising into the air is a health measure.

Recently, on some of the principal railway lines, petroleum has been successfully employed for the purpose of making railway travel in the summer more comfortable and less inimical to the health of the passengers.

Mr. O. W. Longden⁸³ discusses the subject of oiling roads in Los Angeles, California, a dusty region where the water supply in summer is deficient. The experiment was first tried in 1898, upon six miles of road. In 1900 fifty miles were oiled. He concludes that well oiled roads are practically dustless, and that such roads are a boon in any country.

The demand for dust-free roads is increasing. The superiority of oiling over watering consists in the lower cost of oiling, and in the fact that it can be used in places where water cannot be had as in a country with deficient rainfall. Oiled roads are free from dust in summer and from mud in winter, and require only two or three applications of oil in the first season. About 60 barrels of oil per mile were used for a space 12 feet wide, on the first application. The second application required about 40 barrels per mile, and the third still less.

The oil cost from \$1.10 to \$1.25 per barrel, and 25 cents for delivery, the total cost being about \$150 per mile for a season. There is a disagreeable odor at first, but this is not permanent.

Underground Bakeries.

In five districts of London⁸⁴ there are 315 bakeries, of which number 245 are situated underground.

The city of Manchester, England, has 514 bake houses, of which 207 are underground. It appears to be a common practice for a baker to rent a house and convert the cellar into a bakery.

According to Dr. Walsh, "the larger part of the national output of breadstuff is prepared in premises that would not be passed as fit for slaughter houses."

(An underground bake house should not be tolerated. On the contrary, the preparation of this most important article of food should be conducted under strict sanitary conditions, namely, abundance of light, good ventilation, absence of rats and all other vermin, and above all absolute cleanliness in every department of the work. It is also quite as essential that the workmen should be entirely free from every kind of infectious disease, as it is in the case of the production and sale of milk.—EDITOR.)

*Baths and Bathers in London.*⁸⁵

Under the Baths⁸⁶ and Washhouses Acts, 2,532 public baths are in existence, 887 first class, 1,659 second class, and 85 swimming baths. The total number of baths in 1897-1898 was 4,463,109. The finances showed a deficit of £83,360, or \$333,000.

⁸⁰ Engineering Record, November 24, 1900, p. 490.

⁸¹ The Fabian Tracts, No. 84, London, December, 1900; see also a paper on the same subject by Dr. E. W. Hope, medical officer of health of Liverpool, in the Sanitary Record of August 31, 1900.

⁸² Returns of Local Government Committee of the London Council, November 21, 1899.

⁸³ Viertelj. f. gericht. med. u. öff. Sanitätswesen, October, 1900.

⁸⁴ Rev. Seien, March 31, 1900.

⁸⁵ Central b. f. Bakt. January 6, 1900.

HOUSEHOLD HYGIENE.

The Effect of Air Moisture on the Health of Persons in Enclosed Spaces.

Many sanitary experts still retain a belief in the necessity of a large ratio of watery vapor in the air of apartments, in order to provide for the comfort and health of the inmates. In many plans for ventilation it is customary to arrange artificial means for moistening the air; and unless great care is taken in attending to these appliances, their use entails many disadvantages. The author, Nussbaum,⁸⁶ maintains that in the case of rooms in which the temperature reaches 20° C, artificial means for providing moisture in the air are unnecessary. His observations, which agree with those of Wolffhügel, have led to the belief that dry air in which the vapor reaches only 30% of complete saturation is in every way better than air saturated with moisture. Several authorities are cited in support of this opinion. It is plain that the degree of moisture necessary to insure comfort depends in some degree upon the temperature of the surrounding air, and hence it is useless to specify a fixed amount of moisture to satisfy all conditions. At the normal indoor temperature from 40% to 60% of saturation suffices; but for hot rooms and in cases where much exertion is necessary, this degree of moisture may be diminished 10%.

It is possible that it will generally be better to dry the air required for ventilation rather than to moisten it, because the superfluous moisture may be deposited on cold surfaces, and thus afford lodging for dust and micro-organisms.

Damp air may be regarded as unwholesome, and hinders the healthy action of the skin.

*Carbonic Oxide in Dwelling Houses.*⁸⁷

The discussion relative to the poisonous qualities of water gas which began in America nearly twenty years ago, and was followed by a parliamentary investigation in England, is now being taken up in Germany. Dr. Sachs alludes to the fact that the deaths from this gas usually occur in enclosed spaces and also commonly in dwellings. These deaths also usually occur from mixtures of gas with the air in which the volume of the gas is often very small. He discusses the various measures necessary to prevent the different sources of danger, and shows that the evils arising from the use of water gas are so great as to have induced experts to advise that its use in dwellings should be prohibited.

VITAL STATISTICS.

Reduction in Death Rate.

Dr. Corfield, in an address delivered at Paris before the French Society of Hygiene,⁸⁸ shows that the death rate of London, as well as that of England and Wales, has fallen as follows, co-

incident with the enactment and execution of sanitary laws:

LONDON.		Average Death Rate per Annum.			
1851-1870			24.1		
Nuisance Removal Act, 1855.					
Sanitary Act, 1866.					
1870-1890.			22.5		
Public Health Act (London), 1891.					
1891-1895.			20.2		
1895-1899.			18.8		
ENGLAND AND WALES.					
1849-1875.			22.4		
Public Health Act, 1875.					
1876-1880.			20.8		
1881-1885.			19.4		
1886-1890.			18.2		
1891-1895.			18.7		
1896-1899.			17.4		
ENGLAND AND WALES.					
Annual Death Rates per Million Living.					
1861-1870	1871-1880	1881-1890	1891-1895	1896-1898	
Scarlet fever.	972	716	334	182	146
Typhoid and other fevers.	885	482	235	185	174
Diarrhea.	1,076	935	674	630	709
Consumption.	2,475	2,116	1,724	1,464	1,321

*Vital Statistics of Prussia.*⁸⁹

The close of the century and the celebration of the bicentenary of the Kingdom of Prussia makes an appropriate time to review its vital statistics. The last quarter of a century is marked by a decline both in birth and death rates, and by a relative increase of city population compared with that of the country districts. The birth rate was at its maximum (42.8 per 1,000 of the population), in 1875, and has nearly reached the minimum of 35.3 which prevailed in the year after the Franco-Prussian War (1871). The death rate has also fallen from 30 to 23 per 1,000. The population of the towns has increased about 75%, and that of the country about 15% in twenty-five years.

The infant mortality is greater in the towns, and also greater in the east than in the more civilized west. The mortality of male adults is greater in the coal and iron districts. The birth rate is higher in the country. There is no evidence of city degeneration, "though in many places there are physical differences founded on occupation in youths due for military service, which are against the towns."

The more highly educated, though not physically inferior, do not show that corporeal superiority which might be expected from their more favorable circumstances.

*Increase of Cancer in Germany.*⁹⁰

The present increase of cancer in Germany, if continued at the same rate to the end of the century, will give a death rate of 22 per 10,000, which is the present consumption mortality of Germany, and if by that time the death rate from consumption shall be reduced to 5 per 10,000, the destructiveness of the two diseases will have been reversed. There is, however, no reason for supposing any connection between the two diseases, since the people of Saxony and Baden, while sharing in the increase of cancer, show no decrease in consumption.

In general, in Prussia, the cancer mortality in

⁸⁶ Ges. Ingenieur, July 31, 1899, p. 23.

⁸⁷ Deutscher. Viertelj. f. off. Gesund., 1899, p. 180.

⁸⁸ Journal of Sanitary Institute, October, 1899, p. 467.

⁸⁹ Hygien. Rundsch., 24.

⁹⁰ Zeitschr. f. Hyg., xxxii, p. 235.

the towns is twice as great as it is in the country, 7.9 and 3.8, and the mortality from this cause in large cities is greater than that of small ones. Some places, like Stralsund and Schleswig, have twice as many deaths from this cause as occur in Treves and Coblenz.

The Death Rate of Buenos Ayres.

Dr. Carrasco⁴¹ presents some very striking figures, showing a very marked diminution in the death rate of Buenos Ayres since the introduction of pure water and a sewer system. The general death rate fell from 30 per 1,000 in 1890 to 17.1 in 1899, and the typhoid death rate fell from 1.15 to .14 in the same period.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of January 15, 1901, the president, DR. ALFRED WORCESTER, in the chair.

DR. F. W. TAYLOR read, by invitation, a paper entitled

*PATHOLOGY OF THE NEWBORN.*¹

DR. HIGGINS: Recently I saw in a report of a very interesting case of hemophilia,² from the autopsy of which were isolated several forms of bacteria, from which various interesting conclusions were deduced, among others, that hemophilia neonatorum is the result of infection—a view that might throw much light on such cases.

DR. ENGELMANN: Some time ago I saw with Dr. Williams, of Johns Hopkins Hospital, a case of delayed respiration, in which a most vigorous spanking worked to perfection. I would like to call attention to the value of a smooth square-ended catheter to free the throat of newborn infants from mucus. When I was studying in Berlin it was the custom that all students should be equipped with such a catheter. This is certainly more advantageous than blowing air into the lungs.

DR. J. G. BLAKE: I would like to say a word of warning as to heroic treatment being applied to cases of delayed respiration. I remember a case in which hot air, combined with very vigorous friction, resulted in most of the cuticle being rubbed off the child. Spanking of course does no harm generally; but the possibility of black and blue spots being left should be borne in mind, as they are something that parents object to most heartily, forgetting they resulted from efforts to bring the child to life. A man who has never seen a case of hemorrhage from the umbilicus can have no conception of how persistent a thing it may be, in spite of every kind of treatment. It would suggest as a possible substitute

for the catheter used to aspirate mucus from the trachea, the use of the little suction syringe used to remove tenacious mucus from the cervix.

DR. C. M. GREEN: The treatment of asphyxia of the newborn should depend upon the degree of asphyxia. If the child is livid, it will generally respond to cutaneous stimulation, or to the shock of the alternate hot and cold plunge, after the trachea has been freed from mucus. But when in pallid asphyxia the reflexes are lost, and the hot and cold plunge is not only useless, but injurious. In pallid asphyxia the pulse is feeble and rapid, and the child is best treated, in my opinion, by immersion in hot water, and by direct mouth to mouth insufflation of air. Sometimes a few drops of brandy subcutaneously are advisable. The French have a tracheal catheter of silver, by means of which the trachea is freed from mucus by the help of a rubber bulb. But in my experience, the mucus and other inspired fluids are best removed by suspending the child by the feet. It has always seemed to me that Schultze's method of resuscitation exposed the feeble child to too great loss of heat.

DR. BLAKE: I should like to ask Dr. Taylor whether in his series there were any cases of apparently healthy, naturally born children dying suddenly without any cause that could be found out. I remember such a case where the autopsy showed absolutely nothing.

DR. W. E. BOARDMAN: I remember a similar case, in which the healthy child of a multipara, born after a simple natural labor, died on the second day, with no apparent cause.

DR. G. J. ENGELMANN: I have got the best results by keeping the child in hot water with the heart exposed, and then from time to time pouring cold water over the heart and head, so as to get the mechanical as well as the thermal shock.

DR. TAYLOR: In regard to melena I think that the general feeling now is that it is of infectious origin. Suspension, as far as I have tried it, has proved very successful. It should, however, be prolonged enough to allow the child to take a number of breaths. I agree with Dr. Green, that keeping up the vital heat is most important in the pallid children. I keep them in warm water, taking them out only occasionally to sprinkle them with cold water.

DR. H. T. SWAIN, by invitation, presented a paper entitled

*A CASE OF CHIN LEFT POSTERIOR.*³

DR. TAYLOR: I should like to ask, as Dr. Swain has spoken of the child's head being retracted some months after birth, whether there was any mechanical cause in the formation of the child to account for the presentation.

DR. SWAIN: Apparently the retraction was merely the result of muscular strain.

DR. J. B. SWIFT: In the case of face that I have seen, I managed to change it to an occiput anterior by grasping it and bringing it down. I have been surprised to see in a recent article in

⁴¹ Boletín Dem. Argentina, vol. i, August, 1899, p. 31.

¹ See page 347 of the Journal.

² Nicholson, American Journal Medical Sciences, October, 1899.

³ See page 352 of the Journal.

the *New York Medical Journal* that it is an easy thing under deem anesthesia to push the head back to correct such malpositions.

DR. C. M. GREEN: I think that would depend on the amount of uterine retraction. If the uterus is not too dry and retracted, the head may be pushed up and flexed, or internal podalic version may be performed. I have succeeded in doing this in 1 of the 4 cases of low face presentation I have seen. But this would be hazardous, if not impossible, if the uterus is markedly retracted. It is difficult to believe that a fully extended head in the pelvis can be flexed, unless the head is relatively small. But Malcolm McLean reports 2 cases in which he has successfully delivered in this way. If the low face presents the chin anteriorly, delivery by forceps is not difficult. But when the chin is posterior, and the head cannot be flexed nor be pushed up, forceps may secure an anterior rotation of the chin. Failing this, nothing remains but symphyseotomy or craniotomy.

DR. F. A. HIGGINS: I have seen but 1 face case, and that took care of itself. I think such cases would often do well under the relaxation that comes with deep anesthesia. I have often noticed the ease—too much so, sometimes—with which, under anesthesia, one can reflex a partially extended occiput posterior, which was apparently fixed, without ether.

DR. BOARDMAN: The secret of success in the writer's case seems to lie in the fact that the uterus was not retracted. Experience has shown that such cases are generally fatal with a fully retracted uterus, even under deep anesthesia. In the 2 face cases that I have seen, the labor took care of itself in one, and in the other I resorted to version at an early stage.

DR. ALFRED WORCESTER: I agree with the reader that the fortunate issue depends on whether the uterus be fully retracted or not. In this case it had also much to do with the ready skill and discretion of the operator in following nature's lead. I was glad also of the reluctance with which he spoke of doing perforation. A few years ago any young operator would have felt justified in perforating in such a case. Consideration for the unborn child is certainly increasing. I am therefore much surprised that Dr. Green should not have included Cesarean section among the possible alternatives. To me in such a case, with the uterus in tonic contraction, Cesarean section offers much less risk to the mother than does version, not to speak of the much greater safety of the child.

DR. BLAKE: I was going to bring up that same question myself. My feeling is that symphyseotomy is going to be relegated to obscurity, now that the perfected Cesarean section is becoming an operation of such safety. I have never got over my old feeling that the danger, by a symphyseotomy, of making a woman a partial cripple for life is to be avoided if possible.

DR. GREEN: I am by no means an opponent of Cesarean section, or an advocate of symphyseotomy. Both operations have their proper indica-

tions, and I think symphyseotomy should be employed only in those cases in which the woman is either septic or in a poor condition for an abdominal operation. High faces can usually be dealt with by version, or, after flexion of the head, by high forceps. But when the head is in the pelvis, and extended to a face, chin posterior, when the uterus is in such a condition of retraction that the head cannot be pushed up and version performed, or when the head is so impacted that anterior rotation of the chin cannot be accomplished with the hand or forceps, I do not believe that the mother is in any condition for a safe Cesarean operation. Moreover, in such cases the child would generally be dead, and might as well be delivered by craniotomy; but if the child is alive, symphyseotomy would then be preferable to Cesarean section, in my opinion, as involving less risk to the mother. The results of Cesarean section are not good when the patient has been long in labor, no matter how skilful and clean the operation.

DR. WORCESTER: I do not yet understand how Dr. Green can exclude Cesarean section from the alternatives. I maintain that if symphyseotomy could be done, Cesarean section should be. As the head is wedge-shaped when in the pelvis, I cannot imagine any very great difficulty in delivering it by Cesarean section, either by pulling from above or pushing from below. I believe the dangers of a clean Cesarean section are much less than those of a possible rupture, and certainly less than those of a symphyseotomy.

Recent Literature.

A Reference Handbook of the Medical Sciences. Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By various writers. A new edition, completely revised and rewritten. Edited by ALBERT H. BUCK, M.D. Volume I. Illustrated. Pp. 799. New York: William Wood & Co. 1900.

A new wholly revised and rewritten edition of this notable work is appearing under the editorship of Dr. Albert H. Buck. The first volume gives promise of a complete cyclopedia of medicine, which will be of very great value, not only as a work of reference, but also as a source of original information on many subjects. The individual articles are written by experts, who have evidently been carefully selected for their special tasks. The success of a comprehensive book of this character depends in great measure upon the ability of its editor to enlist equally competent men in the preparation of articles. In this, Dr. Buck appears to have been peculiarly fortunate, judging from the names which appear as department advisers and also as individual contributors.

This first volume includes A and a part of B. The illustrations are abundant and helpful, and when necessary for clearness are usually, though, we regret to say, not always, printed on special

paper. The microphotographs of bacteria, for example, are excellent, and admirably reproduced. The type, though rather small, is perfectly clear, and the subjects are conveniently placed in heavy type at the head of each page. In general the book fulfils all the requirements of an encyclopedia, and will unquestionably fill a place as a reliable epitome of the rapidly growing and diversified knowledge now included under the head of medical science. We shall look forward with interest to the later volumes, which, it is hoped, may appear at reasonably short intervals.

Forty Years in the Medical Profession: 1858-1898. By JOHN JANVIER BLACK, M.D., Member of the College of Physicians of Philadelphia; Member of the Delaware State Medical Society, etc. Philadelphia: J. B. Lippincott Co. 1900.

This is a volume of 498 pages, covering the experience of a physician who has observed much during an active practice of forty years. The book abounds in reminiscences of well known men of the past fifty years, and many facts are related in entertaining style of their sayings and doings. The state of medical knowledge forty years ago is depicted from the point of view of an eye-witness, and finally a phenomenal amount of information is given on foods, beverages and fruits. It is natural that most of the text is a matter of common knowledge, nevertheless no one could read it from cover to cover without gleanings of many facts which he did not know before. The book is rather too long, but most of it is entertaining and instructive, and it permits, fortunately, of judicious skipping. It is sufficiently well bound, and is printed in excellent clear type.

Obstetric and Gynecologic Nursing. By E. P. DAVIS, A.M., M.D., Professor of Obstetrics in Jefferson Medical College and Philadelphia Polyclinic. Pp. 402, fully illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

This book, intended as a guide and textbook for the obstetric and gynecologic nurse, is an attractive volume with respect to its size, style and contents. The text is written in a plain and concise manner with clear and simple directions for the nurse's conduct, while the book does not abound in a large amount of material which the nurse can not and should not be expected to know. The obstetrical nurse of today should and does have special technical training and skill, but this training when best given is confined to the duties of the nurse herself, with respect to the care of the patient, her assistance of the attending physician, and the care of such emergencies as may arise in his absence. This the author evidently kept in mind throughout and has attained to a marked degree in his work; consequently the book is not an abbreviation of an obstetric textbook, but the best book on obstetric and gynecologic nursing that has come to our notice.

The book is divided into two parts; the first part, comprising 240 pages, is devoted to obstetric

nursing and care of the young infant, and part two, of about 120 pages, is confined to gynecological nursing. There is also an excellent appendix, of about 30 pages, devoted to dietary and to the preparation and sterilization of surgical supplies.

Throughout this book the author has wisely limited his descriptions to directions for the nurse's work, with no attempt to indicate reasons or details for operative procedure. Much good advice is offered the nurse against the assumption of too much responsibility in certain conditions, such as the examination for lacerations after delivery, and the taking of unwritten orders from the physician in the treatment of cases after abdominal section.

Manual of the Diseases of Children. By JOHN MADISON TAYLOR, A.M., M.D., and WILLIAM H. WELLS, M.D. Second edition, thoroughly revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

The entire work has been thoroughly rewritten and much new material added. In the preface to the first edition the authors stated that they did not claim that their book was a treatise on the maladies of childhood, but they presented it as a practical working manual for the student and practitioner. The first edition, however, was well worthy the title of "treatise," which the authors so modestly disclaim. The second edition, a volume of more than 800 finely printed pages, deserves this title even more, and is far more complete than many books on the diseases of children with more ambitious titles.

The arrangement of the work, is on the whole, fairly satisfactory, although diseases and symptoms are, to a certain extent, confused. Appendicitis is strangely enough classified under "Diseases of the Peritoneum." Tuberculosis of the peritoneum and tubercular meningitis are not classified with tuberculosis as they should be.

It would seem better to have taken up membranous croup, that is, laryngeal diphtheria, with diphtheria instead of with diseases of the respiratory organs. To take it up with them only perpetuates the confusion of former years. Laryngismus stridulus belongs with the diseases of the nervous system rather than with those of the respiratory organs. We can see the possible explanation for placing exophthalmic goitre among the diseases of the nervous system, but hardly any for placing myxedema there also. Tetanus belongs among the "Specific Infectious Diseases," rather than among those of the nervous system. Other exceptions might also be taken to the arrangement. Perhaps more have been taken than seem advisable in a review. We feel, however, that much harm may result, especially to students, from getting a wrong point of view in the beginning. The relative amount of space given to different diseases is, in many cases, also peculiar, for example, diphtheria has more than thirty pages, and general tuberculosis less than one.

The pathology of disease has probably received

as much attention as the limited space warranted. The sections devoted to symptomatology, however, are sketchy and far from clear. Those devoted to diagnosis are incomplete and unsatisfactory. The newer and more accurate methods of diagnosis have hardly been given due prominence. Much space has been given to treatment, which is very complete. There is a tendency here, however, to glittering generalities and to long lists of drugs "which may be used." We fear that the student may often be confused, and feel that less but more definite treatment would be more useful to him.

The chapter on the feeding and food of infants and children is one of the best in the book. It is well up to date and is written in a very practical manner. Much attention is devoted to the home modification of milk while laboratory feeding is not neglected. This chapter cannot fail to be most useful to the practitioner. The chapter on the diseases of the digestive organs is also good.

We cannot, however, agree with the classification. The great importance of diet rather than of drugs in the treatment of these diseases is duly emphasized. The standard of the rest of the book is uniform, but on the whole is not quite up to that of the chapters mentioned. The authors' point of view in many instances seems that of adult medicine rather than that of pediatrics. The chapters on the ear and skin are especially commendable.

As a whole, however, the work is very satisfactory. It is well worthy the careful study of both student and practitioner, and cannot fail to prove of great value to both. We do not hesitate to recommend it.

The Essentials of Practical Bacteriology. An Elementary Laboratory Book for Students and Practitioners. By H. J. CRUTS, B.S. and M.D. (Lond.), F.R.C.S., Late Surgical Registrar, University College Hospital; formerly Assistant to the Professor of Pathology, University College, London. London, New York and Bombay: Longmans, Green & Co. 1900.

This book represents one more addition to the growing list of laboratory manuals for students of bacteriology. It deals not only with the bacteria proper, but includes some consideration of the moulds, fermentation, malaria, psorospermiosis and cancer. The published work of Plimmer on cancer is extensively quoted and his results are apparently accepted by the author. The text of the book seems to fairly well represent the main points in our knowledge of bacteria and of the other subjects with which the book deals. This is to be expected, because with so many other books on bacteriology available for reference it would be gross carelessness for an author to make many erroneous statements. As compared with these others, this book presents no special improvement. It surely does not fill any general and widely felt want. The illustrations are numerous. Practically all of the figures of bacteria are made from diagrammatic drawings. They are much inferior to good photomicrographs.

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PLAGUE IN SOUTH AFRICA.

At the beginning of the appearance of plague at Cape Town grave apprehensions were at once felt lest the disease should prove difficult to eradicate. This fear has proved in great measure well founded, owing to the peculiarly disadvantageous conditions under which the health authorities are obliged to work, chiefly because of the ignorance and prejudice of a large portion of the population.

It is said that upwards of twenty thousand people from the seat of war have sought refuge in Cape Town, which is none too well able to care for its own population. No proper provision could, under the circumstances, be made for these refugees, among whom were women and children, with the natural result that they became a source for the inception and spread of disease. As regards the sanitation of Cape Town, a correspondent in a daily paper writes, perhaps rather extravagantly, that it is one of the dirtiest, if not the dirtiest city in the world, and that the system for the disposal of the city's refuse is the same as that in vogue in Jerusalem two thousand years ago. However this may be, it is safe to assume that so mixed a population as that of Cape Town, of which whole classes have their own peculiar superstitions, must be a constant menace to the health of the community at large. The Malays appear to be the most difficult class to control, owing to the practical impossibility of forcing them to abide by the ordinary laws of burial. These Malays live in the midst of the city, which is now densely populated, so that the tracing of a disease like plague in its early stages becomes a matter of very great difficulty. It is said, furthermore, that the peculiar religious doctrines of these people prevent the employment of a regular undertaker, custom demanding that, regardless of the cause of death, the corpse must be borne through the streets in an open coffin to the grave, where it is left exposed

over one night. The friends of the deceased visit the cemetery under these conditions and deposit near the grave various edibles. This exceedingly unhygienic custom has been found difficult to suppress, and a considerable conflict with the authorities has resulted. The Kaffirs are also a problem. They live in the most squalid fashion, and naturally without an idea as to cleanliness. The government has attempted to collect them in one locality, thereby permitting a more perfect supervision than would be possible were they allowed to live in places of their own choosing.

In such a population it is easy to see how fertile a field is provided for the spread of plague, and although the disease may hardly as yet be said to have reached grave epidemic proportions, nevertheless the continued reports of fresh cases, ten for example on April 8th, and four of these among Europeans, is not altogether reassuring. Hope is expressed that certain gales from the southeast, which are ordinarily prevalent at this period of the year, may lighten the situation by clearing the atmosphere and washing away filth. It is, however, sufficiently apparent that an ultimate eradication of this disease or any other of a similar sort, must come from a complete regulation of the hygiene of the city, no doubt in this case difficult of accomplishment, but certainly possible, if sufficiently active measures be taken, and sufficiently stringent laws enacted.

REPORT OF BROOKLINE, MASS., BOARD OF HEALTH.

WHETHER inspired by the example of larger and more thickly populated neighboring cities, or aroused by a consciousness of their own immediate needs, it is evident that suburban towns are every year making decided progress in municipal sanitation. Good work has been done in many localities as communities have awakened to their responsibilities in dealing with those problems of disease which come under public jurisdiction. We have before us the Report of the Board of Health of the town of Brookline, Mass. It contains the usual facts and figures regarding mortality and disease and alludes to various improvements in the work of the Board during the year. Owing to the prevalence of diphtheria last fall and during the early winter an added building for an isolation hospital was supplied by the erection of a somewhat hastily built structure which, however, answered its purpose sufficiently well. Of the 161 patients admitted to the hospital during 1900, 137 had diphtheria and 14 scarlet fever. Of the 137 diphtheria patients all except 4 recovered (a mortality of less than 3%), and of the 14 scarlet fever patients, the whole number recov-

ered. To the use of antitoxin, provided by the State Board of Health, the very small death rate in the diphtheria hospital is in large part due.

Disinfection after a death from consumption is required, and the free bacteriological examinations to determine an early diagnosis of diphtheria and typhoid fever have been more extensively taken advantage of than in preceding years. Of very great importance has been the establishment of a laboratory under the charge of a skilled bacteriologist. Systematic investigations have been undertaken and carried out in this laboratory which are not only a credit to the town but also a distinct contribution to medical knowledge. The regular work has been the examination of cultures from suspected cases of diphtheria; the examination of sputum for the early detection of cases of pulmonary tuberculosis, and the application of the Widal test in suspected typhoid fever. Some interesting observations on the presence of diphtheria bacilli in supposed healthy persons were made, which should be of value in estimating the danger of infection. Of this investigation the Report states:

Cultures from 1369 healthy persons were examined. When a school child has been taken sick with diphtheria, the school inspectors have made cultures from those children sitting adjacent to the child, or from all the children in the same room. In this way, 1154 cultures have been made and 43 healthy children with the bacilli in their throats or noses were discovered. In 18 of these the bacilli were very few in number and present only on one day, as the cultures which were made on the day following and subsequently were negative. It is hard to explain these cases which appear to be so slightly and transiently infected. It seems probable that they are not a great source of danger.

Of the 25 cases which were positive on more than one day, 4 were found by inoculation tests to be virulent, 12 were non-virulent, and in 9 the virulence was not tested. Very few of the 1154 school children had been much exposed. In many cases the cultures were made as a precautionary measure where the exposure was only suspected. This explains the occurrence of so few positive cases showing virulence.

In marked contrast to the school cases were the results of examinations of cultures from the healthy members of families where one or more persons had diphtheria. Cultures from 218 persons were examined, among whom 39 (18 per cent) were positive. The bacilli from healthy persons who had been exposed were always found to be virulent when tested, and were therefore capable of transmitting the disease to others.

With very few exceptions, none of these healthy persons with virulent bacilli developed symptoms of diphtheria; many of them doubtless would have done so had they not received a protective dose of antitoxin. The antitoxin prevents, for a few weeks at least, the development of serious symptoms in the individual so protected, and is, therefore, of great benefit, but it does not prevent the germs multiplying in the throat and nose, and so of being transmitted to others. As no symptoms develop after antitoxin is given which would enable a physician to recognize a

case as dangerous, it is only possible to discover the infected throats by means of cultures. Such undiscovered cases may go about spreading the disease, and may infect the rooms which have been disinfected by the Board on the removal of the case to the hospital.

This sort of work is worthy of emulation everywhere and it is in general gratifying to observe that really scientific methods are being more and more systematically introduced in Board of Health laboratories to the evident benefit of the communities in which they are located.

"AMERICAN MEDICINE," A NEW MEDICAL JOURNAL.

THE first number of a new weekly medical journal, advertised for several months, appeared April 6th, with the title "American Medicine." It adds another to the already overcrowded list of such journals, but its editor, Dr. George M. Gould, and its owners are no doubt inspired by the perfectly legitimate ambition of finding room at the top, an ambition which has led to the success of many far more venturesome efforts than this.

In form and general arrangement of contents the new journal is very similar to the *Philadelphia Medical Journal*, of which Dr. Gould was formerly the editor. Original articles are relegated to the latter part of each issue, with editorial comments and items of general medical interest at the beginning. A department of therapeutics has been introduced, and under the rather unnecessarily comprehensive heading, "The World's Latest Literature," is given an epitome of current medical writing as found in certain of the better known and not strictly technical journals. This latter method of disseminating knowledge was introduced into American weekly journalism by Dr. Gould, and is certainly to be regarded as of value, if well done. That it is often very poorly done is perhaps unavoidable, but none the less unfortunate.

The appearance of this first number is gratifying to a lover of good printing; its typographical errors are few in consideration of the fact that this is its first issue, and the material offered to readers is varied and nutritious. The promise of short articles, as made in the prospectus seems doubtful of fulfilment, however, when we note that five of the original papers are of the continued variety. There is considerable editorial comment on the need of independent journalism to which we, in general, most willingly subscribe. We confess, on the other hand, to a feeling of regret that the editor has seen fit to resort to the paralysed column method of enforcing his ideas even in so small a matter as in giving advice to subscribers to medical journals. We had hoped that argument put in this form had its place only in political controversy.

A SO-CALLED VICTORY FOR CHRISTIAN SCIENCE.

UNDER the heading "Victory for Christian Science," a daily paper cites a case occurring in Milwaukee in which two Christian Scientists were convicted in a police court of practising medicine without a license. The case was appealed and the judge of the higher court is reported to have ruled that, inasmuch as there never had been any testimony that the defendants had pretended or attempted to use medicine, they could not be held liable, the question at issue being whether the defendants did or did not practise medicine. We can hardly believe that the ruling is correctly reported; if it is we are at a loss to conceive what is legally meant in Milwaukee by the phrase, "practice of medicine." Certainly no liberal-minded or well-informed person imagines nowadays that the practice of medicine means solely the employment of drugs. We should, on the contrary, suppose that the definition as ordinarily interpreted signifies merely the treatment of disease by any means physical or otherwise. A large part of medical treatment has no relation to the use of medicine a fact which the courts ought to know. We have no knowledge of the special case in which the above ruling was made, nor do we wish to express here an opinion as to the advisability of prosecution in such cases in general, but that any person should be freed of responsibility and exempt from processes of law relating to medical practice on the ground that he does not employ medicine in his treatment is a dodging of the real question at issue capable of most serious misinterpretation. If the courts are to maintain that a person may treat the sick without let or hindrance provided only he abstain from giving medicine of what possible significance is a medical practice act?

MEDICAL NOTES.

A PROPOSED ALLIANCE OF AMERICAN COUNTRIES TO COMBAT YELLOW FEVER.—At the recent meeting of the International Medical Association held in Havana the proposition was made to organize a committee of the various American countries to investigate the possibility of establishing a uniform system of quarantine regulations and systematic co-operation for removing the sources and suppressing the causes of yellow fever. A convention is to meet in Havana next February. The invitation to the United States to participate in this convention is now under consideration by Dr. Wyman of the marine hospital service.

YELLOW FEVER IN THE PHILIPPINES.—Dr. F. A. Meacham, president of the Board of Health at Manila, calls attention to a statement in our

issue of December 27, 1900, regarding the presence of yellow fever in the Philippine Islands. He writes: "There have been no cases of yellow fever in the Philippines during the year 1900, and from all obtainable information this disease has never gained an entrance to the Archipelago."

PLAGUE IN SAN FRANCISCO.—Official reports show that a certain amount of plague is endemic in San Francisco. The cases have been comparatively few in number, but of a virulent character. The disease has been confined almost exclusively to the Chinese, but for several years has not increased to a degree to cause alarm.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, April 10, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 59, scarlatina 33, measles 89, typhoid fever 8.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending April 6th was 211, as against 276 the corresponding week last year, showing a decrease of 65 deaths, and making the death rate for the week 19.6. The deaths from consumption were 32, pneumonia 31, whooping cough 1, heart disease 19, bronchitis 7, marasmus 3. There were 11 deaths from violent causes. The number of children who died under one year was 30; under five years 52. Persons more than sixty years 44; deaths in public institutions 61.

TYPHOID FEVER IN NEW HAVEN, CONN.—Within the last few days upwards of 150 cases of typhoid fever have developed in one of the better residence quarters of New Haven. An investigation by the Health Board is said to have shown the cause to be the pollution of a pond which furnishes the water supply for the western part of the city. Infected matter from 3 cases of the disease in the family of a farmer living near the pond was washed into it by the recent rains.

NEW YORK.

VINDICATION OF NORTH BROTHER ISLAND HOSPITAL.—Robert Martin, a merchant who was recently a smallpox patient in the hospital for contagious diseases on North Brother Island, having published in the newspapers sensational charges as to the existence of gross abuses in that institution, the commissioners of the Board of Health immediately invited representatives of the principal papers to make a visit to the island in company with officials of the department. Had the abuses described really existed there would have been no time to correct them, and the party of visitors came away entirely satisfied that the

management of the hospital was efficient and that everything possible was being done for the welfare and comfort of the patients.

SEMI-CENTENNIAL OF DR. ABRAHAM JACOBI'S GRADUATION IN MEDICINE.—On April 5th Dr. Abraham Jacobi celebrated the semi-centennial of his graduation in medicine at the New York Academy of Medicine, having been graduated from the University of Bonn in 1851. On this occasion Dr. Jacobi was himself the host, and entertained a number of the prominent physicians of the city. In a paper on some of his reminiscences he spoke particularly of the German textbooks of fifty years ago, a collection of which he has presented to the library of the academy.

DEMONSTRATION OF A MECHANICAL DEVICE TO FACILITATE HEARING.—Recently Mr. Miller Reese Hutchison gave before the Section on Otology of the Academy of Medicine a demonstration of his telephonic device for enabling the deaf (even deaf mutes) to hear, which excited much interest. He explained that while he did not claim anything curative for his invention, which was simply a mechanical contrivance to facilitate hearing, at the same time he had observed in a considerable number of cases more or less improvement.

ENFORCING THE LAW REGARDING EXPECTORATION.—On April 1st the Board of Health began a rigorous crusade against persons expectorating on the floors of street cars and ferry boats. Members of the sanitary police force were sent out in all the boroughs, in citizen's clothes, to watch for offenders against the ordinance forbidding the practice, and a large number were arrested.

ENLARGEMENT OF ST. MARY'S FREE HOSPITAL.—The trustees of St. Mary's Free Hospital for Children, on West 34th Street, have purchased two city lots on 35th Street, adjoining the buildings, and will erect on the property an addition to the hospital.

A CENTENARIAN.—Louis Voilland, a native of France, who after coming to America was for some time in the service of Madame Jumel, the widow of Aaron Burr, died on April 4th at Mamaroneck, Westchester County, at the age of 103.

BEQUEST TO A HOSPITAL.—Among the charitable bequests of Mrs. Katharine D. Callahan, of New York, who died last month, is \$5,000 to St. Francis Hospital, to be devoted to the establishment of the "Rigney-Callahan" ward.

DEATH AFTER REMOVAL OF STOMACH.—The patient whose stomach Dr. George R. Fowler removed at the German Hospital in Brooklyn died April 2nd, five days after the operation.

MALARIA IN RELATION TO ENGINEERING AND AGRICULTURE.

PROF. A. CELLI has contributed to the *Journal of the Sanitary Institute*, January 1901, page 617, an extremely valuable and interesting article upon the Relation of Malaria to Engineering and Agriculture, from which the following extracts are taken:

It is therefore now beyond question that a malarial human being, that is, one who has the specific parasites in his blood, is the first source of infection. The anopheles mosquito, which sucks that blood, is the other source of infection, and also the vehicle that carries the germ through the air, and the means of inoculation. It is further certain that these gnats live in humid places at various altitudes, in Italy from 0 to 1,300 metres. But for the local origin of an epidemic, besides a malarial human being and anopheles mosquitoes, there is required a suitable temperature (from 20° to 25°C.), that is, the opportune season, from which fact malaria in old times was also called "seasonal fever."

In order to live on the surface of the earth all gnats require water through the whole period of their aquatic existence, that is to say, in their larval and nymphal stages. As Tommasi-Crudeli had already shown, the soil may be of any nature and constitution, provided it has water on the surface; the water may also be contained in reservoirs outside the earth. Water is therefore the sole and true condition that is indispensable for the development of mosquitoes, and therefore of malaria, in every place where that disease is prevalent.

Briefly summing up the results of very numerous observations it may be stated as indubitable that:

(1) The larvae of anopheles live in any water, clean or foul, clear or turbid, acid or alkaline, and ferruginous. They do not live in water (1) containing salt (salt marshes, sea water, and mixtures of that with fresh water in the proportion of two to one); (2) very strong sulphur waters; (3) water that is putrid from the putrefaction of animals or textile plants. They avoid water (a) in which there is any movement (currents, ripples caused by even light winds such as sea breezes, mechanical disturbance as by the passage of boats); (b) without vegetation of aquatic plants; of which they prefer the filamentous species which do not occupy the whole free surface of the water where they rise to breathe.

(2) The aerial anopheles are little domestic animals which live in and around houses. It is on this account that malaria is so often epidemic, that is to say, a disease which is contracted for the most part in the interior of dwellings, or in their vicinity. They bite in the evening and at night, and from olden times therefore these have been looked upon as the most dangerous hours for the contraction of fevers. The insects are carried to a distance, not only by the wind, which they dread because they are beaten down by it, but passively, that is to say, on man, on his belongings (grass, hay, wood, beasts), and on his means of locomotion (carts, coaches, railway carriages, etc.).

From these facts, which are now thoroughly established, are deducible several corollaries useful in practice for engineers and agriculturists.

(1) *Corollaries for hydraulic engineers.*—In the first place, certain prejudices that have for a long time held sway in the schools have been definitively removed. For instance, it can no longer be maintained that a puddle or lake is improved by the water level being kept constant. On the contrary, if the waters are still and—as happens in the neighborhood of the edges—there grows an aquatic vegetation, there the larvae of the anopheles gnats mostly make their nests.

Another prejudice, already combated by Tommasi-Crudeli and now definitively buried, is that putrid waters and the emanations therefrom are causes of malarial fevers, whereas on the contrary, it has been

seen that the specific gnats do not live in stinking waters.

Another prejudice which is already crumbling away, although the Paris Academy of Medicine not long ago attempted to revive it, is that waters which are brackish owing to a mixture of fresh water with sea water, and salt marshes along the sea-coast are very unwholesome.

Having thus briefly seen which are the gnat-breeding, and therefore the malaria-breeding waters, I pass on to indicate the new criteria with which engineers who have to carry out hydraulic improvements designed to free districts from malaria should be acquainted.

It is known that these improvements can be secured by means of, (a) Natural drying by large canals with a high-level water course; (b) mechanical drying by means of pumping engines; (c) earth embankments; (d) drainage. This last method may be sufficient of itself or may be complementary to those previously mentioned.

(2) *Corollaries for sanitary engineers.*—The house in malarial regions may, as has been said, be the point of greatest danger from fevers, while on the other hand, if properly built and equipped, it may be the safest place. Formerly, in every malarial district, it used to be required (and as far as possible it ought still to be required) that the house should be built in the highest and driest situation possible; but this is not sufficient, for the gnats, directly or passively, will get up to it.

Other structural conditions are today more necessary, whenever a house has to be built in a malarial place. Above all there should never be a dark or badly lighted part in the house. If there is such a part, as for example, in the cellars, under the stairs, in the latrines, gnats will certainly hide there.

The walls of the rooms must be white, so that every gnat that rests on them may at once be seen. From the bedrooms it will be necessary to remove pictures, curtains, and such articles of furniture as shelter gnats. If by chance one is heard in the night, a powder should be burnt which at any rate will stupefy it, so that afterwards in the morning it can be looked for and killed. Care should be taken that there are no holes in the floor, or if there be any, that they should be closed.

It is advisable to avoid having trees about the houses, as in the daytime the mosquitoes hide there, which in the evening try to make their way into the houses, especially into rooms where there is a light burning.

Finally, any kind of habitation in a malarious place, even to temporary sheds that can be taken down and straw huts, should be protected against the invasion of mosquitoes. The walls should be of netting, or be made somehow impermeable to those insects, and in every case a cage with an outer and an inner door of metallic netting should protect the entrance.

With such mechanical protection, last year I, for the first time, made it possible for the families of railway servants to pass the whole summer and autumn in the most malarial spots of the Campagna without contracting the fever; and there is no longer any doubt that it is possible to keep a house free from mosquitoes, and therefore from malaria, in the regions most infected by that epidemic disease.

(3) *Corollaries for agriculturists.*—It must first of all be understood that any turning of the soil cannot by itself be a cause of malaria, as was believed when it was supposed that the germs of this infection lived in the ground. Thus the temporary irrigations of dry cultures, as maize, meadows, fields, pot-herbs, oranges, lemons, etc., cannot be a cause of malaria, provided the water reaches the soil in no greater quantity than it does in a shower of rain, and the canals by which it flows in or out are not of such a character as to allow it to become stagnant.

On the other hand, marsh lands or irriguous fields which are kept in a state of prolonged submersion may be a cause of malaria, not by reason of the water which is poured over the fields, and during the fever season is not left there, but by reason of the water which stagnates in the canals round the square patches of meadow.

My own experiments and those of my fellow-workers in various parts of Italy, have shown that ricefields, whether the water in them be stagnant, running, or intermittent, are always a favorite nidus of the anopheles larvæ.

Does the culture of shrubs, and in general of trees, favor the propagation of malaria, or does it not? It can no longer be maintained that, at any rate among us, there exist culicifuge trees, and that of this nature, as the Paris Academy of Medicine persists in believing, are the pine and the eucalyptus. These and our other trees are, on the contrary, shelters for the insects of the air, and therefore in the neighborhood of houses, as in our railway cottages, they rather entail a danger of malaria. On the other hand, some herbaceous plants, chiefly the closed flowers of the chrysanthemums of Dalmatia and Montenegro, from which are prepared the so-called insecticide powders, are effectual in killing the larvæ in water and the mosquitoes in the air. If it were possible to cultivate these plants on a large scale, it might be possible also to contrive that the malarial place itself should produce as much as would suffice to free it from the mosquitoes by which it is infected.

Lastly, *intensive cultivation* is notoriously that which best reconciles hygiene with rural economy. And how this is so we are now in a position to explain. Dry soil, temporary irrigations, strict conservancy of canals, even the foul liquids of natural manures, are so many conditions unfavorable to the life of the larvæ of the fever-breeding mosquitoes. And thus it is understood how, wherever it has been possible to secure all this, intensive cultivation has brought economical prosperity and health to wretched and inhospitable waste lands.

(4) *Brief notions of prophylaxis for laborers in malarious places.*—It is altogether to the interests of engineers and agriculturists to safeguard the health of him who works for them much more than he does for himself. It is well, therefore, that they should know how they can and ought to do this. It is obviously necessary that, in every primary and recurrent case of malarial fever, treatment by means of quinine should be prompt, as complete as possible, and therefore prolonged and gratuitous.

For this purpose he also advises protection of laborer's dwellings by screens, protection of the uncovered parts of the body, and shortening or abolition of night and evening work. He also recommends the administration of eucihim to produce immunity.

“RUDOLF VIRCHOW FUND.”

TO THE AMERICAN MEDICAL PROFESSION:—On October 13, 1901, Rudolf Virchow will be eighty years old. When he completed his seventieth year a fund was started in his honor to enable the great master to facilitate scientific research by establishing scholarships, and by encouraging special medical and biological studies. Contributions to that “Rudolf Virchow Fund” were furnished by those in all countries interested in progressive medicine, as a homage to the man whose name is always certain to arouse admiration and enthusiasm.

In Berlin a large committee, containing among others the names of A. Bastian, V. Coler, A. Eulenburger, B. Frenkel, O. Israel, Fr. Koenig, C. Posner and W. Waldeyer, has been formed to call for contributions which are to be added to the original “Rudolf Virchow Fund” so as to increase its efficiency. The committee expresses the opinion that in no better way, and in none more agreeable to the great leader of modern medicine, can his

eightieth birthday be celebrated, and ask for the sympathy and co-operation of all those engaged in the study and practice of scientific medicine all over the globe.

The undersigned have formed a sub-committee for the purpose of making the American profession acquainted with the intentions of the Berlin Committee, and urge their colleagues to participate in honoring the very man who has done more, these fifty years, than any other to make medicine a science, and international.

Subscriptions should be sent to their secretary, who will receipt therefor.

CHARLES A. L. REED,
President of the American Medical Association.

HENRY P. BOWDITCH,
President of the Congress of American Physicians and Surgeons.

WILLIAM H. WELCH,
Johns Hopkins University.

ROBERT F. WEIR,
President of the New York Academy of Medicine.

A. JACOB, 110 West 34th St., New York,
Secretary.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, MARCH 30, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung disease.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.	
New York . . .	3,437,202	1,409	432	25.49	20.23	2.70	.78	3.34	
Chicago . . .	1,698,575	532	148	23.81	.94	1.50	.75	2.83	
Philadelphia . . .	1,293,697	572	148	20.11	.94	1.50	.75	2.83	
St. Louis . . .	275,238	199	46	23.09	15.06	1.50	.50	1.50	
Baltimore . . .	508,957	199	46	23.09	15.06	1.50	.50	1.50	
Cleveland . . .	381,768	199	46	23.09	15.06	1.50	.50	1.50	
Buffalo . . .	352,387	199	46	23.09	15.06	1.50	.50	1.50	
Cincinnati . . .	325,902	199	46	23.09	15.06	1.50	.50	1.50	
Pittsburg . . .	321,616	101	39	18.81	19.80	1.50	.39	1.50	
Washington . . .	278,718	199	46	23.09	15.06	1.50	.50	1.50	
Milwaukee . . .	285,315	199	46	23.09	15.06	1.50	.50	1.50	
Providence . . .	175,597	62	20	14.49	20.93	1.50	4.83	1.50	
Boston . . .	560,892	244	66	26.20	21.73	3.28	.82	5.33	
Worcester . . .	118,421	199	46	23.09	15.06	1.50	.50	1.50	
Fall River . . .	104,863	31	10	25.76	16.10	1.50	6.44	1.50	
Lowell . . .	94,969	40	16	7.50	25.00	1.50	1.50	1.50	
Cambridge . . .	91,886	29	10	20.74	10.35	1.50	6.90	1.50	
Lynn . . .	68,513	14	5	7.14	14.28	1.50	7.14	1.50	
Lawrence . . .	62,559	24	11	4.17	25.02	1.50	1.50	1.50	
New Bedford . . .	62,442	33	19	9.09	24.24	1.50	1.50	1.50	
Springfield . . .	62,059	22	3	18.20	13.65	1.50	1.50	1.50	
Somerville . . .	61,643	17	5	23.52	23.52	5.88	1.50	1.50	
Holyoke . . .	45,712	30	5	10.00	25.00	1.50	1.50	1.50	
Brockton . . .	40,063	16	4	31.25	18.75	6.25	1.50	1.50	
Haverhill . . .	37,175	7	2	28.60	1.50	1.50	1.50	1.50	
Salem . . .	35,956	8	1	12.50	37.50	1.50	1.50	1.50	
Chelsea . . .	34,072	13	2	15.38	15.38	1.50	1.50	1.50	
Malden . . .	33,664	13	2	15.38	15.38	1.50	1.50	1.50	
Newton . . .	33,587	5	—	—	—	—	—	—	
Fitchburg . . .	31,531	11	2	9.09	—	—	—	—	
Taunton . . .	31,406	13	3	36.76	23.07	1.50	1.50	1.50	
Gloucester . . .	26,121	9	3	—	—	—	—	—	
Everett . . .	24,336	8	3	12.50	25.00	1.50	1.50	1.50	
North Adams . . .	24,200	3	2	33.33	83.33	1.50	1.50	1.50	
Quincy . . .	23,808	6	1	33.33	—	—	—	—	
Waltham . . .	23,481	9	2	33.33	22.22	1.50	1.50	1.50	
Pittsfield . . .	21,766	—	—	—	—	—	—	—	
Brookline . . .	19,955	—	—	—	—	—	—	—	
Chicago . . .	19,407	10	3	20.00	20.00	10.00	10.00	10.00	
Medford . . .	18,244	4	1	—	75.00	—	—	—	
Newburyport . . .	14,478	3	—	33.33	—	—	—	—	
Melrose . . .	12,962	—	—	—	—	—	—	—	

Deaths reported 2,939; under five years of age 858; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 694; acute lung diseases 485; consumption 376; diphtheria and croup

83, diarrheal diseases 53, scarlet fever 56, influenza 19, typhoid fever 29, whooping cough 11, measles, 13, cerebro-spinal meningitis 3, smallpox, 11.
From whooping cough, New York, 2, Philadelphia, 3, Baltimore, 1, Pittsburg, 3, Boston, 2, Holyoke, 1. From cerebro-spinal meningitis Boston, Everett and Clinton, 1 each. From scarlet fever, New York, 38, Philadelphia, 8, Boston, 8, Somerville and Brockton, 1 each. From typhoid fever, New York, 11, Philadelphia, 4, Baltimore, 1, Pittsburg, 4, Providence, 3, Boston, and Fall River, 2 each, Chicago and Newburyport 1 each. From measles, New York, 8, Pittsburg, 2, Boston, 2, Cambridge, 1. From smallpox, New York, 10, Pittsburg, 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,000, for the week ending March 16th, the death rate was 18.9. Deaths reported, 4,280; acute diseases of the respiratory organs (London), 384; whooping cough 112, diphtheria 66, measles 105, fever, 23, scarlet fever, 36.

The death rates ranged from 13.8, in West Ham, to 28.2, in Liverpool; Birkenhead, 14.9, Birmingham, 22.2, Blackburn, 18.0, Bolton, 14.7, Bradford, 14.9, Brighton, 14.6, Bristol, 17.7, Burnley, 14.3, Cardiff, 18.5, Croydon, 15.1, Derby, 14.7, Gateshead, 19.0, Halifax, 21.5, Huddersfield, 17.3, Hull, 18.9, Leeds, 19.8, Leicester, 15.1, London, 17.6, Manchester, 19.9, Newcastle-on-Tyne, 18.2, Norwich, 18.4, Nottingham, 18.4, Oldham, 24.8, Plymouth, 26.6, Portsmouth, 20.1, Preston, 21.7, Salford, 21.5, Sheffield, 20.7, Sunderland, 23.0, Swansea, 14.6, Wolverhampton, 15.0.

METEOROLOGICAL RECORD.

For the week ending March 30th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Baro- meter	Ther- mometer	Relative humidity		Direction of wind.	Velocity of Wind.	Wet'h of Wind.		Rainfall in inches.					
	Daily mean.	Daily mean.	Minimum.	Maximum.	Daily mean.	Daily mean.	Daily mean.	Daily mean.						
N., 24	30.12	40	44	37	60	94	77	S.W.	E.	5	2	0	B.	.06
M., 25	30.13	41	44	38	78	90	84	N.W.	N.E.	6	8	0	B.	.00
T., 26	29.71	38	41	36	7	38	39	N.E.	N.E.	18	7	0	B.	.06
W., 27	29.37	40	54	37	6	46	81	N.W.	W.	7	15	0	F.	.74
F., 28	29.43	35	42	38	68	69	68	W.	N.W.	20	22	0	F.	.0
S., 29	29.65	36	44	39	49	50	54	N.W.	N.W.	15	14	0	F.	.06
S., 30	29.69	35	43	37	50	50	50	N.W.	N.W.	22	18	0	C.	.39
Mean	29.73	43	33			73								

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; S., snow. † Indicates trace of rainfall.
‡ Mean for week.

SOCIETY NOTICE.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—A regular meeting will be held at 3 Park Street on Thursday, April 12th, at 7.30 P.M.

Papers: Dr. N. Louise Lawrence, "Tonsillitis"; Dr. Agnes C. Victor, "The Pathology of Tonsillitis, Illustrated."

Discussion: Dr. Elizabeth C. Keller, "Tonsillitis from the Standpoint of the Surgeon." Dr. Alice G. Bryant, "Tonsillitis from the Standpoint of the Specialist."

AGNES C. VICTOR, M.D., Secretary,
Trinity Court.

LECTURES AT NEW YORK SCHOOL OF CLINICAL MEDICINE.—The New York School of Clinical Medicine offers a series of lectures open to the profession weekly from April 5th to June 7th on varied topics.

THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.—The American Gastro-Enterological Association will hold its annual meeting May 1, 1901, at Washington, D. C.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held in Sprague Hall, Medical Library Building, Fenway, on Monday, April 15, 1901, at 8.15 P.M.

Papers: Dr. Robert T. Edes, "Observations on Heart Disease." Dr. Edward O. Otis, "Health Resorts."

ANTHONY K. STONE, M.D., Secretary,
457 Royston Street.

AMERICAN ACADEMY OF MEDICINE.—The Twenty-sixth Annual Meeting of the American Academy of Medicine will be held at St. Paul, Minn., June 1, 2 and 3, 1901.

SUFFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Section for Clinical Medicine, Pathology and Hygiene will be held in Sprague Hall, Boston Medical Library Building, No. 8 The Fenway, Wednesday, April 17th, at 8 P.M. Dr. S. A. Knapp of New York will read a paper upon "Municipal Care for Consumptives." Discussion by Dr. J. H. Prior of Buffalo, Drs. F. I. Knight, E. O. Otis and V. Y. Bowditch.

H. F. HEWES, Secretary.

BOOKS AND PAMPHLETS RECEIVED.

Nursing Ethics: For Hospital and Private Use. By Isabel Hampton Robb. Cleveland: J. B. Savage. 1901.

A Text-book of Diseases of the Nose and Throat. By D. Braden Kyle, M.D. Illustrated. Second edition. Philadelphia: W. B. Saunders & Co. 1901.

Repairing the Abdominal Wall in Ventral Hernia: A New Operation. By Carl Beck, M.D., of New York. Illustrated. Reprint. 1900.

An Index of Symptoms. As a clue to Diagnosis. By Ralph Warrington Leftwich, M.D. Second edition. New York: William Wood & Company. 1901.

International Medical Annual. A Year-Book of Treatment and Practitioner's Index. Nineteenth Year. New York and Chicago: E. B. Treat & Co. 1901.

The Medical News Pocket Formulary for 1901. By E. Quin Thornton, M.D. Third edition, revised and enlarged. Philadelphia and New York: Lea Brothers & Co. 1901.

Second Annual Report of the State Board of Insanity of the Commonwealth of Massachusetts for the Year Ending September 30, 1900. Boston: Wright & Potter Printing Co. 1901.

The Treatment of Fractures. By Charles Locke Soudder, M.D. Assisted by Frederic J. Cotton, M.D. Second edition, revised. Illustrated. Philadelphia: W. B. Saunders & Co. 1901.

A Compend of Human Physiology. Especially Adapted for the Use of Medical Students. By Albert P. Brubaker, A.M., M.D. Tenth edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Human Placentation. An Account of the Changes in the Uterine Mucosa, and in the Attached Fetal Structures, During Pregnancy. By Dr. J. Clarence Webster, B.A., M.D. (Edin.), F.R.C.P.E., F.R.S.E. Illustrated. Chicago: W. T. Keen & Co. 1901.

Retinoscopy (or Shadow Test) in the Determination of Refraction at One Meter Distance, with the Plane Mirror. By James Thorington, A.M., M.D. Fourth edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Pulmonary Consumption, Pneumonia and Allied Diseases of the Lungs. Their Etiology, Pathology and Treatment, with a Chapter on Physical Diagnosis. By Thomas J. Mays, A.M., M.D. Illustrated. New York: E. B. Treat & Company. 1901.

Introduction to the Differential Diagnosis of the Separate Forms of Gallstone Disease. Based Upon His Own Experience Gained in 133 Laparotomies for Gallstones. By Professor Hans Kehr. Halberstadt. Authorized Translation by William Wotkyns Seymour, A.B. Yale, M.D. Harvard. Introduction by Professor Kehr. Philadelphia: P. Blakiston's Son & Co. 1901.

Transactions of the American Dermatological Association, at its Twenty-fourth Annual Meeting held in Washington, D. C., May 1, 2 and 3, 1901. In Connection with the Fifth Triennial Session of the Congress of American Physicians and Surgeons. Official Report of Proceedings by Frank Hugh Montgomery, M.D., Secretary. Chicago: P. F. Tibbitts & Co., Printers. 1901.

A System of Practical Therapeutics. Edited by Hobart Amory Hare, M.D. Second edition, revised and largely rewritten. Vol. III. Anesthesia and Surgical Technique, Fractures and Dislocations, and Minor Surgery. Surgery of the Lungs and Pleura and of the Peritoneal Cavity, the Rectum, and Anus. Diseases of the Genito-Urinary Apparatus and of Parturition and of the Puerperium. Diseases of the Eye and Ear and of the Upper Respiratory Tract. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Original Articles.

THE OPINION EVIDENCE OF MEDICAL EXPERTS.¹

BY JOHN D. McLAUGHLIN, BOSTON,
Assistant District Attorney.

THERE are few branches of the law, particularly that of evidence, which have more than a general interest for those not of that profession. The subject, however, of expert testimony, and especially that of medical experts, is singular, in that apart from its own intrinsic importance, it excites equal concern in two great professions, the medical and legal. The interests of the physician and the lawyer (as well as of the layman whose property or liberty, when a party, may be intimately involved, or who, as a jurymen, may be called to sit in judgment) here converge in a common centre. The discussion which has waged for years, and while present conditions obtain, will wage long hence, and the numerous proposals for reform in the reception of such testimony has been about equally participated in by these several interests. Each from time to time, through the channel of medical journal, legal periodical or the newspaper, is contributing some thought or suggestion to the subject; and I cannot but believe that your society, whose end is the advancement of the science of forensic medicine, regards it, however trite, as one of surpassing importance.

Some months ago, I had the honor to read, before the medical society of a neighboring county, a paper in which I discussed the position of the medical expert as lawyers see him upon the stand today, and said, in passing that the many proposed schemes of reform seemed to me speculative and impractical. In so far, at least, as I may have seemed by that remark to endorse the method which now prevails in England and America, I beg leave to disclaim that opinion.

When the physician testifies as merely an ordinary witness to facts which have come within his observation, he excites no greater interest or attention than that which might attend the testimony of an intelligent witness from any other vocation. His effectiveness, persuasiveness, and claims to belief depend upon the same conditions as do those of any witness. But when testifying to his opinion, based either on facts which he has himself observed, on admitted facts, or upon some hypothesis, expressing the judgment of a scientific man, ready to submit it to the opinion and criticism of the members of his own profession, to the cross-examination of counsel, publicly and to the world, then he frequently evokes an interest which rarely surrounds a witness under any other circumstances. There is, indeed, no phase of evidence which has attracted more attention, which has been the object of more criticism (frequently from bench and bar) or more the subject of proposed reforms than the opinion testimony of medical witnesses as uttered on the witness stand.

Of the scope and extent of such criticism, at least on the part of those who administer the law, we may derive a clearer and more concrete conception if I cite from a few of its most authoritative sources. I will content myself with quoting from a judgment of the Supreme Court of the United States, from the charge to the jury in a capital case of a former chief justice of this Commonwealth, and from the charge in a similar case of one of England's great judges.

Said Mr. Justice Grier in the case of *Winans vs. N. Y. & Erie R. R. Co.*, 21 How., 88, 101: "Experience has shown that opposite opinions of persons professing to be experts may be obtained to any amount; and it often occurs that not only many days but even weeks are consumed in cross-examinations, to test the skill or knowledge of such witnesses and the correctness of their opinions, wasting the time and wearing the patience of both court and jury, and perplexing instead of elucidating, the questions involved in the issue."

Said Chief Justice Chapman, at the trial of *Andrews* in this Commonwealth: "I think the opinions of experts are not so highly regarded now as they formerly were, for while they often afford great aid in the determination of facts, it often happens that experts can be found to testify to any theory however absurd." (Trial of Samuel M. Andrews, page 256.)

And in *Palmer's* case, Lord Campbell, in summing up to the jury, said: "With regard to the medical witnesses called on the part of the prisoner, I must observe, that although there were among them gentlemen of high honor, consummate integrity and profound scientific knowledge, who came here with a sincere wish to speak the truth, there were also gentlemen whose object was to procure an acquittal of the prisoner. It is, in my opinion, indispensable to the administration of justice that a witness should not be turned into an advocate, nor an advocate into a witness. You must say, gentlemen, whether some of those who were called for the prisoner belonged to the category I have described—that of a witness becoming an advocate." (Palmer's case reviewed in 1, *Law Magazine and Review*, page 332.)

Such opinions, expressed under such circumstances, frequently reiterated by lesser tribunals, provoke the inquiry, which perhaps may be difficult to satisfactorily answer, Where does the fault lie?

I take it, of course, that all comment of the kind which I have quoted, is directed rather to the method of receiving such evidence than to the nature of the evidence itself, for the severest critic would not hold that even under the prevailing law, and assuming that it cannot be improved upon, that opinion testimony, as such, should not be followed or relied upon.

If the physician were to be confined in his testimony to the bare narrative of the facts which he saw or observed, one at least of the safeguards of the community would be destroyed. The phenomena which result from the work of the murderer, the poisoner or the abortionist, as

¹ Read before the Massachusetts Medico-Legal Society, February 6, 1901.

revealed in the human cadaver, are an enigma to the layman. Though accurately described, though no detail be omitted they mean but little to his mind. To the physician, the surgeon or the toxicologist they may demonstrate with entire certainty that death was not natural, that it was caused by violence or malpractice, or by the administration of poison; or with equal certainty, on the other hand, where guilt is suspected, suspicion to be unfounded. Such certainty, however, can find expression in our courts of law in but one way, viz.: by what is known as expert or opinion testimony.

It is useless, however, to attempt to palliate the contradictions, inconsistencies, exaggerated and absurd theories which under present conditions so frequently characterize the trial of the most important issues. It is seldom that a capital case is tried, which does not result in revelations of a nature which cannot but annoy and mortify the medical profession.

Few theories, however fantastic, need go unchampioned; the question of insanity has become a byword, and it is the experience of lawyers that to testify as an expert is becoming more and more repugnant to those physicians whose evidence would be of the most value. The annals of criminal jurisprudence of the century just past furnish too abundant proof of how strikingly medical experts have been at variance in particular cases; and of what diverse and inconsistent views have been entertained upon a given state of facts, by members of the same profession, and of equal eminence, educated, perhaps, in the same schools, contemporaries in practice.

The case of William Palmer, a surgeon, for example, who was tried in London for the murder by poison of one John Parsons Cook, is a most conspicuous instance of contradictions amongst experts. Four different theories were advanced by as many physicians as to the cause of death, and the analysts called on one side and the other were wholly at variance as to the phenomena which attend the administration of strychnia.

In the case of Dr. Smethurst, tried a few years later in London, for poisoning a woman with whom he had contracted a sham marriage, the conflict of evidence, medical and analytical, as to whether the symptoms of the post-mortem appearances were ambiguous and could be referred either to natural causes or to poison, was such, that though the prisoner was convicted, the public became so agitated, and the controversy carried on by letter and petition reached such a stage, that the home secretary, who investigated the matter remarked, in stating his reasons for recommending a pardon, "that the necessity for it did not arise from any defect in the constitution or proceedings of our criminal tribunals, but from the imperfection of medical science, and from fallibility of judgment in an obscure malady, even of skilful and experienced practitioners."

And we cannot but call to mind the case of Mrs. Maybrick, tried in 1889, the result of which has been so loudly denounced as a judicial error

by some who are, but by so many who are not, familiar with the evidence. The direct conflict which arose at that trial between some of the ablest medical men of Great Britain as to whether Maybrick died of arsenical poisoning, or a natural death from gastro-enteritis, is quite fresh in our minds. Doubt existing, notwithstanding the verdict, the home secretary commuted the sentence, stating that "although the evidence leads clearly to a conclusion that the prisoner administered and attempted to administer arsenic to her husband with intent to murder, yet it does not wholly exclude a reasonable doubt whether his death was in fact caused by the administration of arsenic." And although the report of the trial discloses moral evidence against her of tremendous force, yet, I take it, the question of her guilt or innocence will continue, long hence, to agitate and distract.

But who will say that the conditions of which these cases are but illustrations are not largely owing rather to the defective method of the law, than to the imperfection of science, or that we are confronted with a state of things which it is impossible to ameliorate? Surely the fault cannot be laid at the door of science. Wherever the experts in the cases above referred to were in contradiction, one of them was right and the other wrong. The failure to find traces of strychnia in a dead body is either entirely consistent with, or entirely inconsistent with, its having been administered. The analyst in Palmer's case who maintained one of these propositions was telling the absolute truth and the other was testifying to what was entirely false. Science had a faithful spokesman in one, and a false spokesman in the other. Truth was struggling to express itself through one; error through the other. It would seem, then, that it is at least the duty of the law to establish as many barriers to the progress and triumph of this species of error as is humanly possible. Under the Common Law of England, in vogue in Massachusetts and most of the American States, what are those safeguards? Whoever styles himself as a physician and who has some acquaintance with medicine, or who has had some practice, be it much or little, is regarded as competent to express his opinion as an expert, whatever may be his interest or bias.

To give an opinion as a medical expert, the law does not require that the witness should belong to any particular school of medicine. "The law has nothing to do with the merits of particular systems." (*Corsi vs. Marcetzek*, 4, E. D. Smith, 1.) If the witness is a medical man and has the requisite knowledge, he may have acquired this knowledge either by study alone, although in practice he has observed no such case: *State vs. Wood*, 53 N. H., 484; *Finnegan vs. Fall River Gas Works Co.*, 159 Mass., 311; or by practice alone: *Mason vs. Fuller*, 45 Vt., 29. He need not have made the subject a specialty in his practice. Nor to give an opinion as a medical expert, need the physician (except in Wisconsin where it is required by statute) be a graduate of

a medical college, or even duly licensed: *New Orleans R. Co. vs. Albertson*, 38 Miss., 247. Nor need he be at the time in practice: *Roberts vs. Johnson*, 58 N. Y., 613; *Talles vs. Kidd*, 12 Ala., 648; *Everett vs. State*, 62 Ga., 65. Nor need he have met a similar case in the course of his reading or practice: *State vs. Clark*, 12, Ired., 151. And finally, in some jurisdictions, it is not even essential that he should be a physician or should have studied for one, provided he has acquired the special knowledge required of the medical expert: *Re Toomes*, 54 Cal., 515; *Dole vs. Johnson*, 50 N. H., 452.

Insanity being deemed a disease, it is the general custom of our American judges to accept all educated and practising physicians as experts, whether they have given special attention to the disease of insanity or not. ("Bishop's Criminal Law," Section 544.) And it would even seem, from a dictum of one of our courts, that, in one State, at least, nurses, accustomed to attend upon the sick, are considered experts in respect to the mental capacity of sick persons. (*Fairchild vs. Bascomb*, 35 Vt., 298.)

In an Alabama case (an action for damages for false warranty in the sale of a female slave, a species of suit which was not uncommon in slavery times) a witness was permitted to give an opinion as to the soundness of the slave, whose qualifications were that previous to 1831 (the suit was brought in 1847) he had attended a course of medical lectures, had obtained a license from the Board of Physicians of the State to practise physic, and practised as a physician for one year when he abandoned medicine for the law, and for the period of sixteen years had been and still was following that profession, the witness stating that he had continued to read medical books, had kept up with the improvements of the science, and felt competent to express medical opinions upon the diseases of women. It was stated by the court in its judgment "that the clinical practice is doubtless a most efficient mode of acquiring such knowledge, by enabling the practitioner from his own observation, to verify the assertions or theories of others, or to correct errors into which they may have fallen; and it may be, that medical opinions, not brought to this test are not worthy of much reliance as the basis of the verdict of a jury. But, if one asserts an ability to give correct opinions, upon any art or science from any acquaintance with the subject, acquired by observation and study, we cannot perceive on what ground he can be rejected because he has not been in the actual practice of his profession. This circumstance may deprive his testimony of much weight with the jury, but is no ground for excluding it."

In a late case which arose in Illinois, a physician who had practised thirty-four years, a graduate of a Chicago medical college, who, so far as appeared, had never in his practice witnessed a case of arsenical poisoning, was permitted to express his opinion that the deceased, under the circumstances shown, had died of arsenical poison. (*Siebert vs. The People*, 143, Ill., 571.)

These cases are fairly representative of the general trend of the decisions of the courts in this country upon the degree of qualification required of the medical expert. The question arises, then, whether the law has not lost sight of his true status; whether, permitting a party to call whomever he may find, having some general knowledge of medicine and willing to support a favorable theory, is not a departure from the true principles which underlie the admission of such testimony. There can be no mystery as to the real purpose for which experts are called. "What is their function?" says Professor Thayer in his "Treatise on Evidence." "It is just this, of judging facts and interpreting them. They are called in because, being men of skill, they can interpret phenomena which other men cannot, or cannot safely interpret. They 'judge' the phenomena, the appearances or facts which are presented to them and testify to that which in truth these signify or really are; they estimate qualities and values. We say that they testify to opinion. In truth they are 'judging' something and testifying to their conclusion upon a matter of fact. For this reason, in Germany, experts are called *judices facti*—*judices* as opposed to ordinary witnesses, *judices facti* because they do not judge as to the law, but their judgment or opinion only gives as its result a fact." In this connection, it is interesting to note that when opinions were first admitted in the English courts as testimony (those which were offered earliest appeared to have been those of medical witnesses) they were received for the purpose of enlightening the court, and if they reached the jury at all did so through the medium of the court's charge.

In an appeal of mayhem tried in 1353, the justices having failed to determine from their own inspection whether a wound was mayhem, ordered skilled surgeons from London to inform the king and his court on this point.

An ejectment case tried in 1619 involved the question of the legitimacy of a posthumous child, and the court received the testimony of two doctors of physic in regard to the period of gestation, the record of the case reciting: "So the court delivered to the jury that the said Elizabeth, who was born 40 weeks and more after the death of the said Edmund Andrews, might well be the daughter of the said Edmund."

Sometimes the assistance of experts was obtained by the court without an open examination.

In 1703, Lord Holt, upon a question as to the negotiability of a promissory note, took occasion "To speak with two of the most famous merchants in London" as to their customs in regard to the endorsement of such paper. In an earlier case, at a trial for witchcraft in 1665, Dr. Thomas Browne, "a person of great knowledge," after viewing the accused was desired to give his opinion as to what he conceived of him, and he was clearly of opinion that the person was bewitched. (*Trial of Witches*, 6 How. St., Trans., 687, 697.)

² For the early history of expert testimony under the English law see American and English Encyclopedia of Law. Second edition, vol. xii, p. 49.

It is difficult to perceive how an expert's position in respect to facts differs from that of a judge in respect to the law. The latter, upon all the facts, expresses his judgment as to the law in relation thereto; the former, upon some group of facts, expresses his judgment as to their significance and meaning so that the judge or jury, or whatever tribunal finally passes upon them may have a full understanding. In our law judges there are two requisites which every one is agreed are pre-eminent: learning and disinterestedness, and the faintest trace of prejudice, bias or partisanship disqualifies them. Neither little learning nor much bias, under our practice, disqualifies the expert.

We are zealous for learning and impartiality in our judges of law; why should we not be zealous for learning and impartiality in our judges of fact?

A mistake of law can always be cured by the revision of some appellate tribunal; a mistake in the opinion of the expert is often difficult to detect, and generally impossible to revise. The true status of the expert is entirely appreciated in those countries which inherited the Roman Law. In France and Germany, Italy and Austria, he is treated as a *judex facti*, a theory, which in Germany especially, is carried to its logical extreme. Whenever the man of science is there called on to express his judgment he is treated, not as an ordinary witness but as an assistant to the court, and accordingly is appointed by the court. The latter has the right to call experts at any stage of the case and of its own volition. It determines the number and exercises the selection of them. In but few cases the free action of the court in appointing experts is limited, where, for example, the law provides that in cases involving patents or copyrights, certain persons, *ex officio*, shall act as experts; and in civil cases the court is bound by the choice of both parties.

When the expert testifies he cannot be attacked like an ordinary witness; his veracity cannot be impeached because he is regarded as a part of the court and must be treated with like respect. The mode of questioning and the scope which the opinion may take are entirely discretionary with the judge and, in civil cases, at least, if the experts agree, the parties must accept their opinion as true, though not necessarily binding on the judge.

In America, the compulsory attendance of expert witnesses is of doubtful right and never exercised; in Germany and Austria whoever practices any profession or trade, or is authorized to do so, is obliged to act as an expert, when required, and the only reasons which will exempt him are those which would exempt from testifying as an ordinary witness. In Austria he swears to carefully follow the object of investigation, to truly and carefully state all his observations and findings, and his opinion according to his best knowledge, and upon his conscience, and according to the rules of his science and art. In Germany, he swears that he will give the opinion demanded of

him impartially and upon his best knowledge, and upon his conscience.

The reasons assigned by German writers for so markedly differentiating the casual or ordinary witness from the expert, are principally, that the former is only a witness by chance while the latter is selected because of his standing and should not be subject to like criticism or attack; the ordinary witness is not the subject of choice and cannot be dispensed with; the expert testifies only through the choice or by the permission of the court; the casual witness at the time of the occurrence in question is frequently not impressed with the fact that he is to be called upon as a witness; whereas the expert makes his observations with that in view. The ordinary witness seldom testifies without bias for whatever we live through becomes a part of us and is affected more or less by our feelings and habits of thought and one's personality is apt to permeate his testimony; in the expert, because of his scientific training, the personal element is more likely to be eliminated. In fine, the conclusions of the casual witness are based upon his personal impressions while those of the expert rest upon scientific facts and laws. (Holtzendorff's Encyclopedia of Law, Vol. III, part 2, page 512.)

In criminal trials in Germany the medical witnesses first called to testify are those whom the State has assigned to the judicial courts after previously ascertaining their knowledge in this department. The chief of the staff of professional experts is the district or town physician the statutory regulations requiring him to be scientifically educated, properly licensed and skilled in all the three branches of medical science, medicine, surgery and obstetrics; while there is also an organized series of courts of professional experts to whose judgment the opinion of the medical men first employed may be referred. The law, however, does not exclude private physicians, and they are frequently called to testify along with the official physician and sometimes to his exclusion. (Casper's Forensic Medicine, Vol. III, page 178.)

It may not be uninteresting here to epitomize by a quotation from Casper the German practice in respect to the written reports of official experts, and its provisions for their revision: "A copy of all the medico-legal transactions of all the medical jurists in Prussia, both protocols and reports, without exception, is sent by each respective local magistracy to the provincial government, and through it, in quarterly budgets, to the Royal Medical College of the province, for its revision. The same procedure is followed in regard to all inquiries regarding lunacy or idiocy in civil law. This board, on its part, transmits their transactions, along with its remarks upon each, to the ministry appointed, in which both transactions and revisions are submitted to a super-revision by its scientific commission, and the result is communicated both to the revising medical college and also to the medical jurists concerned, affording to the latter instruction or recognition and encouragement.

"Here we have," says Casper, "no doubt, a cumbersome official apparatus set in motion, but this arrangement is indubitably successful in its operation, inasmuch, as not only does it maintain the central courts constantly acquainted with the doings of their medical jurists, but also indubitably has its share in the elevation of the practice of legal medicine in Prussia, to a perfection hitherto, attained in no other country, a fact which must be acknowledged, and which has quite recently been recognized by a most competent authority."

In Sections 173-177 of the Code of Criminal Procedure, which we have already quoted, the cases are described in which the reference of a medico-legal report to the superior courts shall take place. The rule, and the practice in most cases, is for this report to be sent, along with the other documentary evidence, first, to the medical college of the province, and should the opinion of this board be from any cause disputed, they are then sent to the Royal Scientific Commission for scientific affairs, to obtain its *superarbitrium*. This is, as in the medical colleges, drawn up by two referees, who work each for himself; both of their opinions are then brought before a meeting of the commission, discussed, and that one which is approved of by a majority of the commission is accepted, signed and issued. A precisely similar sequence of professional courts is found in most of the German states. In some of the smaller ones, which possess no medical boards, the opinions of the medical jurists are sent, along with the documentary evidence, to some faculty, either at home or abroad.

One result of this legislation in Germany, which may seem to us too elaborate and perhaps artificial, is that the medical expert has at his command a series of written opinions and precedents of an authoritative nature, and embodying the best judgment of his profession. To the physician in forming his opinion, they must serve as useful a purpose as do the written judgments of the courts to the lawyer in forming his.

By sketching, perhaps at too much length, some of these features of foreign law, I would be misunderstood if I seemed to think it wise for us to model our own according to the same detail. The real keynote and underlying principle, however, of the law of Continental countries in this respect, is that the expert should be the partisan of neither side; that he should be as dispassionate and just as one of our own Massachusetts judges; that in fact as well as in theory he should be the assistant of the court. That principle, if we are to hope that at some future time the medical expert shall enjoy all the respect and credence which it is his right and the right of science that he should enjoy, must be followed in some form or other. And if we are to reform our procedure in this regard, we must, I believe, finally seek relief from that source to which already the Common Law of England and of this country owe a debt which is difficult to measure, it must be sought in the body of the Roman jurisprudence.

THE UMILLIAN MURDER.¹

BY HERBERT B. PERRY, M.D., AMHERST, MASS.

THE Umillian murder trial is said by those who are thoroughly conversant with such matters to be of peculiar interest because of the fact that more than three months elapsed from the time that the deed was committed before any actual evidence of crime was discovered, and of unusual interest because no direct evidence at any time was introduced as testimony into the trial. The murdered man's name was Casimer Jedrusick, the convicted murderer's name was Franciszek Umillian. For ease in description I will refer to them as Jack, the victim, and Frank, the murderer.

On the 10th of April, 1900, I was summoned by State Officer McKay to go to Granby, not knowing what the case was except that a man's body had been found. I reached the farm of Monroe Keith, two and one-half miles from Granby Centre, about 9 p.m. and was informed that a man's body had been found in an old unused well. By the aid of a ladder I went into the well, which was about 30 feet in depth, and found the remains floating, that is a naked body except for a bran sack. The body was lying with the buttocks above the water, with the upper part of the trunk lying in a northwesterly direction. On going to the surface, I gave directions, and the body was brought up by the aid of a rope, and immediately taken to an old unused building near by where I performed an autopsy. The head had been severed from the trunk at the juncture of the second and third cervical vertebrae. The body was mangled and slashed and cut in all directions. First, a punctured wound just above the right clavicle 2 inches in length, another one parallel to it, over the head of the sternum, 2 inches in length. This was also a punctured wound. There was a vertical wound extending from the middle of the right clavicle, about 14 inches long, and ending $2\frac{1}{2}$ inches above the umbilicus. There was a transverse wound about 12 inches long, beginning at the middle of the right clavicle, and ending at the middle of the left. On the right side a wound in the anterior axillary line, 7 inches in length, extending from the sixth to the twelfth rib on the right side. There were incised penetrating wounds on the right arm over the biceps muscle, 2 inches long. The left arm was crushed, lacerated and torn. A transverse wound over the anterior superior spine of the ileum, two incised wounds on the left thigh, 4 inches in length, and an oblique fracture at the juncture of the middle and upper third of the left femur. There were two incised wounds in the inside of the right thigh, one 7 inches in length, and one 4 inches in length. The ribs on the left side, from the first to the ninth, inclusive, were crushed and broken. The sternum was broken and four ribs fractured on the right side. The heart and pericardium were absent, the large vessels being partially torn and partially cut. The stomach was empty except about a pint

¹ Read before the Massachusetts Medico-Legal Society, February 6, 1901.

of a pulsatious mass. The intestines were normal, uninjured except a small wound in the ileum. The lower lobe of the left lung was lacerated and torn, the right pleural cavity had been opened. The lung was collapsed but was unwounded. The body was identified positively by a deformity of the index finger of the left hand. Evidently there had been a felon sometime and the distal phalanx was atrophied and bent inward toward the median line. Another means of identification were some enormous bunions on the great toes of both feet. After the body was taken to the surface and the discovery made that the head had been severed from the body, further search was made in the well with the hope and expectation of finding the missing head. It was not found, however, but we did find the clothing which was identified as belonging to Jack. This was delivered to one of the officers.

On the 12th of April, two days after the body was found in the well, the head was found buried in the soft earth of the barn cellar of Mr. Keith and delivered to me about six o'clock of the same day. The soft parts, including the brain, were totally destroyed, so much so that an attempt at differentiating one part from another was absolutely impossible. After a careful preparation of the skull, the wounds in the bony parts were as follows: I will speak of these numerically in the order in which they seem to me to have been inflicted. First, was a wound beginning $\frac{1}{4}$ of an inch posterior to the coronal suture and $1\frac{1}{4}$ inch external to the sagittal suture on the left side. This wound was $1\frac{1}{2}$ inches in length, wider at the middle portion, being $\frac{3}{4}$ inch in its widest diameter. The second wound was $2\frac{1}{2}$ inches long, beginning at the inferior temporal ridge, extending downward and slightly backward from the squamous portion of the temporal bone, destroying the styloid process of the petrous portion of the temporal bone, and extending through and dividing the pterygoid process of the sphenoid bone. The third wound was 3 inches in length, $1\frac{1}{2}$ inches from the median line over the right occipital. This wound extends backward toward the right side. The fourth wound, 1 inch in length, and $1\frac{1}{2}$ inches from the median line and parallel to it, and 1 inch internal and behind the mastoid process. The nasal, the right malar, right zygoma, lachrymal and the anterior portion of the right wing of the sphenoid were separated from the adjoining parts and absent. The right lachrymal and superior maxillary were absent. The larger half of the frontal and squamous portion of the temporal and the left wing of the sphenoid were separated except for attachment of soft parts. The inferior maxillary bone divided in the medial line, the right half absent.

Now it will be particularly interesting to endeavor to weave a theory as to just how and in what manner these blows were delivered, the circumstances and the motives for such extensive mutilation and laceration. Taking first the blows on the head, as I have already said, I have numbered the wounds, one, two, three, four, according to

the order in which they seemed to me to have been inflicted. The last time Jack was seen alive was on the 31st of December, 1899, Sunday morning, shortly after 10 o'clock, by his employer, Mr. Keith, to whom he had brought a horse and carriage that Mr. and Mrs. Keith might attend church at Granby. Jack, after leaving them, went directly into the horse barn with the intention of changing his clothing and shoes and going to Granby. He sat down on a bench near where the men were in the habit of keeping their footwear, stooped down to untie his shoes. Frank came in at this time, saw Jack and in a paroxysm of long pent-up rage and fury, seized a corn-knife (which is an instrument used for cutting corn, having a blade about 2 inches in width and 18 inches in length attached to a stout oak handle) from one of three which were hanging on a beam near by. He was standing somewhat behind and to the left side of Jack as he was stooping over fixing his shoes. That was the first blow that was struck, a crushing downward sweep of a sharp instrument penetrating the skull, and driven well into the base of the brain. From the blow and the shock Jack pitched forward. Frank sprang over the prostrate body and struck again, the point of the corner-utter entering the skull just at the petrous portion of the temporal, crushing through the squamous portion of the temporal bone. As the body of the now unconscious Jack writhed on the floor in death agony, other blows were rained thick and fast on the unfortunate man until death put an end to the struggle. Frank then, with speed and keenness born of desperation, opened the trapdoor in the horse barn, dropped the body, clothing and all, down into the soft, muddy, foul bottom of the cellar. To bear out this theory, let me say here that on the clothing taken from the well was found soil from the barn cellar, and inasmuch as all of the ground outside of the barn cellar was frozen hard at this time, only from the barn cellar could this mud and filth have come. Frank closed the trapdoor, then went a roundabout way into the cellar and then began the mutilation of the body that has already been described. His first thought was to destroy as far as possible all means of identification. So he hacked and cut and slashed the face until all resemblance to features was gone. Then what must be done with the body. He severs the head from the body and attempts to further cut the body up to facilitate the disposition of it. Finding it a rather difficult task, he stripped the body of its clothing, thrust it into a sack, secreting it until some time that night or next morning, then taking it, with the clothing in another sack, carrying it across the road about 150 yards, and dropping it all in the old well having previously secured a large stone from a nearby wall, which he put in the sack with the clothing to sink it. Before an examination of the clothing had been made, I was asked the question if the mutilation of the body was done before or after the clothing was removed. My opinion was that most of it was done after the clothing was removed, basing my opinion on the length of

the wounds and the peculiar characteristic appearance of an incised wound, believing it to be impossible to inflict a cut like any of these through the thick winter clothing. The examination of the clothing proved my theory correct, for in it were found only two cuts, the ones corresponding to the punctured wounds over the right clavicle and over the sternum. An attempt was made to demonstrate the presence of blood on the floor and on the corner cutter, but Professor Wood, of Harvard, was unable to find any traces. This result was what might have been expected, because over the floor where this tragedy is supposed to have taken place the constant tramping and use of three months would obliterate practically any blood-stains. The rusty corn-knives would, in three months, undergo such oxidation and change from atmospheric influence, that Professor Wood gave as his opinion that if it had been there it would be a practical impossibility to demonstrate it after three months had elapsed.

There is one point of particular interest to me, because as far as I am able to determine or ascertain, nothing of the kind has ever been observed. After the autopsy and search in the well for the missing head, thoroughly chilled and tired, I went to the house of Mr. Keith, into the kitchen where Frank was sitting hand-cuffed to the officer. It being my first actual experience with a real live murderer, I was particularly curious to note his actions and to see if he had the appearance of a guilty man. While sitting there, there occurred to me suddenly a plan which had been brought out in some of the French courts, that is, the sudden accusation and startling evidence suddenly presented to the suspected criminal, noting the effect on the heart's action through the nerve centres. Frank was sitting with his knees crossed and I was able to determine approximately his pulse rate, which I counted several times, and was able to count it at about eighty beats to the minute. After a short time Mr. McKay, the district police officer, came in, sat down and said, "Frank, where is that head? What did you do with it? Did you bury it in the barn cellar?" The man made no response except "I don't know," but his pulse rate increased until I was able to count about 120 beats per minute. I was satisfied, then, in my own mind that the man knew much more about it than he was willing to reveal. The subsequent finding of the head in the cellar certainly seemed as though he did know something about it.

UPON WHAT SORT OF INFORMATION SHALL A MEDICAL EXAMINER HOLD A VIEW? ¹

BY H. M. CULLS, M.D., BROOKLINE, MASS.

Medical Examiner, Eighth Norfolk District.

MR. PRESIDENT AND FELLOWS:—The title of my paper is, as you see, a question. I do not, therefore, come before you to impart any knowledge, but rather to provoke discussion, and decid-

¹ Read before the Massachusetts Medico-Legal Society, February 6, 1901.

ion, if possible, upon a moot point in medico-legal procedure.

I am aware that the subject in the title has been several times discussed before this society, but I have discovered that there exists a difference in practice among my brother examiners as to the method of procedure upon the point which my case illustrates, namely, upon the sort of information which made me cognizant that the body of a person whose death was "supposed to be due to violence," lay within my district.

The case is as follows: F. K., while aiming to board an electric car for Boston, passed in front of an outward bound electric, and was struck on the head by the latter, causing a compound comminuted fracture of the skull, from the effects of which he died, or presumably died, for a trephining operation was done before death.

This event occurred on the morning of March 16, 1900, and F. K. died early in the morning of the next day without regaining consciousness.

I was told of the accident shortly after its occurrence by a man who was on one of the electric cars, but as he reported that F. K. was not dead when picked up and removed to a nearby house, I, of course, had nothing to do.

I heard of F. K.'s death some hours after it had actually taken place on the 17th, but merely as a rumor that such was the fact. No notice of the death came to me from the police, none from the attending physician, and none from the undertaker. I will say that the police, like myself, had only the rumor; the attending physician was unaware that any legal procedure was even remotely to be considered, and I suppose that the undertaker minded his own business.

There are two points of interest in the circumstances as related: (1) I was aware on creditable information that the body of a person supposed to be dead by violence lay within my district, and (2) that he had supposedly been killed by "an accident upon a railroad."

You will remember that the inquest law requires an inquest upon a person killed by "an accident upon a railroad," and in my digest of the law I had interpreted the word "railroad" to be a generic term which covers steam railroads, street railways, and will, if the kind comes within my reach, cover "elevated" railways.

I say, therefore, that I was in a quandary. It was my first experience with a death "supposed to be due to violence" in which I had not received a "notice" sufficiently straightforward to cause me to take action. Yet I was convinced that I was specifically instructed by the law to hold an inquest in deaths after such a manner as this. It is natural that when in doubt one should turn to some one of greater experience than oneself, to call a consultation, so to speak, so I telephoned Dr. Draper of Boston, and stated the case as above. Dr. Draper informed me that it was his custom to consider deaths upon the street railways as coming under the law requiring inquests, but that it was no part of a medical examiner's business to hunt around after the evidences of a death whose

announcement had not come squarely to his ears.

With the first part of the reply I entirely agreed, but with the second part I confess I was not satisfied. However, I acted upon it as a whole and did nothing. The sequence was that having been called by the undertaker on the 19th, two days after the death, to sign a certificate for cremation, I learned the "cause and manner" of the death, and called an inquest in accordance with the practice in Boston and my own preconceived ideas of propriety.

In looking back over the *Transactions* of this society, I find that our subject has been but seldom touched upon. Certainly nothing on record from the lips of a medical examiner defines any rule to govern in the premises, if perchance any rule can govern. I have quoted to you the opinion of Dr. Draper, and I now quote to you the opinion of an officer of the law.

District Attorney Asa French, in a paper entitled "The Duties of a Medical Examiner Considered in their Practical Relations," read before this society June 10, 1879, says (Vol. I, No. 2): "What constitutes a notice to the first inquiry? I answer, any reliable information of the fact. The notice need not be a formal one; whenever and however the medical examiner becomes aware that a dead body has been found under circumstances of suspicion, his duty is to attend and take charge of it without delay."

This is a pretty clear definition of the sort of information which should set a medical examiner to work investigating, but unfortunately the words "under circumstances of suspicion" are somewhat ambiguous. These words materially limit the definition's scope, unless we conclude them to be synonymous with "supposed to have come to his death by violence." I am forced to believe that Mr. French's words were meant to be synonymous with the last clause quoted, because it seems to me to be their safest interpretation for guidance in the future. For instance, there was no suspicion of foul play in my case, but there was a very strong, in fact positive, opinion among the friends of the deceased that the death was in no way due to any fault of F. K.'s.

Now, unquestionably, it is just as much our duty to establish innocence as guilt, but if doubt, which cannot be swept away by view and autopsy exists, as to some one's negligent or criminal act, neither innocence nor guilt can be determined without an inquest. Mr. French's words, "under circumstances of suspicion," would give me just as much *reason* to act as the words "supposed, etc.," for there was certainly a "suspicion" that the motor-man on the outward car was at least negligent, in fact this was the finding of the judge after the inquest.

Other quotations more or less to the point may be cited. In a discussion of a paper by Dr. Mead (June 12, 1894, Vol. II, No. 5), Dr. Munsell quotes a letter from District Attorney George Marston, who says, "You had better make ninety-nine uncalled for views than let the one-hundredth

go by." We may draw something from this by inference.

Attorney General Knowlton, in a paper read before this society February 3, 1897 (Vol. II, No. 7), is clear enough in his definition as to who has a right to "suppose" that a death is by "violence." He says: "Who is to make the supposition? I answer, anybody, anybody." Would that he were as clear a little further on when he says: "I am told that there is some hesitation on the part of some of your body as to how far they should proceed upon rumors; . . . no one can lay down rules; the medical examiner must not be influenced by considerations of the county treasury, or by objections of county officers against the expense, but by considerations which are founded upon his own good sense and experience!"

All agree that the medical examiner may be in doubt at times and in cases. I believe that our guild will agree that rules by which to make up one's mind as to the exact procedure in all cases cannot be laid down. Fortunately, all medico-legal authorities are in accord that we should act for the best interests of the Commonwealth, and they define the best interests of the Commonwealth to be, to quote the words of Dr. Amory, "to err in cases of doubt upon the side of too much rather than too little investigation." (Oct. 5, 1881, Vol. I, No. 4.)

LEUCOCYTOSIS AND TYPHOIDAL PERFORATION.

FROM THE MEDICAL CLINICS OF THE MONTREAL GENERAL AND ROYAL VICTORIA HOSPITALS.

BY COLIN K. RUSSELL, B.A., MONTREAL, CAN.

Voluntary Assistant, Royal Victoria Hospital.

MEEN has been written of late on the subject of leucocytosis in typhoid fever, and special value is attached to its diagnostic importance in impending or actual perforation. Upon what degree of leucocytosis we ought to depend has not been elucidated, though one realizes that the more marked this sign is, the greater may be our assurance in deciding on the presence of a serious complication.

As to the nature of the leucocytosis, differential counts have shown that the most marked relative increase occurs usually in the mononuclear cells, a condition to be expected in view of the preponderance of lymphatic gland involvement in enteric fever. Experience in the hospital wards with cases of typhoid fever has shown that the leucocyte count may not always be accepted off-hand as positive proof of the nature of the complications, even where a perforation has been suspected, for other conditions resembling perforation in their symptoms may yield marked leucocytoses, while, on the other hand, in cases of actual perforation there may be sometimes even a diminution of the number of white cells found in the blood.

In 37 examinations of uncomplicated cases of typhoid fever, the leucocytes showed a variation

between 2,000 to 12,000, an average of about 6,500. All counts were made as remotely as possible from the digestive period in order that I might obtain more uniform results.

Of the number of complicated cases examined the blood counts have shown most instructive and interesting results, results which, while showing the importance and diagnostic value of blood counts in enteric fever, nevertheless teach the important lesson that grave exceptions may occur, and that one may readily be led into error by attaching too great a significance to leucocytosis as a sign of perforative peritonitis. A few examples will readily explain the results obtained.

CASE I. *Typical case showing value of blood examination; very doubtful signs of perforation; leucocytosis 28,000; operation: perforation found; recovery.*—A boy, age 7, was admitted from Dr. C. W. Vipond's practice to the Royal Victoria Hospital on the eleventh day of the disease. The malady had been attended by the usual symptoms incident upon incipient typhoid fever, and on the tenth day he complained of gradually increasing pain in the abdomen, especially in the right lower quadrant. There was no alteration in the pulse or temperature to indicate radical change, nor did the abdomen present, apart from slight general tenderness, any rigidity, distension or obliterated liver dullness. He vomited once a small amount of food. Dr. Garrow saw him in consultation and ordered his immediate admission to the hospital where he was carefully watched for the next few hours, and the blood counts by Dr. Tooke showed in four different examinations an average of 28,000 white cells. A few hours later he was thought to have slightly increased rigidity and Drs. Bell and Martin recommended operation which Dr. Garrow performed. The perforation, which was promptly discovered near the mesenteric attachment of the ileum, was sutured, and the boy made a good recovery.

After the operation the leucocytes diminished, two days later being 19,000 and two weeks subsequent to the operation, 9,000.

This, then, was a typical case to illustrate the value of leucocytosis, which was the main feature on which to base a conclusion as to the necessity for operative interference.

CASE II. *Signs of perforation, definite; leucocytosis twelve hours after perforation occurred only 12,000; operation: recovery.*—Mrs. T. This patient was admitted to the Montreal General Hospital under Dr. Shepherd as an emergency case. She had developed signs of perforation on the fourteenth day of the disease and was operated upon soon after admission.

In this case I was enabled to examine the blood immediately before operation, and the patient, apart from the local condition in the abdomen, was in a good state for operation. The white cells numbered only 12,000, but the perforation signs were characteristic. Operation was performed and the bowel duly sutured. The patient enjoyed an uninterrupted recovery.

CASE III. *Perforation; leucocytosis 4,800; operation: death.*—Mrs. V. Admitted to the Montreal General Hospital under Dr. Molson on the sixteenth day of the disease, with a blood count of 6,100 and no evidence of complication. Four days later the classical signs of perforation suddenly developed; a careful blood count was made by Dr. Henry three hours later, showing only 4,800 white cells. Operation was performed, the ruptured bowel discovered and promptly sewed, as were also six other ulcers which had already nearly eroded the thickness of the intestine. The patient unfortunately succumbed to the disease.

CASE IV. *Signs of perforation; leucocyte count averaged 14,500; operation: no perforation found; recovery.*—Mr. St. L. This case was one of two which presented features of unusual interest and instruction. The patient came to the Royal Victoria Hospital under Dr. W. F. Hamilton's care on the tenth day of the disease, presenting the typical signs of typhoid fever with reaction to the Widal test. For four days the disease ran the usual uncomplicated course, when suddenly, on the evening of the fourteenth day of his malady, the man developed pain in the abdomen, chiefly in the left lower quadrant. The pain gradually increased until within thirty-two hours marked rigidity was present. Dr. Ballantyne made two blood counts in succession at this time, the white cells numbering respectively 16,000 and 13,000, an average, therefore, of 14,500, before operation was commenced.

The operation by Dr. Garrow, however, showed neither signs of perforation nor peritonitis; the condition of the bowel being nearly such as is to be expected at that stage of the disease. The abdominal wall was again closed, and the patient has since run the usual favorable course of the disease without complication. The blood count made on the day following the operation revealed, in the average of three counts, less than 10,000 white cells.

CASE V. *Signs of perforation; leucocytosis 17,000; operation: no perforation found; mesenteric glands unusually large and swollen; recovery.*—Miss O. In this patient, age thirty-nine, at the Montreal General Hospital under Dr. Lafleur, the course of the disease had been favorable up to the seventeenth day, when, one hour after a bath, pain suddenly developed in the right iliac region, progressively increasing and with gradually developing rigidity. The tenderness and distention became so marked as to arouse the grave suspicion of perforation, and a blood count was made showing 17,000 white cells. Two hours later there were 14,000 leucocytes, and after a period of two hours more the cells were reduced to 10,500; showing, in other words, for typhoid fever, a moderate degree of leucocytosis.

Upon consultation with Dr. Armstrong, operation was decided upon and performed a few hours later, the local symptoms not having shown any signs of abatement. The laparotomy, however, failed to reveal any perforation, though two of the ileocecal glands were unusually tense and swollen.

In the absence of anything further the abdominal wound was closed, and the patient made an uninterrupted recovery, no further signs of perforation developing.

CASE VI. *Very indefinite signs of perforation; blood count 14,000 to 12,000; delay in operation to watch progress; sudden general peritonitis; leucocytosis 32,000; operation; death.*—Mr. A. This patient, an adult male, was admitted to the Royal Victoria Hospital under Dr. Martin on the twelfth day of the disease, with the characteristic symptoms, signs and reactions of enteric fever. Two days later he developed rather suddenly some pain in the region of the spleen, with tenderness on pressure over the ribs in that area; there was no rigidity nor abdominal tenderness elsewhere; the pulse remained unaltered and the leucocytes numbered 12,000. The condition remained thus for the

with signs which in the early stage of the malady were far more characteristic of perforation, and yet the operation had revealed nothing.

With all the signs of collapse in this case and a pulse which could scarcely be felt when Dr. Bell saw the case before operation, the recovery after operation was not to be looked for, and the patient succumbed a few hours later.

REMARKS.

That one may obtain marked variation in the leucocyte count in typhoid fever is well known, and in Dr. Cabot's comprehensive observations he has shown that even where no complications are evident, one may obtain an average of over 15,000 white cells to the cubic millimetre. Further, that where certain abdominal complications other than perforation exist, the leucocytes may rise to a very marked degree. Moreover, in the case cited by

Name.	Date.	Day of Disease.	Temp. at Time of Exam.	Relation in Time to Last Meal.	Nature of Diet.	White Cells.	Complications.
1. Drysdale.	Dec. 31, 1900.	13th.	103.2°		None.	22,000	Perforation.
2. Talbot.	Oct. 2, 1900.	14th.	104.3°	2 hours.	Liquids.	12,000	Perforation. Emergency case; count made twelve hours after perforation; operated on and perforation sutured; recovery.
3. Vosburg.	Nov. 27, 1900.	20th.	101.3°	2 hours.	Liquids.	4,800	Perforation. Abdominal pain between 7.30 to 8 A.M.; tenderness, tympanites and evidence of perforation, pulse rapid and irregular; operated on, and one perforation and six ulcers sutured; death.
4. St. Louis.	Dec. 20, 1900.	14th.	101°			14,000	Mesenteric glands enlarged. Operation; no perforation found.
5. Ogilvie.	Nov., 1900.	17th.	102°			17,000	Symptoms of perforation. Operation; no perforation present.
6. Anderson.	Jan. 7, 1901.	11th.	97.2°	2 hours.	Liquids.	20,000	Several previous counts at different intervals gave an average of 22,000.
7. Miller.	Dec. 31, 1900.	18th.			Liquids.	15,000	Cholecystitis.
8. Laundry.	June 29, 1900.	18th.	98.4°	2 1-2 hours.	Custard.	13,000	Otitis media, which later disappeared.
9. Kelly.	June 30, 1900.	46th.	99.4°	3 hours.	Milk, toast, eggs, custard.	20,000	Simple bronchitis.
10. Powers.	July 3, 1900.	22nd.	96°	2 hours.	Liquids.	12,000	No complication.
11. Demers.	June 30, 1900.	18th.	98.4°	3 hours.	Liquids.	13,000	Septicæmia; died; no perforation.

following eighteen hours except that his general condition seemed slightly more serious and some tenderness developed in the right iliac fossa as well. The pulse, however, which had been about 96, was not raised during this time over 104, and there was still no increase in the rigidity.

The blood examinations were made every three hours by Dr. Tooke, and showed never more than from 12,000 to 14,000 white cells. For this reason, and more especially after the experience as recorded in Cases IV and V, operation was not immediately performed. The patient a few hours later became suddenly collapsed, with signs of general peritonitis, vomiting, rigidity, great tenderness and a rapid pulse. It was then, for the first time, that the blood count rose appreciably, 32,000 white cells being present in the cubic millimetre. The 2 previous cases recorded had had a higher leucocyte count without perforation, and

him of phlebitis the white cells numbered 16,200 to the cubic millimetre.

In a number of complicated cases of typhoid fever which I have examined, the same results could be determined; in one patient in whom the only discernible complication was a simple bronchitis, there were 20,000 leucocytes to the cubic millimetre. In a case of cholecystitis 13,000; in one of mild middle ear disease 13,000, and in a case complicated by general sepsis, the white cells, as was to be expected, showed a similar increase, namely, 13,000 to the cubic millimetre. The cases above cited lead in the main to the following conclusions:

(1) That in perforation it is the general rule to have a leucocytosis, but that the degree may vary within wide limits.

(2) That the leucocytes, while appearing as a rule early, may not be at all marked until the general peritonitis and collapse have supervened.

(3) That there may be an utter absence of leucocytosis with marked perforation and peritonitis; in fact, that the cells may be lower than normal.

(4) That with typical signs of perforation and a definite leucocytosis there may be no such complication present, and an operation may be performed unnecessarily.

(5) That a marked degree of leucocytosis may occur in complications other than perforation, for example, bronchitis, cholecystitis, etc.

(6) That with pain and tenderness in the abdomen, coming on suddenly during an attack of typhoid fever (and in the absence of evidences of cholecystitis or other definite complication), and a distinct leucocytosis, even without other signs of perforation, an exploratory operation is justified, even advisable, thereby obviating the dangers of a fatal issue from too great a delay. The exploratory operation in Cases IV and V, done unnecessarily, resulted in no bad consequences, and the patients made a satisfactory recovery.

In conclusion I would like to record my indebtedness to Dr. C. F. Martin for assistance in carrying out my little investigation, and to the other clinicians of the hospitals for kind permission to use their material.

Clinical Department.

CONTUSION OF THE ABDOMEN; NO EXTERNAL WOUND; RUPTURE OF THE DESCENDING COLON; FECAL ABSCESS; DRAINAGE; SUTURE OF RUPTURED GUT; RECOVERY.

BY CHARLES L. SCUDDER, M.D., BOSTON.

J. H. M., thirty-six years old, was caught between a station platform and a moving railroad car. He was crushed. A few hours later he entered the accident room of the Massachusetts General Hospital, service of Dr. A. T. Cabot, in a condition of moderate shock. The temperature was 100°. Over the left iliac crest was a hematoma slightly tender and fluctuating. The urine was smoky in color. The white blood count was 10,200.

The first night he vomited three times, the vomitus consisting of the stomach contents. The next morning the abdomen was slightly distended. The third day all food by mouth was stopped on account of nausea. On the fifth day he had two fecal dejections. There was no more vomiting. On the sixth day the temperature was 101°. The abdomen was less distended. On the left side in the loin the hematoma was tender and fluctuating and the skin over the area was red. Under ether the swelling was opened and a large fecal abscess was evacuated. The cavity toward the abdominal side was bounded by the small intestine, descending colon and omentum. The muscles of the abdominal wall had been torn from their attachments to the iliac crest. At the extreme depth of the abscess was discovered an opening into the descending colon which admitted the tip of the

forefinger. The abscess, so well separated from the peritoneal cavity, was thoroughly evacuated and its wall cleansed with sterile water. Gauze drainage was used. After the sloughing portions of the wound had granulated, some eight weeks after the accident, an unsuccessful attempt was made to close the fistula. Ten days later a second attempt at closure succeeded. The edges of the fistulous opening were refreshed, all tension in the part concerned was removed and the gut was closed with silk sutures.

The particular interest in this case lies in the fact that the rupture of the bowel was not attended by such symptoms as would ordinarily lead one to suppose that a serious injury had been received.

A suppurating hematoma was evident. The rupture in the gut was concealed.

The very important sign that was misinterpreted was that of vomiting. This symptom, instead of being explained by the patient's statement that he had eaten something indigestible before he was injured, should have suggested a lesion of the bowel, or at least serious involvement of the peritoneum.

Vomiting once of stomach contents after an abdominal contusion is of no especial importance. Continuous, unexpected vomiting without any apparent reason is significant of an intestinal lesion. This is true in spite of the absence of other signs of involvement of the peritoneum.

During convalescence this patient had a pneumonia and a phlebitis of the left thigh and leg.

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAFF, A.M., M.D., BOSTON.

THE INFECTIOUS AND TOXIC ORIGIN OF NERVOUS DISEASES.

At the tenth congress of the Società Freniatrica Italiana in Naples last October, one of the subjects for formal discussion¹ was the intoxications and infections in the pathogenesis of mental diseases and neuropathies. This discussion was opened by D'Abundo, who maintained that infections and intoxications are the most frequent sensible and active factor in the pathogenesis of nervous diseases in general, in every period of life both intra-uterine and extra-uterine. The toxic infectious heredity (as syphilis or alcoholism) facilitates in the descendants the evolution of toxic-infectious neuropathies with a classical anatomico-pathological basis. Infections and intoxications in the progenitors, or in the mother during gestation, very often produce in the fetus very marked retardation of the processes of myelinization of the different systems of nervous connections. Some degenerative forms of neuropathy are often to be regarded as due to defective cerebral or spinal organization, the result of toxic pathological processes in the embryo which have been healed.

¹ Rivista Sperimentale di Freniatria, xxvi, 919, December, 1900.

infections and intoxications of the nervous system facilitate the evolution of secondary intoxications, which feed, re-enforce and complicate the clinical phenomena and result in complex forms due to multiple intoxications. The toxic-infectious agents may act upon any part of the nervous system, giving rise to peripheral or central, systemic or disseminated localizations, and resulting in acute or chronic neuropsychoses. Mental confusion represents the commonest clinical type of toxic-infectious action, although other forms of psychopathy may also have equally a toxic origin. Acute delirium may be regarded as a clinical manifestation due to various toxic-infectious agents, not merely the special bacillus described by Bianchi and Piccinini, but also the colon bacillus, the streptococcus and others. The toxic-infectious origin of general paralysis is greatly strengthened by each new study of its etiology. The clinical manifestations of infections and intoxications of the nervous system are the result of more or less pronounced disturbances of nutrition, which in certain phases are susceptible of restoration to the normal, even when the symptoms make us doubtful of a cure. The treatment, until we know precisely each morbid cause, should favor the elimination of the toxic products and try to neutralize or check the production of secondary intoxications.

Agostini, the co-referee in the debate, divides the toxic-infectious agents into three classes: The chemical poisons entering the system from without; the toxic-infectious processes; and the intoxications that are purely endogenous, the so-called auto-intoxications. Alcohol, naturally, takes the chief place in the first class, as giving rise to the most severe and diffuse forms of nervous disease, from multiple neuritis to neurasthenia, and also to various psychopathies, transitory mania, delirium tremens, and even forms closely resembling if not identical with general paralysis. Of almost equal importance in Italy is pellagra, due to the poison of diseased maize, which, like other chronic intoxications, may cause severe systemic diseases of the spinal cord, peripheral neuritis, and diffuse alterations in the cells of the brain. In addition to the direct toxic action of the disease, other forms of auto-intoxication may arise secondarily from the disturbances in the alimentary canal. The children of the pellagrous, too, may present various forms of severe nervous disease, degeneration, infantilism, idiocy, and the like, similar to the forms seen in the children of alcoholic or syphilitic parents. The influence of the true infectious diseases is well known; even the milder forms, such as influenza, often giving rise to severe diffuse affections. Among these acute delirium has been of late the object of special study, and in a considerable number of cases various micro-organisms have been found in the blood or the meninges. In some cases where the delirium is secondary to other disturbances, Agostini suggests that the blood loses its bactericidal power under the influence of the primary disease, thus facilitating the invasion of the brain by some of the commoner forms of bac-

teria. The so-called auto-intoxications are the forms which are today most in doubt, since we have not yet been able to isolate the poisons or to determine absolutely the method in which they are formed. In health the vital chemical processes of various tissues develop certain toxic substances, which are either excreted or destroyed or neutralized by certain organs, as the liver, the thyroid, the suprarenal capsules, the lymphatic glands, etc. In diseased conditions this excretion or destruction is impaired. Overwork or disturbed nutrition may increase the production of these toxins, and provoked action of certain glands (as the thyroid in myxedema or the pituitary gland in acromegaly) may also give rise to auto-intoxication. Most of these toxins originate in the alimentary canal. Among the commoner symptoms to which such toxins may give rise are the familiar ones of mental torpor, physical prostration, irritability, somnolence, vertigo and headache. Clinically, also, the relation between convulsions and acetouria, and tetany and gastric fermentation have had an important bearing upon the doctrine of auto-intoxication, as well as the frequent co-existence of certain psychoses with digestive derangements.

On the laboratory side many studies have been made of the gastric juice, the urine, the blood-serum, the sweat and the cerebro-spinal fluid in regard to toxicity and bactericidal power. These studies have not as yet given constant results, from which definite conclusions can be drawn, but there is an increasing amount of evidence showing that in various nervous and mental affections thought to be due to auto-intoxication, the various secretions and the blood show decided departures from normal in regard to toxicity, bactericidal power and the like. Pathologically, the changes found in these conditions are extremely similar to those found after intoxications from without or after known infections. The same clinical phenomena and the same changes in the neurones may be found, for example, after poisoning by alcohol, or after infection by typhoid, as after this hypothetical auto-intoxication. It therefore seems logical to assume that these unknown agents have a similar pathogenetic action and provoke nervous and mental disturbances in the same way as the poisons and infections whose nature we know. In such conditions, moreover, treatment directed against auto-intoxication, especially auto-intoxication from the alimentary tract, seems to promise the best results.

REFLEXES IN TYPHOID FEVER.

Remlinger², from a study of the reflexes in 100 cases of typhoid fever, has found them exaggerated in 32 cases, unaltered in 22, diminished in 17, and abolished in 29. There is no definite relation between the state of the reflexes and the form of the typhoid, but exaggeration of the reflexes was seen chiefly in grave cases and the ataxic and ataxodynamic forms. The normal condition was seen in the benign forms. We cannot draw an

² Rev. de Méd., xxi, 16, January, 1901.

unfavorable prognosis from the diminution or absence of the reflexes. Whatever the condition of the reflexes during the progress of the disease, there is a decided tendency to exaggeration at the period of convalescence. Ankle clonus was found in 20 cases, often on only one side. It usually coincides with an exaggeration of the other reflexes, but it may occur when they are normal or even absent, even when the tendon Achilles reflex is absent. It is sometimes seen at the moment of a fall in temperature, coinciding with profuse sweats or polyuria. In such cases it may be considered a true critical phenomenon. Patellar clonus is also seen, but this is always associated with exaggeration of the knee jerks. The cutaneous reflexes show little that is remarkable, but the great toe is never extended. The explanation of the changes in the reflexes may perhaps be referred to slight changes in the spinal cord, such as various observers have found, but Remlinger does not consider the possibility of changes in the peripheral nerves, such as are often found in the various acute infections. The existence of ankle clonus when the Achilles tendon reflex is lost is not easily explained on any hypothesis, unless, perhaps, we consider it a simple phenomenon of idiomuscular contraction.

Lévi³, on the other hand, has found the Babinski reflex, the dorsal extension of the great toe, in 10 out of 20 cases of typhoid fever. All the cases recovered; 2 presented symptoms of mild, acute myelitis and 1 had temporary retention of urine. None presented signs of meningitis. In 18 of the cases the tendon reflexes were exaggerated, and in 2 they were normal. In 5 cases ankle clonus and the Babinski reflex coexisted, in 4 cases clonus existed without the Babinski reflex, and in 5 cases the Babinski reflex existed without clonus. The dissociation of the two symptoms, the Babinski reflex and ankle clonus, must be explained by the hypothesis that the lesion causing the Babinski reflex is different from that causing ankle clonus. The exaggeration of the reflexes, ankle clonus and the Babinski reflex all indicate that the spinal cord is frequently affected in typhoid fever, and, after a period of latency, chronic myelitis may develop, especially if there be any new intoxication or infection. In regard to the prognosis of the typhoid fever itself, the existence of a Babinski reflex does not add to the gravity, as all the cases presenting it recovered, while some, which did not have a Babinski reflex, died.

BRACHIAL PARALYSIS.

Grenet⁴ distinguishes the various forms of paralysis of the brachial plexus according to the portion of the plexus involved. These paralyzes may be motor, sensory or mixed. He distinguishes various portions of the brachial plexus: the intravertebral portion, the extravertebral portion, the plexus proper, divided into three segments, and the terminal branches. There are as many forms of the mixed paralyzes as there are portions of

the plexus, and they can be distinguished by the examination of the collateral nerves. The root situation of a superior paralysis is recognized by the paralysis of the supraspinatus and infraspinatus muscles, which are innervated by the supra-scapular nerve. The intravertebral situation of an inferior root paralysis is recognized by paralysis of the serratus magnus. The inferior root paralysis of the first portion of the intravertebral segment (before it leaves the intervertebral foramen) is recognized by disturbances of the pupil, unless the lesion is beyond the sympathetic anastomosis. There is no marked difference clinically between an extravertebral inferior root paralysis and an inferior paralysis of the first segment of the plexus.

All the above forms, however, are of secondary importance; the two chief clinical forms are those of the root type and of the terminal type. The paralyzes of the plexus proper are accessory forms dependent upon one or the other of those two great types. Pure motor paralyzes result ordinarily from an isolated lesion of the anterior root, and a lesion of at least two roots is usually required to produce paralysis. Pure sensory paralyzes are always due to intravertebral lesions of the posterior roots. Individual variations in the sensory distribution seem very great, for a lesion of one root may sometimes cause sensory disturbances, while, on the other hand, a lesion of three roots may not cause any such disturbance. There may sometimes be a limited anesthesia from a lesion of a single root, when other roots supplying the same region are intact. Paralyzes of the root type are characterized by the localization of the disturbances in a particular group of muscles and by the special distribution of the anesthesia. Paralyzes of the terminal type are characterized by the localization of the symptoms in the exact region of one or more peripheral nerves. Paralysis of the peripheral nerves, however, may resemble a root paralysis when several nerves are involved. Hysteria may be recognized by the mode of distribution of the sensory disturbances.

NEURITIS.

Vyruboff⁵ has made an elaborate pathological study of a case of multiple neuritis presenting also the familiar symptoms of the so-called polyneuritic psychosis. He found the whole neuro-muscular system and all the segments of the central nervous system affected, the changes being of toxic origin. In the nerves and muscles he found simple atrophy of the nerve and muscle fibres with primary degeneration of both sets of fibres; the nerves showed the peri-axillar neuritis of Gombault. The cells of the spinal ganglia showed chromatolysis and fatty and pigmentary degeneration, or more rarely, secondary chromatolysis. In both the central and peripheral fibres of the ganglia there was a breaking up of the myelene which could be followed into the posterior roots and into the cord. In the posterior columns of the cord there was an ascending degeneration

³ Rev. Neurol., viii, 1905, Nov. 15, 1906.

⁴ Arch. gén. de méd., October, 1900.

⁵ Vratich, p. 377, 1900; Ref.: Rev. Neurol., ix, 19, January 15, 1901.

of the long systems of exogenous fibres extending to the nuclei of the columns, and degeneration of the short systems of fibres which enter the gray matter through the posterior horns. The cells of the anterior horns were diminished in number and showed primary chromatolysis and fatty and pigmented degeneration. The anterior roots and also the roots of the cranial nerves were degenerated. The degeneration in the pyramidal tract could be traced upwards from the sacral region of the cord, through the decussation of the pyramids in the medulla, the pyramidal tract in the pons and crus and the internal capsule to the motor convolutions in the cortex. In the cerebellar systems there was degeneration of the direct cerebellar tract, of the arborescent fibres of the cerebellar cortex, of the large cells of the granular layer, of the cells of Purkinje and the neighboring fibres, and in all parts of the anterior cerebellar peduncle, the red nucleus, the tract to the optic thalamus, and the cells of its external nucleus. Degeneration was traced in the fundamental fasciculus of the antero-lateral column and in Gower's tract up to the pyramids. The internal fasciculus of the lateral column was everywhere intact. The most marked alterations in the cerebral cortex were found in the parietal lobe; here there was a diminution in the association fibres and a diminution and fatty and pigmented degeneration of the cells. The combination of the clinical symptoms of the psychosis, which consisted of mental confusion and disturbance of orientation in time and space, with the anatomical lesions of the parietal lobe were regarded as confirmatory of Flechsig's hypothesis that a lesion of his posterior association centre in this region leads to confusion and the impossibility of orientation in time and space.

In the discussion of Vyrouboff's paper Bechterew maintained that the cortical lesions in the polyneuritic psychoses were incontestable, and that these cases were confirmatory of Flechsig's claim that these parietal centres contain only association fibres destined for the higher mental functions. Although the lesions in these cases are more extensive than those often found, they add further confirmation to the opinion that is steadily gaining ground that multiple neuritis is not an affection of the peripheral nerves simply, but that in very many cases it is an affection involving a considerable portion of the central nervous system as well.

The earliest symptoms of multiple neuritis are usually considered to be paresthesia or paresis. Popoff, from a study of four cases, shows that there is a quantitative and qualitative change in the electrical excitability of the nerves and muscles of the extremities for some time before these other symptoms appear. These clinical observations agree with the recent anatomical researches of Braun, who slowly poisoned dogs and rabbits with alcohol and found changes in the cells of the brain and spinal cord and degenerative atrophy of the nerves before there was any disturbance of

motion or sensation. The disappearance of electrical excitability with persistence of voluntary motion, is probably explained, like the reappearance of voluntary motion during convalescence before the return of electrical excitability, by the hypothesis that the electric current is conveyed by the myelene sheath and voluntary motion by the axis cylinder process. Popoff's investigations are of great importance in prophylaxis. By careful electrical examination the first onset of neuritis may be detected in those exposed to such poisons as alcohol, lead or arsenic, the patient may be removed from the influence of the poison and the disease may thus be arrested in its early stages, before it attains the severity or the hopelessness that it manifests later.

(To be continued.)

Reports of Societies.

THE NEW YORK ACADEMY OF MEDICINE.

STATED meeting, March 19, 1901, E. FRANKLIN SMITH, M.D., chairman.

DISCUSSION ON DIABETES MELLITUS.

DR. HENRY S. STARK read a paper on

DIAGNOSIS AND PROGNOSIS.

It was generally assumed, he said, that the diagnosis of the disease depends on (1) The detection of glycosuria, and (2) the proper interpretation of certain deviations from good health. Having spoken of the importance of an early diagnosis, he mentioned two circumstances which might mislead the observer, namely, a comparatively low specific gravity and a small amount of sugar in the urine. Sometimes, also, the sugar present fails to reduce the cupric oxide. In view of the unascertained pathogenesis of diabetes mellitus, the diagnosis of the disease is not always an easy matter. It is well known that glycosuria may result from overindulgence in carbohydrates, from shock, from the use of anesthetics and a number of other causes, and yet the patient have no real diabetes. It is only when the glycosuria is constant or recurrent, and is attended with such other symptoms as polydipsia, polyuria and failing nutrition, that we can be assured that the latter is present. In other words, the characteristic syndromic, in connection with glycosuria, is necessary for the diagnosis. Among the other signs frequently noted are periodic attacks of headache, fatigue after slight exertion, and failing vision, slow in the aged and rapid in the young. Among the nervous symptoms are irritability of temper, moroseness, and absence of patella reflex.

As an aid to diagnosis bacteriology has been of no service, and examination of the blood has not as yet given any satisfactory results, although the blood-staining methods of Brener and Williamson seem to promise something in the future. The tests for glucose, the only one of the carbohydrates

of clinical interest, are innumerable. None of them, however, is infallible, and perhaps the nearest approach to a perfectly reliable one is the great fermentation test of Roberts. Fehling's test still holds its own for practical utility, but it must always be borne in mind that there are a number of other substances besides glucose which may reduce copper. The secret of success is in making control contests. Some of the most sensitive tests are the most unreliable. For general office use one of the most delicate, accurate and satisfactory is that by the saccharometer devised by Dr. J. Rudinow, of New York, which he describes in a contribution to the *Festschrift* in honor of Dr. A. Jacobi.

The majority of cases are amenable to treatment, and an opinion as to the prognosis should never be expressed until after the patient has been under observation for a considerable time. In making a prognosis a number of circumstances must be taken into account. Among these are the following: (1) Age. In children the disease is rapidly fatal, and old age is an advantage. (2) Power of assimilation of carbohydrates. (3) Early recognition of the disease. In this connection Dr. Stark dwelt upon the importance of frequent examinations of urine in health and expressed the opinion that all our patients should be instructed to have specimens examined regularly twice a year. In this way diabetes, as well as other diseases, could be detected in their incipency, and this would afford a great advantage in the way of efficient treatment. (4) The appearance of intercurrent diseases. (5) The condition in life. (6) The amount of urea and the presence of acetone, diacetic acid and other organic substances in the urine. (7) The capacity of the system to absorb fats and proteids. All cases of diabetes may be divided into three types, the mild, the medium and the severe.

DR. H. STERN read a paper on

ETIOLOGY AND PATHOGENESIS.

He said he had found that in eleven years (1889-1899 inclusive) there were reported 1,867 deaths from diabetes mellitus in New York City. Of these 931, or nearly 50%, were in females. Yet the statement had been generally accepted that this affection occurs two-and-a-half times as often in men as in women. Among negroes there were only 15 deaths from diabetes in the eleven years. The Hebrews and the Irish each represented 25% of the mortality — a result which he attributed to in and in breeding. Diabetes is very frequent among the poorer classes, and of 102 males who died in the year 1899, 66 were residents of tenement houses.

For clinical purposes we may trace the affection to one or more of the following causes:

(1) Excessive ingestion of glucose: Alimentary glycosuria.

(2) To diminution, functional disturbance, or excessive or abnormal disintegration of the erythrocytes (glycosurias following the introduction of poisons and toxins, or the perverted function or removal of certain glands — pancreatic diabetes,

Seegeen's grave diabetes): Hematogenic diabetes or glycosuria.

(3) Traumatism: Neurogenic glycosuria.

(4) Interference with the glycogenic function of the liver to such an extent that the carbohydrates are not normally utilized: Common or hepatic diabetes.

(5) General protoplasmic deterioration and plasmolysis: Diabetic deterioration.

DR. STERN thought that the foreign element in the erythrocytes of diabetes, found first by Bremer, and met with by himself in over 300 cases, was the possible pathogenic substratum of diabetes. He recognized this as early as 1896. His supposition was that the oxygen had been partially displaced from its hemoglobin combination by carbon monoxide, of catabolic origin. The abnormal element in the cellular substance of the erythrocyte is presumably of autochthonous origin, though it may perhaps be derived from external sources. If the foreign substance originates within the organism it is either enterogenous or histogenetic. It does not seem to be due to a retention anomaly, as carbonemia and carbonoxydemia fail to reduce aniline dye stains (eosin-methylene blue; congo red; bichloride scarlet — the latter being the one almost always used by Dr. Stern). If the substance in question were derived by resorption from the gastro-intestinal canal it could not become an almost permanent factor in the blood, as this would presuppose a long and uninterrupted absorption of the products of intestinal hyperfermentation and putrefaction, a condition rarely existing, and notably infrequent in diabetes. On this account we have to consider the erythrocytic foreign element as a product of abnormal cell and organ activity or disintegration. This foreign substance, whether originating from perverted plasmolytic or nucleolytic processes or from anomalies of internal secretions, may thus safely be classed among the toxic principles.

The plausibility of the entosystemic origin of the substance deserves some attention. A considerable number of authors have noted the appearance of diabetes in previously healthy individuals after they have come in contact with diabetics. The transmissibility of the affection therefore seems possible, although no convincing proof of this has as yet been adduced. One might surmise that the abnormal blood constituent represents the metabolic products of a specific bacterium, and that the potency of such a toxine gives rise to the glycosuric phenomenon. Whether this foreign element constitutes the underlying etiological factor of the affection, or whether it is but another of the metabolic products of the diabetic condition, cannot as yet be pronounced upon.

Dr. Stern then spoke of "diabetic deterioration," a condition which he said was first recognized by himself.¹

The three clinical varieties of diabetes arising from distinct direct causes, he went on to say, seem to be but the consequence of one and the

¹ New York Medical Record, December 18, 1897.

same fundamental disturbance. They may be thus differentiated:

(1) The glycosuria disappears after complete or partial exclusion of carbohydrates. The excreted dextrose is due to deficient glycolysis.

(2) The glycosuria persists after complete exclusion of carbohydrates. The excreted glucose is due to proteolysis.

(3) With the continued excretion of dextrose larger amounts of nitrogen are egested than were introduced with the nutriment. The excreted dextrose is due to plasmolysis.

Dr. H. D. CHAPIN spoke on

DIABETES IN CHILDREN.

The three most notable points in regard to the disease in childhood, he said, were the following:

(1) It is extremely rare; (2) the most marked symptom is exceedingly rapid emaciation; (3) it is almost invariably fatal, and in a short time. He described 2 cases which he had seen in consultation. The first was that of a boy four years old who was taken with what was supposed to be an ordinary cold and afterwards treated for malaria. He grew steadily worse, rapidly wasting away, and an examination showed the urine to be loaded with sugar. Death ensued in three weeks from the onset of the disease. The other was a similar case in a boy of six years. The urine contained 5% of sugar, and the emaciation was even more rapid. For some time before death the child was in a semicomatose condition. In the hospitals with which he was connected, Dr. Chapin said that it was his routine practice to have his house staff make examinations of the urine of all patients. Sugar was almost never found, while albumin and traces of casts were very frequently met with in pneumonia, gastro-enteritis, and many other diseases. The mere presence of glycosuria was not sufficient to base a diagnosis of diabetes upon, and he had recently seen a child who, notwithstanding the presence of sugar in the urine for six weeks (according to the statement of the attending physician), continued bright and active, without any emaciation, and eventually made a complete recovery.

Dr. PEARCE BAILEY read a paper on

THE NERVOUS SYSTEM IN DIABETES.

We are still in doubt, he said, as to the real pathogenesis of the disease, and as additional investigations have been made the case for the rôle of the nervous system in the matter of causation has been weakened rather than strengthened. Ever since the experiments of Bernard it has been known that glycosuria follows various irritations of the nervous system; but it is found that the condition is always transitory. If, on the other hand, the pancreas is completely extirpated, a glycosuria results which is permanent and progressively fatal. Traumatism is a very common cause of glycosuria. After 212 cases of head injuries this was found in 20, and of 24 cases of fracture of the vault and of 21 cases of fracture of the base of the skull, glycosuria resulted in 5

of each class. It is true that diabetes is not infrequently associated with nervous disease, especially conditions resulting from cerebral hemorrhage due to degeneration of the arteries. Such affections as sciatica and neuritis are sometimes also associated with diabetes, but these are liable to occur in connection with any wasting disease. Our conclusion then is that the primary cause of diabetes is not to be found in the central nervous system.

Dr. S. SHERWELL read a paper on

CUTANEOUS COMPLICATIONS.

He mentioned the following, in the order of their frequency and importance:

(1) *Xeroderma*.—This is a functional variety, coming on rather suddenly and often associated with pruritus. The facial appearances, which are peculiar and characteristic, not infrequently lead to the diagnosis of diabetes.

(2) *Pruritus*.—This is of a most severe and distressing character, and of itself should excite suspicion.

(3) *Eczematous manifestations*.—These may occur in any situation, but are most frequently found on the flexor surfaces and especially about the anus and genitals, and are characterized by the most intense itching. They are more efficiently treated by mild lotions of such agents as bichloride of mercury (1 to 1,000) and salicylic acid than by the ordinary unguents.

(4) *Furuncular and carbuncular manifestations*.—These also should excite suspicion of diabetes, and they require systemic treatment.

(5) *Erythematous manifestations*.—These sometimes result in such grave conditions as erysipelas and gangrene, especially in the lower extremities.

(6) *Bullous manifestations*.

(7) *Tumor formations*.—These are quite rare. The variety generally seen is xanthoma, the most frequent seat of which is the inner canthus of the upper eyelid. The other variety is a blastomycetic dermatitis, which has been described by Hyde, Montgomery, and Gilchrist of Baltimore.

Dr. N. J. HERBERT read a paper on

OCULAR MANIFESTATIONS.

These, he said, are of two classes, (1) Those due to defective innervation, and (2) those due to defects in nutrition. Cataract is frequently met with in connection with diabetes, but it is doubtful whether it is not simply a concomitant, rather than due to the diabetic condition. Among the other serious affections liable to occur are optic neuritis and hemorrhage and detachment of the retina. Parenchymatous or pustular keratitis, when syphilis and tuberculosis can be excluded, should excite suspicion of diabetes. In brief, the eye affections most commonly associated with this disease are as follows: (1) Cataract; (2) recurring hordeolum, or sty; (3) paresis of accommodation; (4) keratitis.

Dr. ROBERT T. MORRIS spoke on

DIABETES IN SURGERY.

He said that while until recently many cases for operation were forbidden to surgeons on account of the existence of this disease, at the present time but few such cases were excluded. In diabetes the blood, loaded with sugar, draws serum from the tissues, so that the latter become too dry. This hygroscopic action of the sugar, therefore, interferes with the repair of wounds. It is probable also that in this condition of affairs the alexines are not properly formed to meet the toxins. It is, consequently, of great importance that the surgeon should be especially careful in operating, for if infection once begins, it is very apt to be progressive. Diabetic cases, Dr. Morris said, were the only ones in which he took the precaution of wearing rubber gloves when operating. Another reason why diabetes interests the surgeon is because the sugar in the blood makes the serum an excellent culture medium. As to the use of anesthetics when this disease is present, it is best to avoid ether, for the reason that the latter, added to the effect of the sugar on the kidneys, may precipitate a nephritis. It is advisable, therefore, to begin with nitrous oxide gas and afterwards continue with chloroform, or, if practicable, with nitrous oxide gas and oxygen.

Transitory diabetes is often met with as the result of injuries. About one-half the cases of this occur in connection with head injuries. In many cases of traumatic glycosuria it is found that polyuria continues for a considerable time after the sugar has disappeared; which would seem to indicate that the functional disturbance of the liver probably terminates before that of the kidneys. After touching upon other points Dr. Morris referred, in conclusion, to a matter liable to come up in accident assurance cases. When a surgeon is asked, in a case where diabetes has been noted after an injury, whether the condition has been caused by the injury, he should be cautious in expressing a positive opinion, for it may be found that the patient was the subject of diabetes before the injury was met with.

DR. ABRAHAM MAYER read a paper on

THE TREATMENT OF DIABETES.

Until we have discovered the exact etiological factors of the disease, he said, our treatment must be one of symptoms. Among the objects of treatment were the elimination of sugar from the blood and urine, the maintenance of the general system, and the prevention of complications. The reader naturally devoted special attention to dietetic treatment. It was a great error, he thought, to exclude the carbohydrates entirely, except temporarily for diagnostic purposes. He gave descriptions of "rigid diet" and "mild diet," and said that many cases would do perfectly well on the latter. In placing a patient upon a course of restricted diet it was important to begin in a very gradual way, so that the system should become accustomed to the change.

With regard to medication, he had found opium, arsenic and bichloride of mercury the drugs of most service. Opium, which was of the greatest

general use in controlling various annoying symptoms, should not be used continually, but interruptedly. It should be given in small doses (not more than $\frac{1}{4}$ a grain three times a day at first), and its constipating effect should be counteracted by cascara sagrada, or other laxative. The only two forms in which he had employed arsenic were Fowler's solution and bromide of arsenic. The latter was given in doses of from $\frac{3}{16}$ to $\frac{1}{16}$ of a grain, in much water, three times a day after meals. There were certain cases of diabetes, generally occurring in middle age, which were like a bacterial invasion or ptomaine poisoning. In these the bichloride of mercury had a certain, perhaps specific, value. The dose, at first small, should be increased to $\frac{1}{4}$ of a grain. Even if the sugar was not entirely eliminated, many patients could get along very comfortably for years. The diabetic's attention should be diverted as much as possible from himself, and he should be free from professional or business cares and other sources of worry. He should wear warm clothing and avoid fatigue and all excesses. Massage and carbonic acid baths were often of great service, and visits to various health resorts, with the use of mineral waters to aid digestion, had a good effect. About 25% of diabetics died from phthisis.

DR. E. H. BARTLEY spoke on

GLYCOSURIA AND DIABETES MELLITUS IN RELATION TO LIFE INSURANCE.

After stating that this was a question of diagnosis and prognosis, he referred to the presence of sugar, in small quantity, in normal urine, and said this was a fact now pretty generally accepted. With the use of the ordinary tests this could not be detected, but under special tests it appeared in about one-third of the specimens of normal urine examined. Now when does a urine contain enough sugar to constitute what is generally known as glycosuria, and when does glycosuria become diabetes mellitus? Shall an applicant be absolutely rejected because he has a small amount of sugar in his urine? The rule should be that any case in which sugar is detected by the ordinary Fehling or Trommer test calls for a re-examination. He had never yet met with an instance in which a urine containing sugar did not reduce copper. Cases of real diabetes are met with, however, in which the urine contained no sugar at the time the examination was made, and it was conceivable that such cases might be passed by an examiner. An applicant could not be rejected on account of diabetes when an examination, made in the ordinary way, did not detect the presence of sugar. He knew of no way of making a diagnosis between glycosuria and diabetes mellitus.

He was in the habit of disregarding percentages entirely, and always insisted that the number of grains or grammes in twenty-four hours should be ascertained. The total solids could be readily obtained with sufficient accuracy, and in true diabetes the amount was always above 1,000 grains. In diabetes there is an excess of urea, while in

glycosuria the urea is not excessive. In life insurance examinations it was a good plan to keep the applicant for one hour, requesting him to pass his urine, at the beginning and end of this time. From the specimens thus obtained the amount passed in twenty-four hours could be estimated. The blood-staining tests for diabetes referred to had not come into general use, and the latest authorities had declared that they have no specific value. As to the most satisfactory method of detecting sugar in the urine, he could not agree that this was to be found in the fermentation test, for the reason that when no sugar was present, turpentine and other agents would ferment with yeast. No test was infallible, and it was therefore advisable to make use of several tests, especially in all doubtful cases. Personally he always employed three tests, namely, the bismuth, the indigo-carmin, and Trommer's, or Fehling's (with glycerine).

In order that a test should be entirely satisfactory it was requisite that preliminary testing should be resorted to. Creatinin was the substance most likely to interfere with the sugar test, and Allen's method was the one he was in the habit of using.

Dr. CHAPIN said he should like to make an inquiry as to the significance of the presence in the urine of albumin in connection with sugar. He had met with a number of such cases. One of them was seen four years ago with a well-known consultant, who expressed the opinion that this conjunction was of fatal augury. Yet the patient in question was still living, and was at the present time in fairly good health.

Dr. A. H. SMITH spoke of the remarkable frequency of diabetes among locomotive engineers, in whom, he had ascertained, the proportion of those affected with the disease was nearly five times as great as in the general average of individuals; and said that this was apparently due to the constant mental strain to which this class of men was subjected. In the same way the disease was very frequently met with among bank and railroad presidents and others in positions of similar responsibility. In the treatment of diabetes he thought one very important point was to relieve the patient of anxiety as much as possible and to divert his attention from his ailment.

Dr. CROOK was inclined to attribute more importance to the rôle of the nervous system in the production of diabetes than had been admitted in the present discussion.

Dr. STARK said, in reply to Dr. Chapin's inquiry, that in at least from one-fourth to one-third of all cases of diabetes some albumin was present, and that, as a rule, it had no special significance.

Dr. MAYER said that the statistics in regard to the disease were more or less unsatisfactory. Many diabetics with phthisis entirely lost their sugar, and hence in the report of their deaths there might be no mention of diabetes. He did not believe that albuminuria was quite as common as Dr. Stark had represented; but when albumin-

uria was present in quantity it was quite a serious matter.

Dr. BARTLEY said he had generally found that albumin appears late in the course of the disease, unless there had been some kidney trouble previous to the glycosuria. He always regarded it as indicating overwork, and a serious matter.

Recent Literature.

The Students' Manual of Venereal Diseases.

By F. R. SUGGS, M.D., sometime Clinical Professor of Venereal Diseases in the Medical Department of the University of the City of New York; formerly one of the Visiting Surgeons to Charity Hospital, B. I., Dept. of Venereal; Member of the American Association of Genito-Urinary Surgeons, etc. Seventh edition. Revised and in part rewritten. By F. R. SUGGS, M.D., and FOLLEN CABOT, M.D., Instructor in Genito-Urinary and Venereal Diseases in the Cornell University Medical College; Genito-Urinary Surgeon to Bellevue Hospital, Out-patient's Department; Visiting Dermatologist to the New York City (Charity) Hospital; Lecturer on Venereal and Genito-Urinary Diseases in the University of Vermont. Philadelphia: P. Blakiston's Son & Co. 1901.

The first edition of this book appeared about twenty years ago. Since that time, although a number of similar manuals have been published, this one has exhausted six editions, and now the seventh edition appears, well revised, attractively printed and enlarged to 205 pages with a sufficiently good index. The book is divided into twelve chapters, two of which are devoted to a consideration of chaneroid, seven to syphilis, and three to gonorrhea, as it manifests itself in both sexes. The book is what it represents itself to be—a manual for students—and considers the three venereal diseases in a condensed and almost schematic way, avoiding the discussion of all mooted questions. Medical students will doubtless receive this edition with the same favor which they accorded the others, but for the profession at large the book has little interest.

A Textbook of Diseases of the Nose and Throat. By D. BRADEN KYLE, M.D., Clinical Professor of Laryngology and Rhinology, Jefferson Medical College, etc. Second edition. Philadelphia: W. B. Saunders & Co. 1900.

This does not differ from the first edition, which was reviewed in these columns a few months ago. The early appearance of a second edition shows that there are many who have found the book satisfactory.

BILL PROVIDING DISSECTING MATERIAL FOR BOSTON INSTITUTE OF OSTEOPATHY.—It is reported that a bill permitting the Boston Institute of Osteopathy to receive bodies for dissection has passed the State Senate by a vote of 17 to 10.

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RESTRICTIVE MEDICAL LEGISLATION.

A MATTER which is likely to excite more and more interest and also to involve increasing difficulties is the rôle of the law in matters relating to health. As our knowledge of disease and its prophylaxis has grown, the tendency has been to enforce by law what experience has shown is for the good of the public health. This is particularly true of infectious and contagious diseases, in which our knowledge approaches nearest to certainty. There is now very little objection made on the part of people of intelligence in aiding Boards of Health and the authorities in discovering and reporting cases of disease of this type. This is wholly a matter of education, based on knowledge which any man of ordinary intelligence has no difficulty whatever in verifying. It is only among fanatics and extremists that systematic opposition is now made to regulations which a few years ago were generally looked on with suspicion. Inasmuch as the design of such laws is to protect the public, it is clear that the people's intelligent sympathy and co-operation must be enlisted before any material progress may be made. Compulsory vaccination has been found much more difficult of enforcement, simply because the people who must undergo the operation are not universally convinced of its efficiency. The arguments advanced in its favor, which are conclusive to the physician, do not appeal to the laity, as a body, with the perfectly inevitable result that the regulation is evaded, and the passage of laws rendered difficult and at times impossible. Another example in which still less progress has been made, has been the attempted prevention by law in certain western states of the residence of tuberculous persons within their borders, who have gone there in search of health. This legislation, so far as we know, has wholly failed. It could not be tolerated for any length of time either by the people or by

the more enlightened physicians, either on moral or hygienic grounds.

By far the most extraordinary bit of legislation that has recently come to our notice is an apparently serious attempt in Minnesota to check the growth of mental disease by the enactment of a law making it illegal to marry without a physician's certificate of the soundness of mind of the contracting persons and of their parents and families before them. That such a law, if passed, will sooner or later meet with the opposition and defeat it deserves is unquestioned. In the present absolutely rudimentary state of our knowledge of this vague field of medicine, it is perfectly clear that the decision of the fitness of persons to marry in individual cases cannot be determined by a physician or any number of physicians with the slightest approach to justice. We are laboriously learning a little of the etiology of mental affections; the bugbear of heredity, though still sufficiently in evidence, is being subordinated as it has been in so many other affections, to the results of accurate study. The influence of infections, of overwork, of intoxications, of chronic disease of other organs, and many other agencies are being taken into account, with the result that some glimmering of light is being thrown into the dark places. It needs no detailed argument to realize that we are very far removed from a knowledge which will permit of dogmatism in any given case, especially when the decision involves a matter of such vital social concern.

After writing somewhat tentatively of the proposed law, the *Medical News* in a recent editorial says:

If there were any way of shortening the effect of time and presenting human experience to individuals in a rapid series of vivid consecutive pictures of cause and effect, the people would be the first to call out for laws to protect them. No one questions the laws that prevent leprosy, cholera and plague patients from entering our communities and mingling with the people, because the fatal consequences follow so quickly that the people learn their object lesson with revolting horror. But could they see in as many days, as it takes years, the development of insanity, the slow, pitiful suffering of the unfortunates and the horror and anxiety and heart-break of their friends in the cases that spring with the regularity of statistics, in the children and grandchildren and great-grandchildren of a person who has insanity in his family, if these could be presented to the people as vividly as the physician sees them, there could be no more telling object lesson, and one would as readily share his marriage-bed with a leper or a plague patient as with a person directly tainted with insanity.

This is neither scientific nor cogent argument. To contrast the question at issue with leprosy, cholera and plague, should not influence a sober-minded person in the least, and to make such comparisons surely does not advance the cause inasmuch as the conditions are not comparable. The

Philadelphia Medical Journal commenting on the same subject writes as follows:

This new and preposterous law would make it illegal to marry without a physician's certificate as to the mental soundness of the contracting parties as well as of the families of both of them. It is difficult to know where to begin to criticise such a law. The crusade against cigarettes is as the wisdom of Solon compared with it. We do not stop for a moment to condemn it on ethical and humane grounds; it condemns itself there. To say that any person who had had a parent, a grandparent, or a brother or sister, the victim at some time of an attack of insanity, or epilepsy, should be debarred from marriage by the certificate of a physician, is too wantonly barbarous and too crudely unscientific to need to be criticised at all. We simply point to the utter impracticability of such a law on the ground that the proof of insanity in a family is the hardest to establish and the easiest to conceal of any kind of proof. All psychiatrists know this from almost daily experience. Such a law apparently places the happiness of two individuals for life on the scientific acumen and psychiatric skill of the average practitioner of medicine in Minnesota, or leaves the law itself to die a natural death from the inability or unwillingness of a doctor to step in and forbid the banns in the case of some young man or young woman whose mother may have had puerperal insanity, or whose grandfather may have had senile dementia, or whose wayward brother may have just recently died of general paresis. The general sense of mankind will condemn such laws as it has condemned them since the time of the Spartans.

For our own part we are convinced that such a law is neither wise nor just nor capable of successful enactment. The problem is far too involved to be treated in this off-hand manner. Absolutely desirable as it is to improve the human stock by every legitimate means, we should not for a moment forget that far too much of late has been said of degeneracy and far too little of the possibility of regeneracy, and also that in this matter beyond all others the education of the masses must play a leading part in the eradication of the weak, and the perpetuation of the strong. Legislation may, for the present, far better devote itself to more practicable problems of health, of which there are enough and to spare.

THE EPIDEMIC OF TYPHOID FEVER AT NEW HAVEN, CONN.

We are told so often that typhoid fever is a preventable disease that we had almost come to regard the statement as a fact. Undoubtedly it is preventable, provided only the acknowledged precautions are adopted by everyone at all times to prevent its dissemination. As a matter of experience, however, this consummation is hardly to be anticipated until human nature has attained a degree of perfection of which it now falls far short. The laity must, somehow or other, be trained to a realization of the possible conse-

quences of their carelessness in neglecting the requirements of sanitation. With the most scrupulous care accidents may no doubt happen, but this should be an incentive to renewed precaution rather than to increased carelessness.

New Haven is now the centre of a very considerable epidemic of typhoid, the source of which has been discovered, but too late to prevent the appearance of several hundred cases of the disease. It is also of interest that the disease has found its victims in one of the better residence portions of the city, in the immediate neighborhood of the Yale University buildings. Fortunately the students have, as yet, been practically free from infection, said to be due to the fact that they are not accustomed to drink the city water. It is, however, natural that parents should be solicitous under the circumstances regarding the return of their sons to college at the opening of the spring term. Naturally precautions have been taken, and notices posted, warning the students against drinking city water unless boiled, and also, it is said, against eating uncooked vegetables. No doubt such precautions will prove efficacious, but the fact remains that a very great menace to health will exist for a considerable time, with so widespread an epidemic as this appears to be.

We have no reason to suppose that the New Haven Board of Health has been in any way deficient in its duty, nor have we any authoritative knowledge as to where the blame lies. But that some carelessness has existed somewhere, which might have been averted is self-evident, and it is at least to be hoped and expected, that a similar accident will not soon happen again. Each unfortunate experience of this sort brings with it the consolation, small though it may be, that the knowledge gained may be put to practical use by an increasingly rigid prophylaxis in the future.

THE PROPOSED BACK BAY WATER PARK AND THE HEALTH OF BOSTON.

MALARIA, like various other diseases the fear of which has been proportionate to our ignorance of their cause, is likely to be regarded with much greater equanimity in the future than it has been in the past. Owing to the investigations of the last few years, we are now in a position to say with almost complete assurance under what conditions it will appear. The proposition to improve the Charles River basin by constructing a collapsible dam has met with a certain opposition from various sources, and among others from a few persons who have regarded such a collection of water, uninfluenced by the tides, as a menace to the health of the city, and particu-

larly of the Back Bay region, owing to the probability of the introduction of malaria. However much weight this argument may have had several years ago, it has completely lost its force since the discovery that malaria depends for its dissemination upon the presence and activity of a certain species of mosquito. In the recently promulgated pamphlet sent to various citizens of Boston advocating the consideration of a water park, was an appended statement by Dr. Richard C. Cabot, in which, no doubt after a mature consideration of the question, he states his belief that the malarial mosquito cannot breed in such a basin as the one proposed would be, and that, therefore, malaria will not be introduced by the suggested improvement. If this be the fact, and there can be no doubt that it is a matter which, with our present knowledge, an expert may definitely decide, the case against the water park falls so far as the question of public health is concerned. Other arguments against the proposition there may be; they do not concern us here, but of this we may be practically certain, that the danger from malaria, about which so much has been said, does not exist.

This is unquestionably a most important point to establish. Were the other alternative likely or possible, we can easily see in it an argument of much weight against the suggested improvement. As the matter now stands, however, the unavailability of the park must rest on totally different grounds than those of public health.

MEDICAL NOTES.

THE ST. PAUL MEETING OF THE AMERICAN MEDICAL ASSOCIATION AND YELLOWSTONE PARK. — Arrangements have been completed for an excursion of the members of the American Medical Association to Yellowstone Park at the coming meeting. The committee of arrangements has succeeded in having the park opened a week earlier than usual in order to accommodate the Association. A special train will be run from St. Paul to the Yellowstone Park. Further announcements will be made later.

LEPROSY ON TENERIFFE ISLAND. — The existence of about 200 lepers on the island of Teneriffe, Canary Islands, has been officially reported at Washington by the United States Consul. At Santa Cruz de Teneriffe, the capital, there are 22 lepers, 15 of whom are men, and there are also some children. There are in addition living at the same place about 200 people. Officially it is not recognized that leprosy exists on these islands.

OFFICERS OF PENNSYLVANIA SOCIETY FOR THE PREVENTION OF TUBERCULOSIS. — At the annual

meeting of the Pennsylvania Society for the Prevention of Tuberculosis held on April 10, 1901, at the Academy of Natural Sciences, Logan Square, Philadelphia, Dr. Guy Hinsdale was elected president, and Alex. Heron Davisson, secretary. Thirty-one thousand copies of the society's publications were issued in the past year.

INCREASED SESSION OF NEW ORLEANS POLYCLINIC. — The session of the New Orleans Polyclinic will be continued until May 31st instead of May 11th as previously announced.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, April 17, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 48, scarlatina 17, measles 85, typhoid fever 9.

BOSTON MORTALITY STATISTICS. — The number of deaths reported to the Board of Health for the week ending April 13th was 234, as against 269 the corresponding week last year, showing a decrease of 35 deaths, and making the death rate for the week 21.7. The deaths from consumption were 33, pneumonia 38, whooping cough 1, heart disease 25, bronchitis 9, marasmus 2. There were 13 deaths from violent causes. The number of children who died under one year was 36; under five years 57. Persons more than sixty years 52; deaths in public institutions 63.

BOARD OF HEALTH POLICE. — Two policemen have been assigned to assist the Board of Health in maintaining cleanliness and in taking care of persons attacked by contagious diseases. The Board of Health has always obtained such assistance as it needed from the Police Department, by making a request for it each time. The present arrangement will do away with this formality.

MEETING OF CARNEY HOSPITAL ALUMNI. — The thirteenth annual dinner of the Carney Hospital Alumni Association was held April 11th in Boston. Dr. M. E. Keen, of Manchester, N. H., presided, and the following officers were elected for the ensuing year: John M. Hastings, M.D., president; J. Shepard May, M.D., vice-president; E. P. Hatch, M.D., secretary and treasurer.

A CENTENARIAN. — Michael Foley, said to have been the oldest man in Connecticut, has recently died in Versailles at the reputed age of one hundred and one. Up to a few weeks ago he is said to have been able to do farm work.

TYPHOID FEVER IN NEW HAVEN, CONN. — Up to April 15th, the total number of reported cases of typhoid fever in New Haven was 350.

NEW YORK.

RESPONSIBILITY FOR ELEVATOR ACCIDENTS.—Another decision recently given by the Court of Appeals, in which it differs from and overrules the Appellate Division, is one in reference to the extent of the responsibility of owners of office buildings for elevator accidents. About a year ago the Appellate Division unanimously affirmed judgment given in favor of the administratrix of a tenant in an office building who had brought suit for damages for the death of her husband by an accident of this character. The trial judge charged the jury that the owner was bound to use the utmost care as to any defect which might be liable to occasion great danger or loss of life, and he was in that respect subject to the same rule that applied to a railroad company in regard to its roadbed, engines and similar equipment. The Court of Appeals, on appeal, now holds that the owner of the building, in maintaining and operating a passenger elevator, is bound to use a degree of care which is reasonable in view of the dangerous character of the service. He is not, however, bound to exercise the utmost human care and foresight to guard against danger. The latter rule, which is applicable to railroads, where, for a consideration, there is a contract to carry safely, does not apply to the management of an elevator in an office building. The prevailing opinion, which was by Judge Cullen, was concurred in by Judges Vann, Werner and Gray; Judges Bartlett and Martin dissented. "In these days of lofty buildings," Judge Bartlett said, "and the annual transportation of millions of passengers in elevators by interested owners, who could not otherwise rent their property, public policy requires them to exercise the same degree of care as is imposed on common carriers."

DECISION REGARDING NEGLIGENCE OF RAILROADS.—A decision has been rendered by the Court of Appeals, reversing unanimous decisions of the Appellate Division of the Supreme Court, which settles some mooted questions in reference to contributory negligence in the case of persons injured or killed while attempting to cross railroad tracks in cities. The details of the case on trial are somewhat complicated. Judge Vann, who gives the unanimous opinion, holds that a railroad company which runs a locomotive rapidly in the night upon a public street in a populous city, crossing other streets at grade, with no gate or flagman to protect the public, and without taking any precaution to warn by bell, whistle, or otherwise, except by means of its headlight, may properly be found guilty of neglecting its duty to operate its cars with the care and caution required by the circumstances.

MORTALITY STATISTICS IN MARCH.—The general mortality in March represented an annual death rate of 21.39, against 25.56 in February. In March of last year, the death rate was much higher; the figure then being 25.56. In March of the present year, as compared with February, the weekly average of deaths from diphtheria and croup increased from 40.75 to 52; from scarlet fever, from 27 to 34.75; from pneumonia, from 158.5 to 201; from phthisis, from 173.5 to 179.75; from bronchitis, from 41.5 to 49.5; from cancer, from 44.25 to 48.5, and from diseases of the urinary system, from 123.75 to 129.25. On the other hand, the weekly average of deaths from influenza decreased from 51.75 to 27; while the mortality from measles, whooping cough and typhoid fever (very low in all these affections) continued about the same.

SUIT AGAINST A HOSPITAL PHYSICIAN.—A suit is now in the courts which is of much interest to the profession. Peter Ryan, a former charity patient in the City Hospital on Blackwell's Island, has brought an action for \$25,000 against Dr. Edward Sprague Peck, one of the most eminent ophthalmologists in New York and a surgeon to the hospital, for the loss of his sight through an operation for cataract. The city, while not made a party to the suit, is defending the action on the ground that Dr. Peck was in its service and received no compensation. It is claimed by the defence that the loss of sight was due to the patient's own carelessness.

A GIFT TO THE LOOMIS SANITARIUM.—J. Pierpont Morgan has purchased, for \$40,000, the plant of the Liberty Electric Light and Power Company, which furnishes the electric light for the village of Liberty, Sullivan County, and presented it to the Loomis Sanitarium for Consumptives, situated at that place. The gift is regarded of much importance to the sanitarium, as it will not only greatly reduce its expenses for lighting, but also provide it with a permanent source of considerable income. The administration building, costing \$80,000, was a previous gift of Mr. Morgan, who is one of the incorporators and trustees of the institution.

INFLUENCE OF SMALLPOX ON INFLUENZA.—Dr. F. C. Gram, Registrar of the Buffalo Health Department, announces as the result of recent observations, that smallpox exerts an influence on influenza apparently not hitherto noticed. The health authorities have just concluded a general vaccination, the work being done at a time when the city was suffering from a very severe epidemic of influenza. The reports show that simultaneously with the appearance of manifestations of vaccinia in influenza patients the symptoms of the latter disease disappeared.

A NEW CHRISTIAN SCIENCE CHURCH AND ACCESSORIES.—The Christian Scientists who recently dedicated an expensive new building on Central Park, West (the first "church" of the sect to be erected in the city), are not lacking in an eye to business. Among its appointments are a considerable number of consultation rooms, with private entrances from the street, which are to be rented out to "practitioners" for office work. The first and second "readers," Mrs. Lathrop and her son, are said to be given their offices rent free.

SMALLPOX IN NEW YORK.—Smallpox is not decreasing in New York. In November 35 cases were reported; in December, 68; in January, 78; in February, 142 and in March, 194. In January the average number of cases per day was less than three; in February it was four; in March, six, and in the first eleven days of April, seven. While, however, there were more cases in March than in February, the weekly average of deaths from the disease was exactly the same, namely, eight.

AMENDMENT OF PUBLIC HEALTH LAW REGARDING DENTAL SOCIETIES.—Governor Odell has signed a bill amending the public health law relative to the incorporation of dental societies permitting men who studied under private preceptors to take the state examinations in dentistry, provided their certificate of study was filed prior to July, 1895, and requiring dental students to pursue a three years' course in a registered dental school.

RE-ELECTION OF DR. ENOCH V. STODDARD.—At the meeting of the State Board of Charities held at Albany on April 10th, Dr. Enoch V. Stoddard, of Rochester, was unanimously re-elected vice-president for the eighth consecutive time.

A SUMMER HOME FOR NURSES.—The property known as the Grace Church Fresh Air Home, at Far Rockaway, has been purchased by the wife of Dr. Walter B. James for a summer home for trained nurses.

SMALLPOX IN ALBANY.—A serious outbreak of smallpox is reported at the Lathrop Memorial Home, Albany, a charitable institution situated in a populous residence district of the city.

BILLS OF ROOSEVELT TENEMENT HOUSE COMMISSION.

AFTER a public hearing on the measures, on April 10th, Governor Odell, on April 12th, signed the four bills, recently passed by the Legislature, which were framed by the Roosevelt Tenement House Commission. In doing so he filed with the bill providing for the manner of the construction of tenement houses a memorandum recommending some supplemental legislation. The principal reforms that the new laws will bring about will be

in brief, as stated by Mr. De Forest, Chairman of the Commission, more air and light, the doing away with dark interior rooms and cellar rooms, proper sanitary appliances for every family, proper protection against fire, and a proper enforcement of the laws regarding tenement houses. This will be accomplished by the new Tenement House Department provided for by one of the bills. The head of this, who is to be called the Tenement House Commissioner, will be held personally responsible for any violations of the laws. He is to be appointed by the mayor and to receive an annual salary of \$7,500. He will have power to appoint and remove at will one or more Deputy Commissioners, at an annual salary not to exceed \$5,000, and will also have power to appoint all the employees in the department and to fix their salaries. In the department will be included a building bureau, an inspection bureau, and a bureau of records, and the Commissioner will have power to form other bureaus, if deemed advisable. The provisions against using apartments in tenement houses for immoral purposes are very severe.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, APRIL 6, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and croup.
New York . .	3,437,202	1,386	419	23.32	16.38	3.18	2.88	3.46
Chicago . .	1,608,575	—	—	—	—	—	—	—
Philadelphia .	1,250,687	—	—	—	—	—	—	—
St. Louis . .	575,238	—	—	—	—	—	—	—
Baltimore . .	508,957	177	48	21.47	18.64	—	1.80	1.80
Cleveland . .	381,768	—	—	—	—	—	—	—
Buffalo . .	352,387	—	—	—	—	—	—	—
Cincinnati . .	325,902	—	—	—	—	—	—	—
Pittsburg . .	321,616	113	41	18.59	21.24	—	1.77	2.65
Washington .	278,718	—	—	—	—	—	—	—
Milwaukee . .	285,315	—	—	—	—	—	—	—
Providence . .	175,597	53	7	26.46	18.90	—	—	5.67
Boston . .	560,892	211	52	20.54	18.00	4.26	1.90	1.90
Worcester . .	118,421	—	—	—	—	—	—	—
Fall River . .	104,863	—	—	—	—	—	—	—
Lowell . .	94,969	47	18	12.78	29.82	—	2.13	2.13
Cambridge . .	91,886	26	7	11.54	34.65	—	—	3.85
Lynn . .	68,513	18	2	16.65	16.65	—	—	5.56
Lawrence . .	62,659	15	6	19.48	19.36	—	—	—
New Bedford .	62,442	21	10	23.80	19.04	14.28	—	4.76
Springfield .	62,095	24	7	8.34	16.68	4.78	—	—
Somerville . .	61,643	12	—	16.66	50.00	—	8.33	—
Holyoke . .	45,712	12	—	41.65	8.33	—	—	16.66
Brockton . .	40,063	9	1	33.33	44.45	11.10	—	—
Haverhill . .	37,175	12	4	25.00	25.00	—	—	8.33
Salem . .	35,356	15	4	13.33	13.33	—	—	—
Chelsea . .	34,672	11	1	9.09	—	—	—	—
Malden . .	33,664	6	—	16.67	—	—	—	16.67
Newton . .	33,587	9	2	33.33	22.22	—	11.10	—
Pitchburg . .	31,531	7	5	14.30	—	—	14.30	—
Taunton . .	31,036	—	—	—	—	—	—	—
Gloucester . .	26,121	—	—	—	—	—	—	—
Everett . .	24,336	10	3	10.00	20.00	—	—	10.00
North Adams .	24,200	10	4	20.00	10.00	—	—	—
Quincy . .	23,899	8	3	25.00	12.50	—	—	—
Waltham . .	23,481	3	1	—	33.33	—	—	—
Pittsfield . .	21,766	—	9	—	—	—	—	—
Brookline . .	19,935	—	—	—	—	—	—	—
Chicago . .	19,167	9	5	22.22	11.10	—	—	—
Medford . .	18,244	5	3	60.00	—	40.00	—	20.00
Newburyport .	14,478	3	—	—	—	—	—	—
Melrose . .	12,962	—	—	—	—	—	—	—

Deaths reported 2,263; under five years of age 677; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 514, acute lung diseases 403, consumption 248, diphtheria and croup 72, diarrheal diseases 53, scarlet fever 61, influenza 7, ty-

phoid fever 22, whooping cough 10, measles 8, cerebrospinal meningitis 5, smallpox, 8.


From whooping cough, New York, 3, Pittsburg, 3, Boston, Lowell, Quincy and Chicopee, 1 each. From cerebrospinal meningitis, New York, 3, Baltimore, 1, and Salem, 1. From scarlet fever, New York, 44, Boston, 9, New Bedford, 3, Medford, 2, Springfield, Brockton and Hyde Park, 1 each. From typhoid fever, New York, 11, Pittsburg, 3, Baltimore, 3, Lowell, Lawrence, Haverhill and Clinton, 1 each. From measles, New York, 6, Boston 2. From smallpox, New York, 8.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,089, for the week ending March 23d, the death rate was 18.4. Deaths reported, 4,162; acute diseases of the respiratory organs (London), 332, whooping cough 123, diphtheria 53, measles 93, fever, 23, diarrhoea, 39, scarlet fever, 27.

The death rate ranged from 10.7, in Halifax, to 23.6, in Liverpool; Birkenhead, 20.1, Birmingham, 19.3, Blackburn, 22.1, Bolton, 20.4, Bradford, 15.9, Brighton, 12.9, Bristol, 21.2, Burnley, 14.7, Cardiff, 14.4, Croydon, 15.5, Derby, 17.1, Gateshead, 21.4, Huddersfield, 22.7, Hull, 21.2, Leeds, 19.4, Leicester, 13.5, London, 17.8, Manchester, 23.4, Newcastle-on-Tyne, 18.4, Norwich, 18.8, Nottingham, 15.7, Oldham, 13.0, Plymouth, 17.1, Portsmouth, 25.7, Preston, 23.0, Salford, 20.8, Sheffield, 21.2, Sunderland, 18.9, Swansea, 21.9, West Ham, 11.4, Wolverhampton, 12.1.

METEOROLOGICAL RECORD.

For the week ending April 6th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Baro- meter	Ther- mometer.		Relative humidity		Direction of wind.		Velocity of Wind.		We'th'r *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S...31	29.53	37	44	30	57	64	60	N.W.	N.W.	23	17	F. O.
M...1	29.76	42	50	33	63	78	70	N.W.	N.	16	3	O. F. T.
T...2	30.10	40	43	38	96	92	94	N.E.	S.E.	9	9	R. O. T.
W...3	29.67	40	42	37	96	98	98	E.	E.	13	30	O. R. T.
Th...4	29.56	40	42	39	—	96	98	N.E.	N.E.	8	7	G. G. T.
F...5	29.74	42	45	38	96	92	94	N.	N.	8	5	O. O. T.
S...6	29.74	46	53	40	89	94	94	S. W.	E.	6	15	O. R. T.
	29.73	46	36	87								

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Obstetrics and Diseases of Women will meet in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, April 21, 1901, at 8 P.M.

Papers: Dr. F. B. Lund, "A Case of Melanotic Sarcoma Simulating Uterine Carcinoma"; Dr. C. G. Cumston, "Lesions of the Bladder During Abdominal and Vaginal Hysterectomy."

Discussion by Drs. Stevens, Ryder, Kingman, Garceau, Coggeshall, Twombly, Hare and Breck.

W. H. GRANT, Secretary.

ASSOCIATION OF AMERICAN MEDICAL COLLEGE.—The next regular meeting of this Association will be held at the Hotel Ryan, St. Paul, Minn., June 3, 1901.

RESIGNATION.

DR. AUGUSTUS P. CLARKE, dean and professor of gynecology at the College of Physicians and Surgeons since 1893, has resigned.

RECENT DEATHS.

DR. WILLIAM JAY YOUNG, for many years the editor of the *Popular Science Monthly*, died at his home in Mount Vernon, Westchester County, New York, on April 17th, at the age of sixty-two. His death was due to typhoid fever.

Dr. Young was born near Saratoga on October 14, 1838. He studied chemistry at Columbia College, New York, and at the Sheffield Scientific School of Yale, and was graduated from the Medical Department of the University of the City of New York in 1865. In 1872, in connection with his brother, Professor Edward Livingston Youngs, of Columbia, he established the *Popular Science Monthly*, published by the Appletons, and after his brother's death was its sole editor until a year ago, when the publishers became involved in financial difficulties. Two of his children are physicians.

BOOKS AND PAMPHLETS RECEIVED.

An Extraordinary Case of Aortic Aneurysm. By Carl Beck, M.D., of New York. Reprint. Illustrated. 1899.

A New Operation for Inguinal Hernia. By Carl Beck, M.D., of New York. Illustrated. Reprint. 1899.

On Suspending the Uterus on the Round Ligaments. By Carl Beck, M.D., New York. Illustrated. Reprint. 1900.

Clinical Study of Thyroid Extract. By William F. Drewry, M.D., and J. M. Henderson, M.D. Reprint. 1900.

Fatty Degeneration of the Heart. By Thomas E. Satterthwaite, M.D., of New York. Reprint. 1901.

Annual Report of the Board of Health of the City of Cambridge, Mass. Boston: J. A. Cummings Printing Co. 1900.

Forty-Fifth Annual Announcement. Portland School for Medical Instruction. Portland: Stephen Berry. 1901.

A Further Study of the Unit System of Laboratory Construction. By Charles S. Minot. Illustrated. Reprint. 1901.

A Text-Book of Gynecology. Edited by Charles A. L. Reed, A.M., M.D. Illustrated. New York: D. Appleton & Co. 1901.

Massage in Raynaud's Disease (Symmetrical Gangrene). By Douglas Graham, M.D., of Boston, Massachusetts. Reprint. 1901.

Some Remarks on the Present Status of the Physician in the United States. By Emil Amberg, M.D., Detroit, Michigan. Reprint. 1901.

The Practice of Medicine and Surgery in the Higher Altitudes. By R. Harvey Reed, M.D., Rock Springs, Wyoming. Reprint. 1901.

Fifteenth Report of the Lunacy Commission to his Excellency the Governor of Maryland. Baltimore: The Sun Book and Job Printing Office. 1901.

Laryngeal Phthisis or Consumption of the Throat. By Richard Lake, F.R.C.S. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Lectures on Nasal Obstruction. By A. Marmaduke Shield, M.B. (Camb.), F.R.C.S. (Engl.) Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

The State Laws of Wyoming in Reference to Contagious Diseases. By R. Harvey Reed, M.D., University of Pennsylvania, Rock Springs, Wyoming. Reprint. 1900.

A Case of Transposed Viscera, with Cholelithiasis, Relieved by a Left-Sided Cholecystectomy. By Carl Beck, M.D., New York. Illustrated. Reprint. 1899.

Medical Legislation: Its Relations to the Laity and the Medical Profession. By R. Harvey Reed, M.D., University of Pennsylvania, Rock Springs, Wyoming. Reprint. 1900.

Memoranda on Poisons. By Thomas Hawkes Tanner, M.D., F.L.S. Eighth revised edition. By Henry Lefman, A.M., M.D. Philadelphia: P. Blakiston's Son & Co. 1901.

The Roentgen Rays in Spina Bifida. By Carl Beck, M.D., Professor of Surgery in the New York School of Clinical Medicine: Surgeon to St. Mark's Hospital, etc. Reprint. 1898.

The Radical Treatment of Caruncle. By Carl Beck, M.D., Professor of Surgery New York School of Clinical Medicine: Surgeon to St. Mark's Hospital, etc. Reprint. 1898.

Contribution to the Surgery of Multilocular Renal Cyst. By Carl Beck, M.D., of New York, Visiting Surgeon to St. Mark's Hospital and to the German Poliklinik. Reprint. Illustrated. 1901.

Twenty-Fifth Annual Report of the Managers and Officers of the New Jersey State Hospital at Morris Plains for the Year Ending October 31, 1900. Illustrated. Trenton: MacCrellish & Quigley, State Printers. 1900.

Original Articles.

REMARKS ON ANESTHESIA—GENERAL.
LOCAL AND SPINAL.¹

BY MAURICE H. RICHARDSON, M.D., BOSTON.

THE introduction of spinal cocainization excites renewed interest in the general subject of anesthesia. Every surgeon of experience deplors the occasional accidents and disadvantages of general anesthesia, and would welcome any method which, while avoiding them, adds no other and perhaps greater risks. In attending the great clinics of this country I have been impressed by the care and anxiety of the surgeon in regard to the anesthesia of his patient. This extreme solicitude has been expressed perhaps more by those of wide than by those of limited experience. The reason is not far to seek. Few men can hope to spend many years without meeting some of the accidents of anesthesia. Immunity from them for a few months or years, perhaps for many years, may beguile a false security and encourage careless methods. In most hospital clinics the anesthetic is given by the youngest interne, and his administration of it, supervised habitually and almost unconsciously by the surgeon himself, is ordinarily safe enough. When emergencies of operation arise, however, when every faculty of the surgeon is devoted to the operation itself, when, perhaps, the patient's condition is alarming, when therefore, special care and experience in anesthesia are demanded, and when, more than ever, the surgeon should see that great caution is used;—at that time of all others the etherizer may be left to himself.

I recall an emergency of the most formidable nature which suddenly arose during an operation for hernia in a man of sixty. Something aroused my suspicions, and I repeatedly asked the etherizer if all was well. He said "Yes" every time. I finally left the operation to see for myself. The patient survived only by the merest chance after tracheotomy and prolonged efforts at clearing the trachea below the tube. Respiration was seriously impeded in the throat; then completely obstructed there; no effort of mine could give access of air to the lungs. Tracheotomy gave only temporary relief: the trouble was lower down. Finally, with great difficulty, he was brought to life, and the operation was completed.

In private practice, especially in these abdominal emergencies in which great caution is necessary, the anesthetic may be given by a nurse, by a member of the family, or by a physician who perhaps has had little experience and who does not wish to take the responsibility of it, but is obliged to do so. Doubtless under these circumstances the patient is really safer under anesthesia than when an over-confident physician gives it, for the surgeon always keeps one eye on his patient and one on his operation. Indeed, so deeply is the surgeon impressed by the responsibilities of the anesthetic, that he can hardly hope ever to yield even

to a professional anesthetist that full confidence which will enable him to devote his whole attention to the operation. It is but natural that he should feel so, for upon him, and him alone, will fall the responsibility of death from the anesthetic.

It is not my intention to go into the dangers of etherization,—for by general anesthesia I mean etherization. Suffice it to say that I have never had or seen a death from ether itself—a death, for example, under anesthesia for a trivial operation. I recall one death on the table during operation, the case of a very stout woman, with general peritonitis resulting from rupture of the uterus. The patient strangled in her own vomit, in spite of the surgeon's efforts to clear the trachea. Another patient, years ago, a young girl with empyema, died suddenly just as the anesthesia was complete. The whole left pleural cavity was filled with pus, the left lung being compressed into a small mass no larger than the hand. I was to assist in this operation. A patient of my own, seriously injured by an explosion of dynamite, died soon after the repair of a lacerated hand. The medical examiner made a careful examination, and reported the death to be owing to other causes than the anesthetic.

These deaths—the two coincident with the administration of ether, and the third from strangulation in a patient too feeble to swallow or to clear her throat—are the only ones which I have seen or had in a very large number of etherizations. They were all cases of serious disease or extensive injury, and death could not be fairly attributed to simple anesthesia.

There have, perhaps, been deaths due indirectly to ether, but their number is extremely small. Those owing to suppression of urine and to inhalation pneumonia are the only ones in which ether may have been an important factor. It is not clear that ether alone was responsible for them. In genito-urinary cases, particularly, suppression of urine may occur, and does occur, as the direct result of the operation itself, especially in cases of ascending infection. When a patient dies with suppression of urine after a double ovariectomy and a combined vaginal and abdominal hysterectomy, or after a cholecystotomy, or after a nephrectomy, it is an unwarrantable assumption that death was owing to the ether and not to the operation. Such an assumption is to accept the lesser, not the greater constitutional disturbance, and is against common sense. A death from pneumonia after ether is always attributed to the anesthetic, though the vast majority of pneumonias occur spontaneously. It seems absurd to say that a pneumonia developing three weeks after operation is owing to the anesthetic. Only pneumonia or bronchitis beginning directly after recovery from the anesthetic may fairly be said to be owing to that anesthetic.

The dangers of etherization are, in my opinion, trivial. I believe that the subcutaneous use of cocaine, especially in extensive dissections, will be found to be much more hazardous. The safety of

¹ Read before the Obstetrical Society of Boston, December 18, 1900.

ether depends upon the individual. If he is carefully studied the chief dangers will be avoided, for contra-indications to the use of ether will have been discovered. Healthy subjects, well prepared, are not injured by etherization in a large enough ratio of cases to justify discussion. Most experienced surgeons probably can say with truth that they never have lost a patient after operation under complete anesthesia for hemorrhoids, urethral stricture, castration, ventral fixation, simple ovariectomy, appendicitis in the interval, minor amputations, amputations of the breast, dissections of the axilla, dissections of the neck, removal of fatty and other benign tumors, examinations for diagnosis, and the like. If surgeons have lost a case here and there, it has been from causes other than the anesthetic.

I was taught by Dr. Bigelow the principles of etherization, and I have always followed them. Chief among these principles was the importance of careful administration and of attention to the warnings of danger. I have come to regard etherization, carefully carried out by one who understands it, as without danger to healthy individuals. Accidents come from disregard of danger signals, and from overetherization—not from the intrinsic dangers of the drug carefully given. I have been annoyed to see the overconfidence, the carelessness and the ignorance with which ether is generally given—on the ground that it is perfectly safe. It is not safe when no care is deemed necessary; it is as safe as anything can be in surgery when carefully and intelligently administered to healthy subjects. It has dangers inseparable from its use in certain conditions of habit, physique, disease and idiosyncrasy.

General anesthesia is undesirable under certain conditions; it is strongly contra-indicated under some. Under some its undesirability is simply a matter of dread on the part of the patient.

Local anesthesia may be desirable or imperative, according to the circumstances. When nothing in the patient's condition forbids general anesthesia, that method is preferable for major operations. For minor operations, the local injection of cocaine, or other local anesthetic, is perfectly satisfactory. Spinal anesthesia, or local anesthesia by subcutaneous injections over considerable areas, may be considered in patients who are willing to take the possible risk because of their abnormal dread of a general anesthetic. Few patients, however, would be willing to run an unknown and serious risk owing to dread of a known and safe method, were the facts of the case fairly presented to them. They can hardly be advised to submit to spinal cocaineization by those who look upon that means as of doubtful safety—to say the least. If willing, in spite of possible dangers, to risk spinal cocaineization for an imperative operation, they would seem to have a right to try it.

The only justification for the use of extensive local and of spinal anesthesia lies in diminished risk to the patient. There are enough conditions in which the risks of general anesthesia are great, to provide a wide field for anesthesia. The

most important are the abdominal diseases or conditions which endanger the patient's life by regurgitations into the throat during profound anesthesia. This danger is a real one, and is present whenever the patient is unable to swallow or to clear his throat. I have seen many patients die in the natural course of the disease from sudden flooding of throat and air passages in advanced general peritonitis with great distention and full stomach, when they were too feeble to clear either the throat or the air passages. Such a termination of general peritonitis or of intestinal obstruction is not uncommon. To subject a feeble patient to complete unconsciousness when his stomach and upper intestines are distended with thin fluid contents, is to invite disaster. Even when he is in good strength, the dangers at this time are great. No operation can cause greater anxiety than that undertaken for general peritonitis and for intestinal obstructions generally. When it is remembered that a large proportion of acute abdominal cases are attended by distention, the importance of this point is evident. Even if the patient survives the operation, there is always danger of an inhalation pneumonia or of a bronchitis. Indeed, it is safe to say that most post-operative pneumonias are owing to regurgitation of stomach contents and contamination of the air passages.

A similar danger is always present when emergency operations are performed upon patients with full stomachs. Many of the hospital cases are of this class. Railroad accidents, gunshot wounds, stabs, and the like, may demand operation soon after a full meal. Many of the sudden deaths during operations are owing to the inhalation of masses of undigested food, large enough to plug completely the pharynx or the trachea. Several accidents of this kind have occurred in this community, and doubtless may have occurred without the truth being known. In some instances a patient, previously warned not to eat anything for at least six hours before operation, has been known to take food without the knowledge of either his family, nurse or surgeon. Such extreme care is necessary in general anesthesia under these circumstances that the employment of local or spinal would seem justifiable.

When the heart, lungs, or kidneys, are seriously diseased, the selection of an anesthetic may present great difficulties. Heart disease, for instance, is usually regarded—among the laity at least—as a contra-indication to general anesthesia. My own experience is quite the opposite. I have operated for strangulated hernia, for example, in a case of acute puerperal endocarditis in which the patient's pulse was 210. The operation was of course brief, but the convalescence was satisfactory. I have yet to see the least sign of danger in the complete anesthesia of patients with cardiac disease.

The chief anxieties, in etherization at least, have come from disease of the lungs. I once assisted, or was about to assist, at an operation for empyema, when the patient, nearly etherized, sud-

denly died. How much the ether had to do with this unfortunate end cannot be told. It was undoubtedly the exciting cause in this case. Yet it would be absurd to say that death would have resulted had both lungs been normal. Since this experience I have always used especial care in etherizing patients with empyema. In a few cases I have used chloroform instead of ether, though I am entirely unconvinced that chloroform has any advantages over ether. In several desperate cases I have injected cocaine into the intercostal spaces above and below a rib before resecting and draining. Some of the patients have been in the most serious condition, with the pulse ranging between 180 and 200, and the operation has been accomplished in less than two minutes. Even in these desperate cases, the anesthesia, whether general or local, has been well borne.

The chief anxiety in etherizations generally has always been from changes in the respiration. I am inclined to think that this anxiety is seldom justified by the facts—at least seldom justified by any unfavorable results. Doubtless the very fact that abnormal respiration is feared, and that when its slightest symptoms are observed the ether is taken off, explains the favorable issue. With increased experience, irregularities and abnormalities of respiration in one's practice become less and less frequent; they occur in the hands of the fresh interne and inexperienced etherizer. Twice during a recent service I was obliged to leave the operation and to resort to artificial respiration. Both patients were strong and healthy males, one of early youth and one of middle age. The operations were in themselves slight—one a circumcision, the other a sinus curettage. Regular respiration ceased in both until the patient became cyanotic. How long they would have gone without drawing a breath themselves cannot be said. The aspect was too alarming to allow one to satisfy his curiosity on that point, for the patients made not the least effort to breathe. Their faces were darkly cyanotic and the pupils widely dilated. The air passages were perfectly free. There was simply failure on the part of the respiratory centres to respond to the evident call for oxygen. The hearts were pumping vigorously. Under artificial respiration continued for a minute or two the patients began to breathe naturally. I am convinced that patients under such circumstances will themselves resume respiration, though I have never dared to put the question to the proof. This form of unnatural respiration is not infrequent in the early stages of anesthesia, when it is a symptom of little moment. Failure to breathe is the result of the enforced respiration so often ordered by the etherizer. In response to frequent commands of "Take a long, deep breath," the patient's blood gets overoxygenated, and he can go a long time without breathing. The etherizer need feel no anxiety from this form of abnormal respiration. By taking quickly say forty to sixty deep inspirations, the diver can stay under water for some time. I have, for instance, remained under water without discomfort for two minutes and ten seconds after

thus overaerating the blood. This would seem to the surgeon an interminable period, if his patient should make no effort to breathe.

When the patient fails to breathe during complete anesthesia it is a different matter, and artificial respiration must be practised. It is fortunate—and in this fact lies the great safety of ether—that the patient, with healthy lungs at least, always responds to artificial respiration.

The dangers of regurgitation from a full stomach in intestinal obstruction and in general peritonitis, or in both diseases combined, cannot be met by washing out the stomach beforehand, because regurgitation from the upper intestine refills the stomach by the time etherization is complete. I regard this danger as excessive, and as a full justification for local anesthesia or spinal injections. Whatever the dangers of the latter method, they do not seem likely to be as great as the danger of complete unconsciousness.

Local anesthesia in advanced general peritonitis and obstruction—distention has worked well in the few cases in which I have tried it. I have, for instance, drained a general peritonitis through a median incision made under cocaine, and have continued the irrigation for hours afterwards. I have removed the appendix under the same anesthesia in an apparently hopeless general peritonitis. The patient, indeed, instead of dying in a few hours, as he would have done, perhaps, had ether been used, lived several days, and for many hours gave hope of eventual recovery. On the other hand, a girl, almost moribund with general peritonitis, supposed to be of appendicular origin, lived a month after drainage of the pancreas for an acute hemorrhagic pancreatitis. Her condition was so desperate that cocaine was proposed. Chloroform was used, however, and anesthesia was complete.

The dangers of profound anesthesia in these cases are hard to overestimate, and yet anesthesia profound enough to ensure against vomiting, seems safer than keeping the patient on the verge of unconsciousness, etherized too much for swallowing and clearing his trachea, but not enough to prevent vomiting. When a patient fills mouth, nose and throat with the thin black vomitus of general peritonitis, and when after swabbing out as thoroughly as possible, his respiration is wheezy, his color and pulse bad, he should be allowed to come out of the ether enough to swallow and to clear his throat, no matter at what stage the operation may be, for these symptoms mean impending death. Under such circumstances the dangers of spinal anesthesia, however uncertain they may be, are the immediate ones from the general absorption of cocaine and its local effects upon the spinal contents; and they are not to be compared in their possible grave effects, as far as is known, with those of profound general anesthesia.

Local anesthesia is to be preferred for all trivial operations in regions where it can be thoroughly applied. The dangers of subcutaneous injections seem slight, if care is exercised in the introduction of the anesthetic under the skin, and if a

dilute solution is used. I have followed this method in all minor surgery, and at all ages except infancy. I use a 1% solution under the skin, slowly injected through an area first anesthetized with ethyl chloride. I have yet to see the least unpleasant or alarming symptom. By trivial operations I mean the removal of small tumors, aspirations, amputations of fingers and toes, small plastics, and the like.

Local anesthesia for operations like appendectomy, the radical cure of hernia, excisions of elbow, amputations of arm or leg, seems to me far from advantageous as compared with ether. I have used local injections of 1% solutions of cocaine, in the radical cure of hernia, and in acute appendicitis (the case already mentioned). The dissection proceeded painlessly until the peritoneum was reached. In the hernia the outcry was so great when the sac was reached that I was obliged to use ether. In the appendectomy, manipulations of the appendix and the meso-appendix caused excessive pain. I completed the operation, nevertheless, without general anesthesia. Wide experience in extensive subcutaneous local anesthesia in the robust is necessary before it will seem as safe and satisfactory as general.

In very feeble patients the selection of method presents great difficulties. The effect of ether in some is beneficial, the pulse increasing in strength and diminishing in rate. As a rule simple weakness does not contra-indicate general anesthesia. It is rather in the stout, flabby patient, past middle life, that one meets with the accidents of general anesthesia—accidents during its administration and postoperative. Even upon such unfavorable subjects profound anesthesia in itself so rarely produces evil effects that the dangers, definite though they may be, are unlikely to be lessened by methods whose dangers are as yet unknown.

In acute febrile diseases, especially typhoid fever, pneumonia, pleurisy, pyemia and septicemia, malignant endocarditis, purulent pericarditis, and the like, it seems a question whether the dangers of general anesthesia will be avoided by local or by spinal cocaineization. The use of these doubtful methods in operations of emergency—as all operations in the course of acute diseases must be—seems ultraradical, if not, with our present knowledge, unjustifiable.

There is a class of cases in which these new methods find a reasonable application, and that includes the patients who from previous experience are known to behave badly under general anesthesia.

Another class inviting disaster under general anesthesia comprise operations upon deep cervical phlegmons, tumors close to and adherent to the trachea, inflammations and growths involving or pressing upon the recurrent laryngeal nerves. The largest number of emergencies that I have seen during general anesthesia have been of this class. It includes also imperative operations upon the trachea and larynx, such as tracheotomy for respirations obstructed by acute or chronic dis-

eases, by foreign bodies, and by the pressure of tumors.

The value of local anesthesia in these cases is great. I recall 3 cases of impending suffocation during etherization for deep cervical abscess. It was impossible to free the throat, and inspiration was absolutely shut off. The first case occurred in the service of the late Dr. Hodges, and was saved by tracheotomy. Two were in my own service at the Massachusetts General Hospital and were saved in the same way. The necks were brawny and infiltrated, the jaws could not be opened, respiration became more and more labored, and finally completely prevented. Guided by this experience, which was many years ago, I have never approached a similar case without extreme caution when a general anesthetic was to be used. Cocaine has always been used when possible.

In the removal of thyroid tumors the selection of an anesthetic is very important. Three desperate emergencies in this operation have come under my observation, though none were my own. The first two required tracheotomy through the tumor. In the third, a patient of Dr. C. B. Porter, cocaine was at first used, but etherization became necessary before the operation could be completed. The larynx became totally obstructed, and life was saved only by tracheotomy after a rapid and brilliant dissection through the tumor. The tumor, which was supposed to be malignant, proved benign, and the patient has been well ever since. In all operations for tumors involving larynx or trachea, or pressing upon these structures, for lesions involving the recurrent nerves, the greatest emergencies may very unexpectedly arise.

We are apt to forget, in making comparisons, that the dangers of general anesthesia have been demonstrated in almost countless cases. A danger which is regarded by many of us too great to justify the use of chloroform does not comprise, even in the most unfavorable statistics, more than 1 death in 500 cases; in ether, a much smaller ratio. Who can believe that spinal cocaineization will present as small an immediate danger as the general anesthesia of chloroform, a danger which is to me, for instance, so great as to be prohibitory. Were I to feel that one patient a year would die under the anesthetic alone, perhaps from a trivial operation or from one of convenience rather than of necessity—for a lacerated cervix, for example, or for lipoma of the back, or even for a thorough examination—the burdens and responsibilities of surgery would be beyond endurance. No operation requiring general anesthesia would be approached with equanimity; every moment of the anesthesia would be one of torturing anxiety. When ether is carefully given there is no distressing anxiety as to the outcome; I feel that the patient is as safe as he can be. A feeling of confidence is shaken only when the anesthetic is in the hands of the careless and overconfident, or the patient is in such desperate conditions as I have described.

I cannot believe that either spinal or local cocaineization, after fifty years of use as extensive and varied as that of ether, or even of chloroform, has been, will show a safety to be compared with them.

EXPERIENCE IN SEARCH OF A CURE FOR ASTHMA IN THE FAR SOUTHWEST; WITH OBSERVATIONS OF THE COMPARATIVE VALUE OF DIFFERENT SECTIONS IN RESPIRATORY DISEASES.¹

BY ROBERT BELL, M.D., BOSTON.

BRONCHIAL asthma is a disease with which we are very familiar, as every practitioner has had to wrestle with it in its victims. I will, for the better bringing the subject before us, briefly describe the conditions found in the disease and in a typical paroxysm.

By far the greater number of authorities classify bronchial asthma as a neurosis. In almost every case three conditions are constant: (1) A diseased condition of the respiratory tract; (2) an external irritant, as odors, dust, pollen or some subtle atmospheric condition; (3) a chronic neurotic condition. The most important of these is the third, for often after correcting or removing the first and second, the third remains to prevent the cure of the disease.

The typical spasmodic attacks of the disease usually follow an attack of ordinary bronchitis, though this is not always the case, as an attack may be caused, by the inhalation of some irritant, or by some gastro-intestinal disturbances. If there is but one attack in the twenty-four hours, it is usually between 12 and 4 A.M. Trousseau, who was a sufferer from the disease, said that he heard the clock strike three in the morning for many years. When the paroxysm comes on, the patient is waked out of a sleep suddenly, urgently pressed for breath. He sits up, throws the body forward, struggles for breath or coughs spasmodically for the purpose of clearing the respiratory tract of mucus. At first the tract is congested and dry, and expectoration is difficult. After continued efforts expectoration becomes more copious and breathing more free. In some cases of bronchial asthma cough is not a prominent symptom, though these cases are rare. Accompanying the cough, yellowish or grayish translucent masses are frequently expectorated. The writer has often untwisted these masses and found a spiral thread an inch or two in length. These spirals were investigated by Curschmann and found to consist of spiral filaments and swollen fatty degenerated pus cells and cells from the bronchioles. There are also found crystals called the crystals of Charcot and Leyden. These crystals are not pathognomonic, for they are found in other diseases. The sputum often contains crystals of calcic oxalate and of calcium phosphate. In my own case when the paroxysms are severe, the sputum becomes exceedingly salt to the taste, like sea-water, and is very

irritating to the nose and throat. The sputum is usually white, thick and viscid.

As to the means of relieving an attack of asthma you are all familiar. Most speedily and effectively by the hypodermic injection of $\frac{1}{8}$ grain of morphine sulphate, with $\frac{1}{16}$ grain of atropine sulphate. This remedy easily becomes dangerous if continued. The writer has found the $\frac{1}{12}$ to the $\frac{1}{8}$ grain of heroin hydrochlorate as effective and more so; and there is little or no disturbance after it, as it does not interfere with the secretions and is not depressing. Inhalation of the smoke of belladonna, stramonium and lobelia leaves and of the powder of potassium nitrate give speedy relief though not always lasting. Grindelia robusta, quebracho, euphorbia pilulifera, asafetida and nitroglycerine are used internally, but are all of doubtful utility. Between the paroxysms potassium iodide and arsenic may be used. In a few cases they act wonderfully, but in most cases are of no value.

Change of location, or of climate has been found the best means of combating the disease, yet even this means often fails. Those who know most of asthma know that every case is a law to itself and that it is a most capricious disease, and that even slight and unpromising changes may work a miracle.

Before trying the West the writer tried nearer resorts, as Western Massachusetts, New Hampshire, Nantucket and Bermuda. Though in some of these places benefit was received for a short time, there was no permanent good obtained. The writer next turned to the arid regions of the far Southwest.

Places of high altitude, of dry atmosphere and of abundant sunshine do the most to relieve asthma. We find in Colorado the above conditions. Denver or Colorado Springs may be taken as types of what may be found in Colorado; the writer spent seventeen months in these places. The average temperature for January is 27° F, for July 73°, and for the year 50°. The annual rainfall is 14.4 inches. The relative humidity 50%. We have in Boston an annual rainfall of 46 inches, with a mean annual temperature of 49° F. The temperature of Colorado you will see corresponds very nearly to that of Boston, yet the dryness, rarified air, and large percentage of sunshine make the climate essentially different.

While in Colorado, I tried to get some statistics, from resident physicians, as to the value of the climate for asthma. The information I obtained from Dr. Josiah N. Hall, member of the Colorado State Board of Health, will cover all that may be known. He says that 50% of those under forty years of age without emphysema or other complication get practically well. You will see that this limits the cures to a very small number, as few escape emphysema, who have had the disease for even a short time. Of those over forty years of age without any serious complication, or those under forty years, yet with some complication, $\frac{1}{4}$ to $\frac{3}{8}$ get some improvement.

The writer next spent seven months in South-

¹ Read before the Norfolk District Medical Society, February 26, 1901.

ern California. Most of the time was spent in Pasadena and at San Antonio Heights, the so-called asthmatic belt. Though a few of the lighter cases of asthma are relieved in Southern California, it cannot be recommended for it, as there are many places so much better. Southern California is not a dry climate as is generally supposed. Though the annual rainfall is only 15 inches, there are frequent dense fogs, which bring the relative humidity up to that of many places east of the Mississippi. These fogs are everywhere except in the mountains. I regret to say this of Southern California as it is one of the most delightful sections of our country. There is so much of interest to see, its fruits and flowers are abundant and varied; society is the best and one can enjoy all the facilities and improvements of modern civilized life. With reluctance I turned away from Southern California as it aggravated rather than relieved my trouble.

The writer next tried Arizona, spending seven months at Phoenix, the capital of the territory. The elevation of Phoenix is moderate, 1,100 feet; the atmosphere is exceedingly dry; the winters warm. The temperature in December and January, the coldest months, only touching the freezing point and that for an hour or two in the early morning for a few days. In these months the temperature rises at midday to about 60° F in the shade, so that with the added heat of the sun it is possible to sit out-of-doors nearly every day. There is less wind in Arizona than in any other part of the United States. This is due to the fact that it is walled around by mountains of about 10,000 feet on every side except the east, which side needs no protection. The absence of high winds in these arid regions is a great desideratum, as the fine alkaline dust is abundant and is very irritating and annoying if blown about. The annual rainfall is from 8 to 10 inches. The annual temperature 72° F. The relative humidity 36%, and during many days may not be more than 5% or 6%. The summers are very hot, yet on account of their dryness are not so hard to bear as the months of July and August in Boston. These data refer to the moderately elevated parts of the Territory. If the heat is found to be oppressive it is easy to go to Prescott about 100 miles from Phoenix, where we can find a climate like that of Colorado and an elevation of 5,300 feet. Asthma is much benefited in Arizona and a large per cent. of cures are made.

If your patience will bear with me, and at the risk of some repetition, I wish to make a few observations on the comparative value of these different regions for respiratory affections. I will speak first of chronic nasal and post-nasal catarrh and dismiss them with a few words. These diseases are as prevalent and aggravated in Colorado and Southern California as they are in the East. This is due to some subtle atmospheric condition. Nasal and post-nasal diseases are much benefited in New Mexico and Middle Arizona. Chronic bronchitis is generally benefited throughout all the arid belt. The most important of all respiratory

diseases is pulmonary tuberculosis, and of all treatment, climatic stands first in combating it. As we have a germ disease we must have conditions in a climate antagonistic to the growth of germ life, and conditions that fortify the resistance of the individual against auto-infection and against infection from the outside. The far Southwest meets these wants better than any part of our country. To antagonize germ life we need: (1) The greatest number of hours of sunshine possible; (2) dryness of atmosphere; (3) sun heat sufficient to promote sterilization, or constant cold to prevent germ growth; (4) a porous soil; (5) Freedom from dust and high winds. Colorado has all these conditions except the last. It also has a habitable elevation of from 5,000 to 10,000 feet, which is especially beneficial in early cases. It is possible to be out of doors most of the time, though the winters are often uncomfortably cold, and the winds in the spring especially high and dust storms frequent. The changes of temperature are often sudden and extreme. The cold of winter, the high winds and dust and the sudden changes of temperature are depressing to advanced cases of phthisis. Very nervous patients should avoid the high altitudes. Patients during the first months of their sojourn should rest a great deal. This is a hard thing to do, as the atmosphere is very exhilarating and stimulates to activity.

Dr. Carroll E. Edson, of Denver, very rightly insists on the value of rest, especially where there is fever and cough. Highly nervous patients often injure themselves by constant activity.

Southern California is frequently resorted to by the phthisical. Dr. Tyson, in the second edition of his valuable work on "The Practice of Medicine," writes, that Southern California has a dry, equable climate. This is a misconception, which is very general in the East. Considering the amount of rainfall, 15 inches, it would seem to be very dry, yet the dense fogs to which I have previously alluded, prevail over all Southern California, and can nowhere be escaped, except at an elevation above 2,000 feet. I would not condemn Southern California as a resort for the phthisical, as many of the earlier cases are benefited, yet I would not recommend it as there are many places so much better.

Arizona, in my judgment, stands first as a climate of value for all respiratory diseases. The physical reasons for this belief I have already noted in discussing the subject of asthma. From November, 1899, to May, 1900, during part of the writer's sojourn in Arizona, there were but three rain showers and these occurred at night.

If I were asked what place above all others I would choose for a patient with a chronic respiratory disease, I should say, Tucson, Arizona. It stands on a mesa of about 2,400 feet elevation. There is very little irrigation carried on near it. Its annual rainfall is from 8 to 10 inches. The mean average annual humidity 36%. It is singularly free from wind, dust and sudden changes of temperature because it is nearly surrounded by high mountains. It has a maximum of sunshine and is

a desirable place to live in, meeting all the requirements of civilized life.

New Mexico has several desirable places suitable for health resorts. These places correspond very nearly to those of Colorado.

A few practical points for physicians to bear in mind, in sending patients to the far southwest. Be careful to send them in the first stage of their disease. Second and third stage patients may have life prolonged, but rarely recover. They should spend the early months of their sojourn in resting and living as much as possible in the open air. If a patient is highly nervous select a place of moderate altitude. If a patient is liable to hemorrhage, also be careful of high altitudes. Do not send from home a patient who is too weak to endure the fatigue of the journey. Do not send those who will be a tax on the charity of the good people of the West. Western people are very benevolent, and are willing to help and sympathize with the unfortunate, but the East ought to contribute much financially to the support of the sick and needy, for there are many who are stranded there, without money and without friends, and who suffer many hardships which they might have avoided by staying at home. Impress upon every patient that he is to remain in the West for many months, after his cough has ceased, and until he has regained and held his weight, and under no consideration should he return to the East, till he has received the sanction of a competent and experienced physician. It would be well if every patient sent, could from the outset be placed in the care of some good resident physician and there are many there of the best in our country, while by their side flourishes as a green bay tree every kind of fakir and "path" known, East, West, North or South.

CHOREA DURING PREGNANCY.¹

BY F. S. NEWELL, M.D., BOSTON.

SYMPTOMATICALLY the chorea which occurs in pregnant women is identical with infantile chorea. The special conditions under which it develops, and the grave form it tends to assume in a large proportion of cases, give it a special significance, so that it deserves to be considered by itself as a definite complication of pregnancy, rather than as a modification of the more common chorea of adolescence.

Chorea in the adult, that is, in a patient who has never suffered from infantile chorea, develops usually during pregnancy—a period when the whole organism of the woman is subjected to marked alterations under the influence of the pregnant state. At this time, as at puberty, changes occur in the woman which involve all the important organic systems. The circulatory, digestive, and respiratory systems are all affected to a greater or less extent, and all the secretions are

more or less modified; the nervous system is perhaps the most profoundly altered. At any rate it may be said that the effects of the pregnant state are most evident in the nervous system, and that all the other organs are more or less influenced by the condition of the nervous system.

Chorea deserves a special place in the pathology of pregnancy. It is not an accidental complication due to the recurrence of a previous infantile chorea, but in the majority of cases appears for the first time during pregnancy, that is, it is to a great extent, produced by pregnancy. Pregnancy is not the only causative factor, but is the fundamental condition on which the other elements in the causation of chorea depend. In 1851, M. See described the various elements which go to cause chorea in pregnancy as follows: "In pregnancy there exists a condition of chlorosis and hydremia, from which arise vascular disturbances, neuralgias, neuroses, and the loss of nervous equilibrium which accompanies them. These are followed by hysteria and chorea, separately or together; one predominating in accordance with the antecedent history of the patient. Add to this nervous instability a marked predisposition to rheumatism, and the effect of pregnancy as the immediate exciting cause becomes evident, acting in the presence of the same predisposing causes which exist in the chorea of children."

Etiology and pathology.—From the standpoint of etiology all the factors which have been considered as predisposing to infantile chorea are to a great extent active in the chorea of pregnancy. The nervous system of the patient presents an impressionability either hereditary, or acquired from some previous affection. There seems to be little doubt at present that a tendency to chorea may be inherited. Huntington has shown conclusively in his genealogical tables that chorea exists in certain families for generations, and that in a considerable proportion of cases, the first manifestations of the disease become apparent during pregnancy. Lannois, Charcot and others, agree on the importance of heredity as an etiological factor in many cases. This predisposition is not, however, evident in every woman whose forbears have had chorea, as numerous examples prove that chorea may skip a generation, or die out, in a given family.

Another important factor in the etiology of the chorea of pregnancy is the existence of a previous chorea during childhood. A woman who has once suffered from chorea, whether mild or severe, is liable to a return of the disease during her first pregnancy. Barnes says "Pregnancy furnishes a proof of the cure of chorea." It is far from being true, however, that every woman who has chorea during pregnancy has had a previous attack during childhood. Of 96 cases which Charpentier records, only 20, or about 27%, gave a history of a previous chorea. Pinard, on the other hand, reports that of 8 women in his practice who developed chorea during pregnancy, 7 had had a previous attack. Chorea is most apt to manifest itself for

¹ Read before the Obstetrical Society of Boston, December 18, 1900.

the first time during the first pregnancy, but the rôle played in the etiology by the first pregnancy must not be exaggerated, for of 107 cases reported by Barnes and Bamberg, only 56 were primiparae. Young women are most apt to be affected, chorea seldom appearing for the first time after the age of thirty. When a woman has had chorea in one pregnancy it is apt to recur in subsequent pregnancies in a more and more serious form, although the reverse of this may occur. For the evidence on this point to be of marked value it would be important that the same observer should follow the patient in all her pregnancies, and in hospital practice, from which the bulk of the cases are reported, this is unusual.

It is a difficult matter to determine the influence of rheumatic fever, chlorosis, hysteria, and the infectious diseases and auto-intoxications in causing an attack of chorea. The etiological importance attached to these various elements varies according to the prevailing belief at the time at which the cases were reported and the weight of authority carried by the various observers. For a long time, from the observations of Roger, Sec, Jules Simon, and others, chorea among children has been believed to be closely connected with rheumatism. This applies only to a slight extent to the chorea of pregnancy, for the majority of patients who develop this disease give no history of a previous rheumatism. Charcot admits a certain doubt of the etiological importance of rheumatism when he says: "In my opinion there is not a rheumatic chorea in the strict interpretation of the phrase. In other words I do not believe that chorea can even be considered as the equivalent in the nervous system of the articular or visceral changes of rheumatism. It seems to me, however, that although the opinion I am opposing is the result of error, there is no doubt that chorea and articular rheumatism often exist together either in the same individual or the same family. The common coincidence or alternation of the two diseases is not enough, however, to show that they are identical or even closely related. It simply shows the existence of a certain affinity between them, the cause of which is unknown."

From the standpoint of the nervous system the analogy between the changes which occur in the system at puberty and during pregnancy may be cited to support the view of Jeffrey in regard to the etiology of Sydenham's chorea. He considers it a disease of evolution, affecting the cerebro-spinal system and allied closely to its development. The general opinion of authorities today, especially in England, is that the chorea of pregnancy is entirely of nervous origin. They consider it to be a neurosis, due to the stimulation of the utero-ovarian plexus. Barnes laid stress on the relation of the establishment of the menstrual function and the development of chorea, and Barton-Hurst reports a curious case of chorea in which the movements were increased at the time of the periods. Fontenan explains the physiology of the disease in this way. "In pregnant

women the excitation of the nervous system begins in the utero-ovarian plexus, and passes through the great sympathetic to the cord and brain, and thence to the muscles through the motor and sensory nerves. In these cases there arises a depression of the intellectual centres, which should inhibit the movements, due either to hyperstimulation, or, on the contrary, to a complex mechanism analogous to that described by Brown-Sequard."

Whatever physiological explanation may be invoked to give the key to the choreic movements, the fact remains that the whole organism is in a state of unstable equilibrium ready for the stimulus which causes the outbreak. This state of nervous instability is closely related to hysteria, and has caused at times more or less confusion between hysteria and chorea. The hysterical stigmata are, as a matter of fact, to be noted in a large proportion of the cases of chorea during pregnancy. If it is admitted, as has been claimed, that chorea is a manifestation of hysteria in pregnant women, it is possible to assert that infantile chorea is only infantile hysteria. Whether we place the cases of chorea with hysterical stigmata in a group by themselves, or class the cases under the head of hysteria with choreic movements, the fact remains that hysteria is a predisposing cause of chorea during pregnancy.

Previous infectious diseases probably have an etiological importance in chorea, in that they prepare the ground for its development. This theory has been thoroughly discussed by Triboulet. Although he eliminated from his study of chorea the cases occurring during pregnancy, his conclusions apply to them equally as to the infantile cases, and in investigating the previous history of the patients it is often possible to get a history of a previous infection which will give the clue to the etiology of the chorea. Furthermore, auto-intoxication is so frequent in pregnancy that it is unnecessary to invoke the aid of external infections to establish a satisfactory etiology for the chorea. Duchateau, in his classification of chorea, places the chorea of pregnancy under the heading of "chorea of auto-intoxication." When we remember the disturbances which arise in the functions of excretion and assimilation during pregnancy, and the rôle they play in eclampsia, there is some reason for considering chorea at this time as more or less closely analogous to eclampsia in its origin.

Pregnancy, alone, is no more to be considered as the direct cause of chorea than is active growth in children the cause of infantile chorea. In almost all well-marked cases of primary chorea during pregnancy, some more or less violent nervous shock is the apparent starting point of the trouble. Jaccoud reports a patient who was seized with violent choreic movements after a violent family quarrel. Mosler's case developed after a slight fall. Bamberg's case fell into the water. Hand's case fell from a ladder. Kemper's case waked at night to find the house on fire and was seized next day with violent choreic movements. Certainly, if it is true as has been said, that mental shocks "are the cause, whose active influence

can be pointed out in all the neuroses," it is impossible to deny their influence in the causation of chorea in pregnancy.

Symptoms.—The disease occurs most commonly in young women from eighteen to twenty-four years old. It is relatively common from twenty-four to thirty, but very rare after that age. It usually occurs in the first pregnancy but occasionally it occurs for the first time in later pregnancies. It may begin at any period of the pregnancy. In some cases its beginning coincides with conception, and it has been said to be one of the earliest signs of pregnancy. It most commonly develops during the first five months, although it occasionally does begin in the last four months of pregnancy, becoming the more rare the nearer to term. A few cases have been reported in which the choreic movements have first made their appearance after delivery.

In the majority of cases the movements come on gradually, becoming more violent as the time of delivery approaches. In certain cases, however, the onset is violent and the progress rapid, acquiring a considerable degree of intensity in a very short time. In other cases periods of remission and exacerbation alternate. The movements are usually bilateral, although at times only one side is involved. Hemichorea is very rare, however, although one side is usually affected before the other. The intensity of the movements is apt to be much greater on one side than on the other, being more marked on the side which was first involved.

Prodromal symptoms may or may not be present, but when present are apparently nervous in their nature. The temperament of the patient may change abruptly, and marked irritability and loss of self-control develop. Loss of memory and hallucinations of sight and hearing may be present. If these symptoms do not precede the outbreak of chorea, they often accompany it and form part of the general picture of the disease. The choreic movements most often begin in the left hand and arm. The hand flexes and extends on the forearm. The simultaneous or separate contraction of various groups of muscles in the arm produces movements of pronation, supination, or flexion of the forearm, in accordance with the muscles involved. The movements are involuntary and abrupt, and become exaggerated if the patient tries to control them. The fingers become useless for the more delicate work the patient is accustomed to use them for, and the attempt at grasping objects in the most ordinary acts of life shows an awkwardness which is diagnostic when noted. In a short time the other arm and the lower limbs become affected. This results in an alteration in the gait, and in the sitting posture, and in a series of abrupt changes of position as strange as they are unexpected. When the patient tries to remain motionless in the standing position, an abrupt contraction of the extensors changes her centre of gravity, and necessitates a series of awkward movements in the attempts to regain her balance. In severe cases walking is

rendered difficult or impossible by the inco-ordination of the muscles.

The abrupt abnormal contractions may be observed even in the body and shoulders. The respiratory muscles may be affected in severe cases to such an extent that breathing, particularly slow and sustained expiration, is rendered difficult. All the muscles of the head and neck may be involved so that not only the muscles of facial expression, but also those of the pharynx and larynx may be the seat of twitchings. The movements cease during sleep, but only when ideation is completely suspended, for example, in sleep without dreams. According to Jaccoud, the mental process which produces dreams stimulates the medullary axis, as in the waking condition, and produces inco-ordinate movements, less marked it is true than when the patient is awake, but still unmistakable.

The mental disturbances which accompany Sydenham's chorea are found in certain cases of the chorea of pregnancy before the motor disturbances. Modifications of the moral sense, imperfect ideation, and hallucinations may be present. Sleep is apt to be restless and troubled by dreams. Mania and dementia have been observed.

The nutrition of the patient suffers in grave cases from the difficulty of feeding the patients, and from the great exhaustion which accompanies the incessant muscular activity. The spasms of the soft palate and lips favor the introduction of food into the air passages.

The fetus may, in mild cases, live and be born at term. In severe cases it usually dies and causes abortion or premature labor.

The chorea usually lasts during the whole term of gestation and sometimes days or weeks after delivery. As a general rule the spasms become less violent after delivery, a fact which indicates the appropriate treatment in severe cases. This is not an absolute rule, however, and in any case after a temporary amelioration the spasms may again increase and become chronic. Hart reports 3 cases in which the chorea, after repeated attacks in successive pregnancies, became chronic. Cardiac complications may appear as in infantile chorea, but in a much smaller proportion of cases. They are more apt to occur in the severe cases than in the milder ones. In grave cases a rapid loss of strength occurs, and such a degree of emaciation and debility may be produced as to render the loss of blood which accompanies abortion or premature labor, a serious if not a fatal complication. A fatal termination may occur before the expulsion of the fetus in patients in regard to whom a temporizing method of treatment is adopted. Although it is to be considered in all cases a serious disease, with a doubtful prognosis for the future, it is in many cases definitely cured, or may only leave slight traces.

Prognosis.—The disease is a rare one during pregnancy, and months may go by in a large hospital without a single case being seen. Considering, however, the short time that a woman is under observation in a lying-in hospital, it is probably true that many cases in which the movements are

very slight are not included in the published statistics. It is also true that the choreic movements may not attract the attention of the obstetrician sufficiently to be reported, unless they threaten the continuance of pregnancy. These facts explain the difficulty of obtaining the true statistics of chorea, especially the percentage of its occurrence. For this reason any prognosis based on statistics is unreliable.

The mortality in the published tables varies from 1 in every 17 cases to 1 in 33 cases. In the more recent papers the statistics are better and more cases are reported. Pinard says the prognosis which would have to be given, if the published statistics were relied on, is more grave than the true condition of affairs warrants, provided that the patients receive adequate treatment. Nevertheless, the prognosis of chorea in pregnancy is much more grave than in early life. The fetal life is always seriously compromised. According to the older statistics, pregnancy is interrupted in one-half the cases. According to later reports the prognosis for the child is better as well as that for the mother. Pinard reports, in 8 cases, 8 well-nourished infants at term. The viability of the infant necessarily depends on the general condition of the mother as well as on the severity of the chorea and its complications. Children born from choreic mothers occasionally show choreic movements soon after birth.

Treatment.—In the treatment of chorea the principal drugs which are used are the sedatives, bromide, chloral and morphia and the alteratives, arsenic and iron. In grave cases ether and chloroform may be given as in eclampsia. Rest in bed and freedom from worry are also valuable adjuncts to treatment. Every effort to improve the general nutrition of the patient should be made. Pinard uses large doses of chloral to the point where the patient is in a condition of continuous sleep. She is only waked for food. This treatment is continued until considerable improvement in the choreic movements occurs. The doses are then diminished, but are continued until the movements entirely disappear. In very grave cases the early induction of abortion or premature labor is imperative. The success of the sedative treatment serves to demonstrate the importance of the nervous element in the chorea of pregnancy, which differs from ordinary chorea more in its nature than in its symptomatology.

M. F., age nineteen.

Previous history.—Measles, scarlet fever; no other children's diseases. When twelve years old had chorea for the first time. For the next five years had an attack every summer. No sign of chorea during the cold weather. Last attack two years ago. Much more severe than previous attacks. Could hardly speak, and could not use hands to any extent. Catamenia regular, except during the previous attacks of chorea, when at one time she skipped five months. Last catamenia began May 6, 1899; normal in every way.

Present illness.—In June first noticed that speech was abnormal. Enunciation difficult. In

July hands began to twitch. Left side was first affected, then right side. Lower limbs slightly affected in August, but not enough to interfere with locomotion. At this time she first came under observation.

Physical examination.—Slight, anemic girl. Mucous membranes very pale. Heart not enlarged. Slight systolic murmur over apex, not transmitted to axilla. Marked twitching of face and hands, especially on left side. Lower limbs slightly affected. Speech was very thick, and enunciation was difficult. Twitchings of hands so marked that co-ordinate movements were impossible.

Treatment.—Fowler's solution in increasing doses until the physiological limit was reached; then given in five-drop doses three times daily. Rest in bed and careful feeding formed the rest of the treatment.

Contrary to the usual rule in these cases, the symptoms yielded promptly to treatment and absolutely disappeared during the eighth month, so that at the time of her confinement in the Lying-In Hospital there was absolutely no evidence of the affection.

In many ways this patient afforded a typical example of the chorea of pregnancy. The affection developed before the diagnosis of pregnancy could be made, and if the full history had been known at that time would have furnished a valuable sign in the diagnosis of the pregnancy. The marked chlorotic condition was apparently the exciting cause of the disease. The choreic movements began on the left side, but later became bilateral. The circumstances of the patient were such that no efficient treatment could be carried out where she was; but after her admission to an institution where quiet and proper food could be obtained, her progress was more rapid and the unexpected result of entire cure before delivery was obtained. This would suggest that in this case the pregnancy was not responsible for the chorea except in so far as it acted to produce the abnormal conditions of the blood and nervous mechanism on which the development of the chorea depended, since, when these conditions were relieved to a certain extent, the chorea disappeared in spite of the existence of pregnancy.

To give some idea of the frequency with which chorea complicates pregnancy, a study of the records of the Lying-In Hospital shows that in about 11,000 cases there have been 13 cases of chorea. Eleven of these cases were primiparae, and gave a history of previous attacks during childhood. One of the others was a multipara in her third pregnancy, and gave no history of previous attacks either in childhood or with her other children. The last case was a secundipara; chorea in childhood but not in first pregnancy. In ten of the patients the movements entirely disappeared within a week of delivery, and in the other 3 the movements were very slight at discharge. None of the cases were severe enough to require active treatment, and in all of them, except for a slight irregularity of temperature during the convalescence, the progress was normal.

NOTES ON X-LIGHT.

BY WILLIAM ROLLINS, BOSTON.

THE ECONOMICS OF THE X-LIGHT TUBE.

A PROPERLY prepared x-light tube deteriorates in use. No practical means for preventing this are known, though vacuum regulators which introduce fresh gas into the tube are supposed to accomplish the result. The deterioration of a new tube shows itself by the light becoming of such character that it will not penetrate the tissues. If this difficulty is overcome there is a short period during which the tube is valuable, though with a powerful apparatus it lasts but a few hours; the resistance of the tube steadily rising, until the light penetrates the bones almost as well as the

become radiant centres from which x-light arises. The higher the velocity of impact the greater the temperature and the more penetrating the light. On this theory the process of "pumping" a tube does not consist in simply removing the air but is twofold. Enough air must be taken out to allow the gas particles shot from the metal of the cathode by the electric current, to have a comparatively free path on their way to the target. So much gas must be driven, by electricity, from the metal of the terminals, that the electric stress will not make it come out too fast when the tube is used. The effect of producing x-light according to this theory is to necessarily bring out these gases. If they did not come out and we depended upon the air in circulation in a tube we should not have an efficient cathode stream and sharp

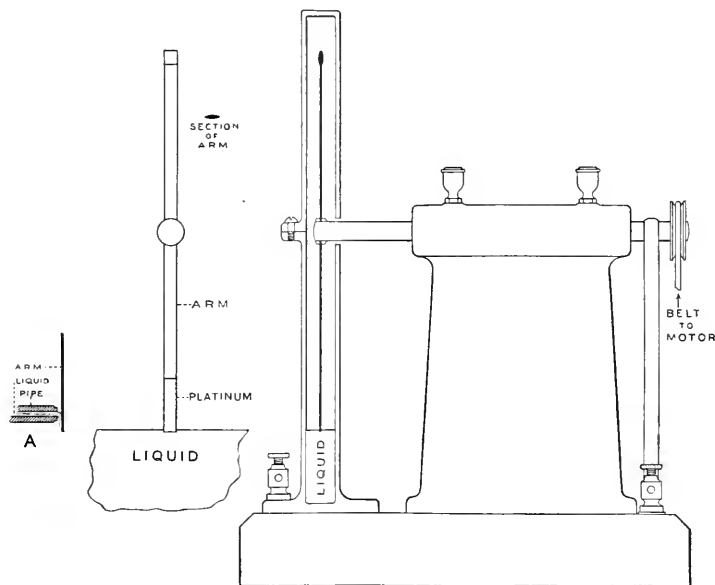


FIG. 8.

flesh; the tube becoming useless, because it does not properly differentiate tissues differing little in density. At last no current will go through. With a powerful apparatus, especially a high frequency generator, the whole process is one of a few hours only.

What is the cause of the phenomena and what the remedies? As any theory which will serve as a working hypothesis is better than none, I give the one used in my attempts to make an efficient x-light apparatus.

To produce x-light we depend upon gases amalgamated with the metal terminals in a vacuum tube. These particles are driven by the electric current, from the cathode against the target where they are heated to such a high degree as to

definition. The effect of use, then, is to lower the vacuum in an x-light tube. As a result the particles forming the cathode stream must meet with more obstruction from the increased density of the mist filling the tube, through which they must force their way to the target, consequently they strike with less velocity, are heated to a less degree, and give rise to a kind of light which is unsuitable. By means of a reservoir and movable dam, outside the tube, the current may be held back and sent in powerful surges which impart a higher initial velocity to the cathode stream particles causing them to strike the target at a sufficient velocity, in spite of the increase of the mist through which they must force their way.

After a time the continued formation of a cath-

ode stream so reduces the number of particles in the metal, that the current finds more difficulty in passing; charging each particle therefore to a higher degree, producing in it a higher velocity and causing it to strike the target so hard the resulting light becomes of more and more penetrating character. This is the explanation of the second stage, the advancement to the third state being hastened by the fact that the cathode stream particles are absorbed to a certain extent by the glass walls of the tube. The third state is but a continuation. The particles have still further diminished in number — those remaining are more tightly held by the metal — the current cannot separate them unless the potential is increased: the tube gives no light, for no current is sent by means of the cathode stream. What is the remedy? The one in universal use is to introduce gas into the tube. Crookes recommended water vapor. In earlier notes formulae were given for chemicals which liberated oxygen or nitrogen, but finding that the cathode stream spectrum was chiefly that of hydrogen I gave directions for introducing this gas expecting it would be the ideal regulator, but more powerful generators showed that simply introducing it would not restore the pristine brilliancy of a tube. No common gas put into a tube will permit it to continue to give a satisfactory light with the expenditure of a reasonable amount of power. The effect of introducing more gas is to increase the density of the mist through which the cathode stream must force its way. When the particles move too rapidly, as in a high resistance tube, where no gas has been introduced, the introduction of gas retards them and alters the character of the light, but the effect is temporary and the theory a poor one. If my theory of x-light is true, we need to do something entirely different, namely, to restore the same kind of gas to the metal of the cathode as has been used up in making the cathode stream. I have given various methods for doing this imperfectly, but the chief problem in x-light tubes is to find the ideal way. Until the problem is solved generators should be constructed to conserve the supply. They should also be made to give high potentials, that an external reservoir and dam may be used to hold back the current and send it in powerful surges when, as in a new tube, the mist is increased by the cathode stream, or in an old tube by introducing more gas than was intended. The importance of this is well shown in Fig. 87, *Electrical Review* for Dec. 26, 1900. The negative had an exposure of twenty-eight minutes without such a reservoir and dam, the plate not being acted on; while in Fig. 88, the use of a reservoir and dam produced a good picture with the same tube in twenty-eight seconds.

To economize the supply of gas in the metal the surges should be of the shortest possible duration and yet of sufficient volume to produce the required light. The tube should then rest, until to make the light continuous to the eye, another surge must be sent. Twelve hundred surges a minute are enough. The volume of each should be several horse power if we wish to advance rapidly

in the differentiation of tissues in the thick parts of the body with the fluoroscope. When I attempted to work in this direction with static machines, even the most powerful one made, which I constructed for my experiments, had neither potential nor amperage enough, though the plates averaged two metres in diameter and weighed over a ton. For the present, then, coils are better, but the insulation should be more perfect, for those in use are quickly spoiled by less powerful surges than it is desirable to use. I have found that micanite is the only material suitable for insulation between the primary and the secondary. I am indebted to the Micanite Company for their co-operation, for without it, experiments with heavy surges would have been abandoned, until Trowbridge placed his generator within reach. As the duration of a surge may depend upon the break, it is of importance to improve this. Only some modification of the electrolytic break of Spottiswoode (1876) will bear powerful surges without rapidly deteriorating. I have designed breaks on this principle, one being shown (Fig. 8). It consists of a covered tank containing an electrolyte. Two platinum arms are caused to revolve in such position that one of them may dip into the solution once during each revolution. The second arm does not touch the liquid, its object being to act as a balance. If the shaft makes fourteen hundred revolutions a minute the duration of a surge is but a twenty thousandth of a minute. It may be further reduced in several ways. The solution may be lifted into a tank and discharged from an orifice against the arm. Or a second break may be introduced into the circuit, the time of the immersion of the platinum not exactly corresponding with that of the first break. The effect is to deliver current to the first break during only a part of the time it is immersed.

Before closing this paper I wish to call attention to an experiment by Trowbridge in 1898. By means of a Plante generator of his own design and construction he obtained a photograph of the bones of the hand in a millionth of a second. In doing this he placed the mark so high that few have seen it and no arrow has approached it. The experiment was of the deepest significance encouraging me to go on experimenting with higher potentials for producing x-light.

Conclusion.—The most important discovery to be made in x-light tubes is to find how to keep the character of the light constant. Meanwhile the best way to excite an x-light tube is to use surges of millions of volts and many horse power, each surge lasting for not more than a millionth of a second.

AN X-LIGHT PLATE HOLDER.

There are two methods in use for protecting sensitive plates in making photographs by x-light. The plates are wrapped in colored paper, or the ordinary wooden photographic plate holders are used. Both methods are undesirable, for an x-light tube fills a room with a bright though invis-

ble light, which, dashing about in every direction, fogs the plate or even makes images on it of objects on the opposite side from the body being photographed¹. No x-light should reach a plate except what comes through the patient being

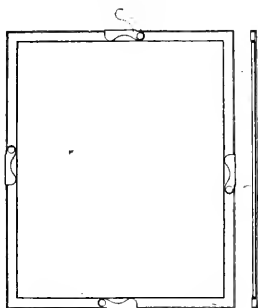


FIG. 5. — X-LIGHT PLATE HOLDER.

photographed. A first requisite in an x-light plate holder is a means to achieve this; (2) the plate holder should bear the weight of a patient without risk to the plate, even though it is necessary for him to sit on it; (3) it should be thin

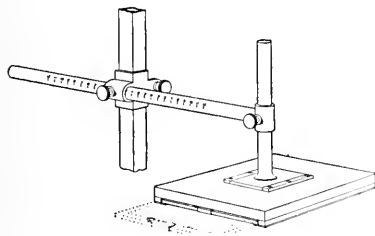


FIG. 6. — SUPPORT FOR PLATE HOLDER.

to avoid discomfort to the patient when he lies on it; (4) it should be moisture proof to protect the plate from perspiration. I have used for several years metal plate holders which meet these and other requirements. The latest and simplest

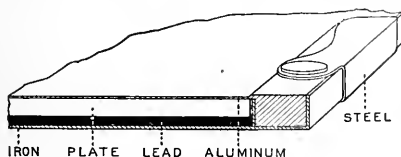


FIG. 7. — SECTION OF PLATE HOLDER.

plate holder is shown in the figures. Total thickness seven millimetres. It is in two pieces, a back of nonradiable, a front of radiable metal (aluminum) held together by steel clamps. A support for the holder was shown in Fig. 2 il-

lustrating an x-light table in a former note.² Another support attached to the upright shown in Fig. 2 is illustrated in Fig. 6.

REMOVING THE IRRITATING GASES PRODUCED BY X-LIGHT GENERATORS.

A powerful x-light generator produces ozone and combinations of nitrogen and oxygen. These are irritating to the respiratory mucous membranes. A fan should be placed within the case of a static machine to drive the gases into the nearest chimney. A coil should have the spark gaps enclosed as shown in Note 112³, the gases being drawn by an aspirator into the waste water pipes.

Clinical Department.

A SPECIAL FORM OF PHLEGMON OF THE NECK.

BY F. F. EMERSON, M.D., BOSTON.

IN 1893, under the above title, in the *British Medical Journal*, Drs. Brousses and Brault published an article describing a suppurative process enclosed in a space of prismatic form, situated below the back part of the tongue, and bounded in front by the hyoglossal and thyrohyoid membranes and behind by the anterior surface of the lower and attached portion of the epiglottis. The upper boundary is formed by two membranous layers, one consisting of the lingual mucous membrane; the other and deeper layer of fibrous tissue. This cavity it is stated is divided into two lateral halves by a membranous septum, which seems to be an extension downwards of the median glosso-epiglottidian ligament. This enclosed and divided space, which is called by the authors the glosso-thyro-epiglottidian cavity, may, it is stated, become inflamed and thus give rise to diffused phlegmon of the neck.

Mrs. S., Roxbury, age sixty-four years, born in Bangor, Me. Father died age seventy-six, carcinoma of stomach; mother died in childbirth; five brothers died young; one sister died of carcinoma, and one now has it. Has had three children. Measles at ten years. Formerly subject to tonsillitis, but for the last ten years exempt and her general condition good. Last three months nervous and debilitated. Had been having sinking spells which she referred to her heart. During the last week has been having a naso-pharyngitis and tonsillitis. Dr. H. was called in December 29th and found her pulse irregular but not increased in frequency. Temperature 99°, and some dyspnea. On December 30th he was called at 6 A.M. Patient aphonic but no urgent dyspnea; at 9 A.M. dyspnea somewhat more pronounced, and by noon attended by cyanosis, anxious facies and great difficulty in deglutition. At this time I saw her in consultation and found the following condition.

² Boston Medical and Surgical Journal, March 21, 1901.

³ Electrical Review, December 26, 1900.

¹ Electrical Review, April 11, 1900, note 94.

Examination.—Externally inspection shows the neck uniformly swollen down to the clavicle, presenting a three-lobed tumor separated by membranous septa, full and resistant throughout. No cervical glands; no redness; sensitive to pressure and of a woody feel. Great difficulty in swallowing and breathing. Pulse normal and fair quality. Subjective feeling of depression and weakness increased by loss of sleep during the preceding two nights. Facies anxious. Laryngoscopy shows a general laryngitis, with the lumen uniformly encroached upon. The alignment of the vocal chords normal but covered by the ventricular bands. No edema or paralysis; no exudate. Tonsils and pharynx not now abnormal. Culture shows no bacilli of diphtheria. Epsom's salts had been administered. The dyspnea was not sufficiently urgent to require immediate action, and as the case had gone along for a week it seemed probable that twenty-four hours might show a beneficial change.

Ice poultices, alternating with unguentum resorcin, one drachm to the ounce of lanolin, was recommended; also cracked ice and a steam spray of camphor menthol, with supportive treatment, was given.

On December 31st pus was seen to be exuding from the left side of the larynx. The discharge was gradual. The deglutition improved and convalescence was uneventful.

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMES KNAPP, A.M., M.D., BOSTON.

(Concluded from No. 16, p. 380.)

INJURY OF THE SPINAL CORD.

HARTMANN¹ has made an elaborate clinical and pathological study of 8 cases of injury of the spinal cord. He recognizes a true *commotio spinalis*, that is, a disturbance of the cord giving rise to well-marked spinal symptoms, which disappear entirely in a week or so. The more severe spinal conditions are divided into two classes: those complicated with lesions of the vertebral column, and those not associated with such lesions. This latter class is again subdivided into two classes: in the first the disease follows the injury immediately, and in the second a chronic spinal disease develops as a late result of the injury. In this last group he reckons chronic anterior poliomyelitis, sclerosis, gliosis, sclero-gliosis and syringomyelia of traumatic origin. In studying the mechanism of injuries of the cervical cord he distinguishes those due to direct injury, and those due to indirect injury. The latter arise from the peculiar structure of the vertebral column—a rigid thoracic portion and a movable cervical portion—and the forces exerted by the position of the head in falls upon the back (the natural tendency to flex the head and the force exerted by the weight of the head).

In this way lesions of the cervical cord may arise indirectly from violence applied to the thoracic vertebrae. The histopathology of those uncomplicated, directly traumatic affections must be considered separately as to the various tissues, since our pathological conceptions of inflammation, etc., are still obscure. We cannot determine definitely the pathological basis (hemorrhage, necrosis, inflammation, etc.) of a traumatic spinal disease from the clinical symptoms. The diseases of the different tissues naturally vary in intensity, and this fact, with the pathological changes in the reciprocal action of these tissues, forms the basis for the difference in the anatomical changes. The primary degenerations may be lymphogenous or ischemic. The degeneration of the periphery of the cord is a mixture of these forms with secondary degenerations. The tendency to regeneration varies greatly and it may give the anatomical appearances the stamp of a lymphogenous primary degeneration of nerve substance or a more active regeneration of connective tissue resembling a non-purulent inflammation.

Among the pathological processes he distinguishes in the membranes, hemorrhage, cicatricial contraction and adhesive meningitis; in the lymph apparatus, lymph stasis, lymph infiltration, lymphogenous degeneration (Schmaus's primary necrosis), and cavity formation; in the vascular system, primary and secondary hemorrhage, hyperemia, proliferation of endothelium, changes in the adventitia, obliteration of the capillaries with consecutive ischemic degeneration, true periarteritis and arteritis; in the neuroglia, moderate proliferation about foci of disease, in the peripheral zones of the cord, and in the perivascular spaces with a change in the cells; in the nervous tissue, primary mechanical destruction, lymphogenous and ischemic necrosis, diseases of the roots and changes in the cells of varying intensity and often remote from the seat of the violence. Marked changes may arise primarily without any hemorrhage. The lesions in the cells and roots are not as dependent upon the seat of the injury as are the general changes in the cord, and we thus find disseminated foci of disease, degeneration of the roots and changes in the cells at a considerable distance from the point of greatest alteration, and these remote lesions may also influence the clinical symptoms.

Chipault² shows that arthropathies of a trophic nature are occasionally met with after injuries of the spine and spinal cord and also in spinal caries. Clinically they somewhat resemble tabetic arthropathies, and sometimes they are exactly similar to them, as in a case of fracture of the spine, where, at the first attempt to walk, there suddenly developed an enormous swelling of the right knee. Most of the arthropathies following injury or caries, however, develop under the form of an effusion with little or no deformity, since the patient is confined to his bed, and thus is less liable to injure the joint by attempting to walk; while tabetic patients increase the joint trouble by keeping about. The arthropathies in the cur-

¹ *Jahr. f. Psych.*, xlix, 340, 1900.

² *Trav. de neur. chir.*, v., 76, January, 1900.

able forms of spinal injury often assume the form of a slight effusion, and they may be permanently cured instead of increasing to the severer forms seen in tabes.

HEMATOMYELIA.

Lépine⁹ has collected 227 cases of hematomyelia and has supplemented his study of these cases by various experiments. The predisposing causes, — sex, age, and manner of life — are of slight significance. Injury is responsible for about 90% of the cases of primary hematomyelia and congestion for the rest. Injury is due to fracture or dislocation of the vertebrae, stretching of the cord (from forced movements of extension of the trunk, from suspension as in the treatment of tabes, and from certain obstetrical maneuvers), stretching of the spinal roots, and simple commotion of the cord. The cases which follow violent convulsions, exposure to cold and sexual and alcoholic excess are probably due to congestion.

Hematomyelia may also follow the rapid change from high to low atmospheric pressure in coming out of a caisson. Hematomyelia may also occur secondarily in acute or infectious myelitis, thrombosis or embolism of the cord, chronic myelitis, syringomyelia and tumors; but only 38 out of 227 cases were secondary. Lépine found that, by injecting blood into the cord after a previous laminectomy, he could reproduce the conditions of primary hemorrhage. The blood expands by preference upwards in the gray columns, but not into the anterior horns which seem to resist. The central canal is the chief channel for extending the hemorrhage, and the tissue about the hemorrhage becomes softened. Simple puncture provokes diffuse capillary hemorrhages, especially in the gray matter, with secondary myelitis of the gray matter and dilatation of the central canal. Commotion of the cord from shock gives rise to immediate and late lesions: the former consist of an intense congestion of the injured portion, with extravasation, myelitis, and a moderate reaction of the neuroglia, the intensity of which is related to the number of hemorrhages. The transition to normal pressure, as in coming out of a caisson, causes gaseous emboli and hemorrhagic infarctions. The latter are due to the rupture of the vessel walls from the enormous dilatation caused by the local development of gas and the afflux of blood from the acutely dilated intestines. The capillary hemorrhages are less important; the larger hemorrhages occur most frequently in the cervical region, rarely extending to other parts of the cord: they also occur chiefly in the gray matter about the central canal or in the posterior horns, occasionally involving the white substance, but leaving the anterior horns intact. Lépine gives no definite answer to the question whether such hemorrhages can originate a true gliosis and thus be transformed into a syringomyelia. His contention that the anterior horns are usually intact and resist the entrance of blood is, however, somewhat too positive. Minor, Fischer and various other writers

have reported cases with autopsy where the hemorrhage involved the anterior horns, and other cases are on record where the symptoms warranted the diagnosis of a hemorrhage in this region.

APRAXIA.

Liepmann¹⁰ has made an exhaustive study of the very interesting case of a man who apparently presented the symptoms of sensori-motor aphasia with profound dementia, although in reality he had only motor aphasia with a fair amount of intelligence, and apraxia, or inability to use the limbs intelligently on the right side. The patient used the right hand exclusively to execute the movements suggested to him, and his acts did not correspond to the commands, so that they were often absurd and ridiculous; and when he used both hands, the left hand could not correct the mistakes of the right. It therefore seemed as if he did not understand what was said to him; but, when the right hand was held, he could execute orders correctly and even work a little with the left hand. The apraxia did not appear in all movements. Those performed by the body as a whole, sitting, rising, walking, etc., were normal; and certain complex movements, usually affected in apraxia, such as buttoning and unbuttoning the clothing, pointing at an object, eating with a spoon, etc., were also normal. The motor disturbance was, however, evident in all co-ordinate movements which demanded the association of coenesthetic representations with optic and acoustic representations, that is, in movements which required the directing action of the whole cortex. Certain other movements, such as indicating a part of the body, were also impaired. The apraxia was limited to the right side only in movements performed by the limbs; in the face it was bilateral, giving rise to paramimia. After very elaborate examinations and tests Liepmann determined that the trouble was not due to any error of identification, to any agnosia or asymbolia from psychical blindness or deafness, nor to any anesthesia, although there was a diminution of sensibility in the limbs on the right side and an inability to determine the position of the limbs with the eyes closed. He believes the apraxia was due to a loss of the representations of movement on the right side, that is, to a loss of the ensemble of coenesthetic, optic and acoustic representations which contribute to the production of a complex movement. It is therefore a motor asymbolia, as distinct from a sensory asymbolia. The motor centre in the cortex may be injured, therefore, so that it no longer receives impressions from the other cortical centres, and yet it may still respond to sensory stimuli coming from the periphery. The lesion, which was probably syphilitic, he believes, spares the central convolutions, but involves the supra-marginal gyrus and the superior parietal convolution, thus separating the central convolutions from the visual and auditory centres. It also must extend into the third frontal convolution and perhaps the

⁹ Etude sur les hématomyélies, Thèse de Lyon, 1900.

¹⁰ Monats. f. Psych., viii, 15, 102, 182, July, August, September, 1900.

island of Reil, on account of the motor aphasia. The lesion would therefore lie in Flechsig's posterior association centre. The symptom, if the localization be correct, ought to be found much more frequently than at present, considering the comparative frequency of lesions in this region.

HYSTERIA.

Steffens¹¹ discusses the differential diagnosis of hysteria and epilepsy after a study of several peculiar cases of hysteria. The first case was that of a girl of sixteen, with tubercular heredity, who had previously had enlarged cervical glands, diarrhea and ascites. She entered the hospital with a suspicion of trouble at the right pulmonary apex, irregular fever and decided pain and tenderness over two vertebrae, increased on motion and jarring. The general neuropathic condition favored "spinal irritation" rather than caries, until she began to have headache, vertigo, vomiting, a staggering gait and a slight optic neuritis with ankle clonus. Later, typical hysterical attacks with all of Charcot's characteristic phases and hysterical stigmata led to a correct diagnosis of hysteria, and by isolation and proper treatment she was cured. A second patient had attacks of transitory confusion, genuine attempts at suicide, classical hysterical stigmata (anesthesia, contracted visual field, changes in the reflexes, mastodynia, etc.), unilateral convulsions in which the pupils were dilated and did not react to light, and other attacks with complete loss of consciousness and subsequent amnesia. A third patient was attacked with acute hallucinatory confusion, and convulsive attacks beginning with maniacal excitement, hysterical stigmata during the attacks and disappearing after them, polydipsia and polyuria. Steffens reviews carefully the so-called distinctive symptoms of hysterical and epileptic attacks. The most important is usually considered to be the condition of the pupils, normal in hysteria and dilated and immobile in epilepsy. He finds, on the contrary, not only in the above case, but in a considerable number of others which were undoubtedly hysterical, and were observed by competent men, that the pupils did not react to light. Furthermore, he finds a certain number of cases of hysteria reported, in which one or both pupils did not react during the interval, or where the pupils were unequal. In epilepsy, on the other hand, the pupils sometimes react during the attack. In the hysterical attack, too, the patient sometimes falls suddenly so as to injure herself, and she may even bite her tongue. Sudden pallor, unilateral convulsions, complete loss of consciousness and amnesia were also noted in his cases, and they have been observed repeatedly by others. Hysterical attacks may be brief, and epileptic long; a case of an epileptic seizure lasting eight hours being reported in connection with the cases cited above. Hypnotism may have no influence upon the attack and, if there be no hysterical stigmata, a differential diagnosis is often impossible. Although not observed in his own cases, Steffens cites other

cases in which there was incontinence of urine during an hysterical attack. Steffens concludes that both hysteria and epilepsy are caused by disease of the cerebral cortex, whose pathological basis is unknown, that the essential nature of the two affections cannot be distinguished, and that the same marked cause may act merely in different form and different intensity and persistence. In the same attack we may recognize characteristics which seem to be "purely hysterical" and others which seem "purely epileptic."

Parinaud¹² has studied the ocular troubles of hysteria. One of the most distinctive characteristics of hysterical amblyopia is its association with contracture of accommodation, which may determine other symptoms, such as monocular polyopia and micromegalopsia. A concentric limitation of the visual field is one of the most important features of hysterical amblyopia. When this is slight, we must also look for disturbances of accommodation to determine the existence of amblyopia. When central vision is also involved, there may be complete blindness, as great as that due to optic atrophy. The visual field is apt to be more contracted after an hysterical attack, and its extent may sometimes be modified by influencing the accommodation either by lenses or atropine. It may also be greater with moderate illumination than under a bright light, owing to the influence of accommodation. Cutaneous irritation, unless applied to an anesthetic area, may enlarge the visual field. In order to prove the existence of dyschromatopsia from contraction of the visual field alone, the contraction for white must be very marked. The perception of red is the last to be affected in hysterical dyschromatopsia, while it is the first to be affected in dyschromatopsia from tabes or alcohol. The field for red is sometimes greater in hysterical amblyopia than the field for white. Hysterical central scotoma is occasionally, though rarely, found. The acuteness of vision is rarely much diminished, although it is often better in a moderate light than in a bright light. Diplopia is always due to a disturbance of refraction. Even in absolute amaurosis the pupils still react to light. The ocular movements are usually well performed in spite of anesthesia of the conjunctiva and the cornea and the absence of the oculo-palpebral reflex. The lachrymal reflex is often preserved. There is never hemianopsia, and hysterical amblyopia is never attended with changes in the fundus of the eye, unless there be co-existing organic disease of the brain.

JUDGE ELLIOTT, in the Circuit Court, Milwaukee, recently decided that Christian Scientists were not liable to prosecution under the State Medical Law. The court ruled that the Scientists could no more be held for practising medicine when their means for healing was by prayer than could a minister who prayed at the bedside of the sick and received therefor a fee, either directly or indirectly. — *New York Medical Journal*.

¹¹ Arch. f. Psych., xxxiii, 302, 25, November, 1900.

¹² Ann. d. ophthalmique, July, 1900.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of December 18, 1900, the president, DR. ALFRED WORCESTER in the chair.

DR. F. S. NEWELL read a paper entitled

CHOREA DURING PREGNANCY.¹

DR. T. M. ROTCH: It is evident that chorea may come from different causes, especially from shock or fright, as often shown in children. I could mention a number of such cases that I have seen. On the other hand, certain forms appear to be infectious, as shown by the endocarditis which often develops.

DR. C. W. TOWNSEND: The cases Dr. Newell spoke of, in which the children as well as the mothers had choreic movements, are interesting, as they would bear out the infectious theory. That so few of the choreas of pregnancy develop endocarditis or are associated with rheumatism is very different from what is the case with children, and suggests that they may be of a different sort, of hysterical origin for instance. I am also struck by the infrequency of cases of chorea during pregnancy as contrasted with its great frequency in children.

DR. E. REYNOLDS: It seems to me that the chief point in practice is to remember that while mild cases of the chorea of pregnancy are very mild affairs that terminate with pregnancy, the severe cases, on the other hand, are practically hopeless and not affected by the termination of pregnancy, so that we should not allow a mild case to become severe, and in questionable cases should not defer the stopping of pregnancy too long.

DR. G. J. ENGELMANN: I have looked upon the chorea of pregnancy as one of those reflexes to which more attention has been paid in these later years, and in writing on a kindred subject some time ago I paid especial attention to chorea. Since then I have seen two cases. To me they seem not due to anemia or as of infectious origin, but as neuroses—to be compared with the reflex chorea seen in connection with menstrual and pelvic disturbances in young girls, especially at the time of puberty. The per cent. of cases seen harmonizes with the period of growth of woman, being greatest at the establishment of menstruation and dropping to the minimum with the stopping of the menstrual flow. Lately I saw a very violent case in a young girl coming on with a violent menstrual disturbance, the result of a mental strain, which lasted three months. Her chorea ceased with the regulation of her menstrual life. I think that most of the cases occurring in connection with changes in the pelvic viscera, whether pathological or physiological, are reflex as they yield to the removal of the pelvic cause.

DR. NEWELL: My reading on the subject leads me to feel that a case which after a time grows worse, is almost always fatal.

DR. M. H. RICHARDSON read a paper entitled:

REMARKS ON ANESTHESIA—GENERAL, LOCAL AND SPINAL.²

DR. D. W. CHEEVER: Personally I have never seen a death from ether, and although I have been in a number of tight places, only once has it been necessary to resort to tracheotomy. I have used it in many cases of heart disease. One cause of its good working in such cases, if the operation be short, is that at first ether is a stimulant, next best to alcohol, though after a time this effect grows more feeble. As to spinal anesthesia, what the reader has said about the apprehension on the part of the patient is very important on account of the depressing effect of fear on the vital processes if the operation is to be long and critical. I used to do tracheotomy without an anesthetic, for I thought it safer. In such cases if we are quick, I doubt if the child suffers more than it does from the partial suffocation inherent in the use of chloroform or ether. As regards the freezing mixtures, I have found them fairly satisfactory, but my feeling is that in a long operation we ought to put the patient to sleep on account of the shock.

DR. ENGELMANN spoke of operations on the extremities under an anesthesia induced by strong alternating currents.

Recent Literature.

Evans's Obstetrics. A Pocket Textbook of Obstetrics. By DAVID J. EVANS, M.D., Lecturer on Obstetrics and Diseases of Infancy in McGill University Faculty of Medicine, Montreal. In one 12mo. volume of 409 pages, with 149 illustrations, partly in colors. *Lea's Series of Pocket Textbooks.* Edited by BERN B. GALLAUDET, M.D. Philadelphia and New York: Lea Brothers & Co.

This book is really more than its name, that of a "pocket textbook," would imply, in that the author has produced a creditable work on obstetrics of moderate size and completeness for the use of the medical student. The difficulty of condensing the subject of obstetrics into a small textbook without sacrificing important subjects and necessary details is at once apparent and the author has, we believe, done very well. The book is well written in a clear style, although necessarily much abbreviated, yet the essential points are all taken up and treated in a way sufficiently elaborate to give the average young student a good preliminary knowledge of the subject. The directions for treatment are given in a direct manner and conform, as far as the author goes, with what is generally accepted as proper treatment at

¹ See page 397 of the Journal.

² See page 391 of the Journal.

the present time. There are no features in the book which are essentially new, but as a condensed volume for students it is above the average of such works, while it is not comprehensive enough for a complete textbook, or as a reference book for the practitioner.

Diseases of the Anus and Rectum. By D. H. GOODSALL, F. R. C. S. (Eng.), Senior Surgeon (late House Surgeon) to St. Mark's Hospital for Fistula and other Diseases of the Rectum; Senior Surgeon to the Metropolitan Hospital, and W. ERNEST MILES, F. R. C. S. (Eng.) Surgeon (out-patients) to the Gordon Hospital for Diseases of the Rectum; Assistant Surgeon to the Cancer Hospital, Brompton; late Senior Assistant Demonstrator of Anatomy at St. Bartholomew's Hospital Medical School, and House Surgeon to St. Mark's Hospital for Fistula and other Diseases of the Rectum, etc. In two parts (illustrated). Part I. London, New York and Bombay: Longmans, Green & Co. 1900.

This Part I of "Diseases of the Anus and Rectum" consists of chapters upon the Anatomy, General Diagnosis, Abscess, Ano-Rectal Fistula, Recto-Urethral, Recto-Vesical, Recto-Vaginal Fistula, Sinus over the Sacrum and Coccyx, Anal Fissure, and Hemorrhoids or Piles.

The authors have given an excellent description of the different diseases about the anus and rectum and have illustrated these conditions by selected cases from their case books. The illustrations are, as a rule, good. They are rather gruesome and are frequently extreme examples of a condition.

The book is one that can be turned to for sound, judicious advice in the treatment of these common affections. The binding of the volume is excellent.

Oral Sepsis as a Cause of Septic Gastritis, "Toxic Neuritis," and other Septic Conditions. With illustrative cases. By WILLIAM HUNTER, M.D., F.R.C.P., Senior Assistant Physician, the London Fever Hospital, etc. London, Paris, New York and Melbourne: Cassell and Company, Ltd. 1901.

This small volume of 30 pages is a bound reprint of an article which appeared in *The Practitioner* for December, 1900, and which has already been noticed in our editorial columns. The title describes the scope and object of the pages. It is an interesting, and on the whole, convincing discussion of the possible importance of septic mouth conditions in the production of various general disorders. It should prove profitable reading to practitioners in any department of internal medicine.

SUTURE OF THE HEART.—According to a report in the daily press the pericardium was opened and a stab wound into the cavity of the left ventricle of the heart closed by three sutures, in a case at the St. Louis City Hospital. The patient lived twenty-four hours.

THE BOSTON Medical and Surgical Journal.

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PATHOLOGY OF THE JEWISH RACE.

THE relative predisposition of races and peoples to disease in general and to certain diseases in particular is a subject which has not received the study it deserves. With our growing interest in the all-important problem of immunity, we may easily see how essential is the accurate determination of race susceptibility to disease. Various observations and statistics of importance have from time to time appeared, but it is clear that deductions of scientific value cannot be made until a very large number of data are collected and carefully tabulated. Dr. Maurice Fishberg of New York has recently rendered a valuable service in the publication of a statistical paper appearing in the *New York Medical Journal* for March 30th and April 6th on "The Comparative Pathology of the Jews."

It is a matter of common knowledge that the Jews are both a very hardy race, capable of much endurance, and also peculiarly susceptible to certain disorders. Fishberg has analyzed available figures in great detail regarding the longevity of the Jews in various parts of the world, and has formulated statistics regarding various diseases. It is somewhat surprising that in spite of the fact that the Jewish population of the United States is at present estimated to be 1,058,135, no careful study of their racial peculiarities from a strictly medical point of view has been made. In Europe it has been found that the Jews live, on an average, considerably longer than Christians, showing a lower death rate, and an excess of the number of births over deaths. This occurs in spite of the fact that the Jews show a smaller marriage rate, and produce fewer children by each marriage than do Christians. What statistics we have for the United States go to show the same facts. The Jewish population is kept up because of the smaller infant mortality. Fewer are born, but more reach maturity.

The statistics regarding disease susceptibility are of very great interest, though still often difficult of interpretation. It has been found that tuberculosis, pneumonia, nephritis, typhoid fever, malaria and epidemic diseases are less prevalent among the Jews than among Christians. A certain immunity has been observed to plague, smallpox (possibly on account of greater willingness to submit to vaccination), typhus, intermittent fevers, epidemic dysentery and cholera. For example, during a cholera epidemic in Budapest, in 1851, the mortality among the Christian population was 1.85% as against .257% among the Jews, being seven times less. More recent statistics, however, seem to show that the immunity to contagious diseases is now not observable. Tuberculosis remains far less fatal among the Jews than in other races. Interesting figures are those taken from a study of the mortality in one of the most densely inhabited regions of New York City for the six years ending May 31, 1890. It appears that during that period the mortality from consumption reached, among the Irish, 19.44% of the death rate due to all other causes; among the Germans, 14.12%; among the English, 13.04%; among the Russian and Polish Jews, 5.76%. Alcoholism and syphilis are relatively infrequent among the Jews. Gonorrhea, however, appears about equally prevalent among Jews and Christians, which goes to show that freedom from syphilis is not due to greater chastity. Diabetes, on the other hand, is a disease to which Jews are, from the observations of many trustworthy observers, particularly predisposed. The same appears to be true of diseases of metabolism; for instance, gout, gall-stones and nephrolithiasis, chronic rheumatism, some forms of neuralgia and migraine, asthma, pulmonary emphysema, varicose veins, and especially hemorrhoids, arteriosclerosis, and some diseases of the skin. Finally, some authors state that blindness, color blindness, myopia, trachoma, glaucoma and almost all the skin diseases, are more frequent among the Jews than among the non-Jews.

The most conspicuous fact, however, regarding the diseases of the Jew, is the instability of his nervous system, a fact possibly associated with the peculiar stress to which he has been exposed for centuries, as suggested by Oppenheim. His words are:

The nervous derangements which are the effect of psychic trauma explain to some extent the reason why the Jewish race—after being persecuted and oppressed, mostly only tolerated among the nations, living in peace for short times only, and then again tormented—is suffering in such immense numbers from the neuroses and psychoses, and particularly hysteria.

The organic derangements of the nervous system are apparently not more frequent among the Jews.

Minor concluded that this was due to the fact that syphilis and alcoholism were much less common than among Christians.

Fishberg draws the following general conclusions from his study:

The death rates of the Jews, at all ages, are relatively and absolutely lower than those of the people among whom they live. The marriage rates and birth rates of the Jews are smaller than those of the Christians. The Jews die less often than their neighbors from many of the infectious diseases, particularly epidemic cholera, smallpox, and tuberculosis. Syphilis and alcoholism, and also diseases due in great measure to their poisons, are comparatively rare among the Jews. Diabetes is very frequent among the Jews. All the functional neuroses and psychoses, particularly neurasthenia and hysteria, occur more frequently among Jews than among non-Jews; while all the organic nervous diseases, as tabes, general paralysis, etc., are less frequent, commensurate with the infrequency of syphilis and alcoholism among them. Blindness, color blindness, trachoma and glaucoma, and also varicose veins, particularly hemorrhoids and hernias, are very frequent among Jews. All these peculiarities in the comparative pathology of the Jews are not due to any ethnic, "biostatic," or racial characteristics of a purely anatomical or physiological nature in relation to non-Jews. They have their origin in the past history of the Jews, in their habits of life, and in the fact that syphilis and alcoholism have but rarely been seen among them. Where the Jew is commingling with his Christian neighbors and adopts their customs and habits of life, he sooner or later loses his "racial characteristics," and his comparative pathology presents no special peculiarities.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

THE fifteenth annual report of the Boston Instructive District Nursing Association has appeared. It is a small pamphlet, unpretentious in appearance, and its perusal would hardly give one an idea of the work being done by the organization which it represents. Nursing at best, when the glamour and romance have worn off, is not an easy or pleasant employment. The surroundings of a large hospital, the excitement attendant upon the care of patients seriously ill, surgical operations and all the circumstances of active routine, no doubt do much to palliate the unpleasantness of it all. The real test comes, however, when nurses are thrown on their own responsibility, and, without the satisfaction of companionship, are obliged to carry out the details of their professional work. Above all others, the district nurses have nothing to fall back upon but a sense of duty performed, and the feeling of satisfaction which comes with the relief of conditions of distress. There is absolutely no poetry in this; it is simply the hardest sort of work, done almost without recognition under the most difficult possible circumstances. These nurses, of whom there are now fourteen, not only care for the sick poor in their homes, but also instruct the

families they visit to take better care of themselves. The daily routine is as follows: the nurse meets the physician of her district each week day, generally at the place where the calls are left. She usually visits the new cases with him and the old cases which she thinks need his attention, but sometimes she makes the round of visits alone, after obtaining his written or verbal instructions. The rest of the day the nurse spends in visiting old cases, and in revisiting those new cases which need her care.

This is neither exciting nor romantic, but much more important. It is a system which is undoubtedly doing a vast amount of good in the most unassuming possible way. The women who undertake this work accept a life of real self-sacrifice, unalleviated by popular recognition, which ordinarily makes nursing, or any other calling, possible.

MEDICAL NOTES.

COLORADO MEDICAL LIBRARY ASSOCIATION.—The eighth annual meeting of this society was held at Denver, March 20th. The secretary, Dr. Carroll E. Edson, reported that 770 volumes had been added to the library, and that donations had been received from the Denver and Arapahoe Medical Society, of \$150; and from Dr. John Boice, of 200 bound volumes of periodicals. The president, Dr. Henry Sewall, spoke on the needs of the library. Dr. Leonard Freeman was appointed to consult with the authorities of the County Hospital regarding some arrangements whereby the resources of the hospital for medical literature might be made available for the Association, and whether a fee on attendance on clinics could be collected from medical students, said fee to be applied to the purchase of medical journals. The election of officers resulted as follows: Dr. Charles D. Spivak, President; Dr. Edward Jackson, Secretary and Treasurer, and C. R. Dudley, Librarian.

A NEW APHRODISIAC.—The latest addition to the list is aphrodisiac yohimbin, the active principle obtained from a plant growing in equatorial Africa. Experiments have been made with this product on frogs and rabbits, and it is stated to produce marked hyperemia of the sexual apparatus. On this ground it is recommended for the treatment of sexual neurasthenia, and also in albuminuria. The ground for its use in the latter condition would seem decidedly uncertain. — *Medical Press and Circular*.

CRITICISM OF THE PRESBYTERIAN HOSPITAL OF PHILADELPHIA.—The Presbyterian Hospital of Philadelphia is being severely criticised in the daily press for refusing admission to a colored

woman in labor, on the ground that the hospital did not receive maternity cases. The woman was delivered in the patrol wagon while on the way to the Philadelphia Hospital.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, April 24, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 61, scarlatina 37, measles 120, typhoid fever 7.

DEATH OF A CENTENARIAN.—Mrs. Sallie Batchelder died in Peabody, Mass., on April 22d at the age of 107. She was born in Chichester, N. H., August 8, 1794. She was the third of a family of fourteen children, of whom two sisters lived to be 93, and two brothers who were twins lived to the ages of 84 and 88 years.

SMALLPOX IN A RAILWAY TRAIN.—It has been extensively reported in the daily press that a woman suffering from smallpox and under the care of a Christian Scientist, travelled by train recently from New York to Southington, Conn., and was driven from the train to the residence of her father in a hack. The next morning the health officer was called in and the character of the disease discovered. As it is stated that the eruption on the forehead had appeared before the patient left New York, it would seem that this exposure of the public would have been avoided by calling in a physician.

NEW YORK.

THE ASSOCIATION FOR THE ADVANCEMENT OF PHYSICAL CULTURE.—The twelfth annual convention of the American Association for the Advancement of Physical Culture was held in New York on April 18th, 19th and 20th. Dr. Dudley Allen Sargent, of Harvard, presiding. In a paper on "The Need of Physical Training in Our Public Schools," Dr. Frederick J. Simpson, of Hartford, expressed the opinion that the neglect of the physical well-being of children attending school has resulted in an increase in insanity and a decrease in the birth rate throughout the United States. He advocated that in the education of the young less time should be devoted to study and more attention given to physical development. In a paper on "Ideals of Physical Training," Dr. Sargent deplored the practice of college athletes to devote all their energies to some special line of powers, instead of striving for the symmetrical development of their bodies. It is not, he said, a runner, jumper, boxer, oarsman or gymnast we would produce, but the highest type of physically perfected man. The breakdowns of athletes so frequently noted after they had com-

menced their life work he attributed largely to the neglect to keep themselves in condition. Dr. J. H. McCurdy, of the Young Men's Christian Association of Springfield, Mass., read a paper in which he gave the results of an extended series of observations on the effect of muscular effort on the blood and on blood pressure. Moderate exercise, he had found, causes an increase in the red corpuscles and a strengthened pulse, while exercise carried to excess reduces the number of red corpuscles and the tone of the pulse. Dr. Franz Boas, of Columbia University, was chairman of the Section on Anthropometry, in which papers were read by himself, Dr. Sargent, Dr. H. G. Beyer, of the United States Naval Academy at Annapolis, Dr. J. McK. Cattell, of Columbia, and Dr. Edward Hitchcock, of Amherst.

EQUITABLE ENFORCEMENT OF MEDICAL CLAIM.—Dr. J. F. Sherman has finally succeeded, after prolonged litigation, in securing the application of a portion of a testamentary trust fund, provided by the late Francis N. Skuse for the support of his son, toward the payment of his (Dr. Sherman's) claim for medical services rendered the beneficiary upon his own request. The Court of Appeals, affirming the claim of the Appellate Division of the fourth department of the Supreme Court, holds that such a claim may be enforced in equity to the extent of the unexpended income in the hands of the trustees applicable to his support, when it appeared that the beneficiary had become insolvent, and it did not affirmatively appear that the trustees had furnished him with all that was necessary in respect to medical attendance. Under such circumstances, the court held, it might be assumed that the services were rendered with the knowledge and tacit consent of the trustees. The trustees might be regarded as mere custodians of the unexpended income in their hands, which it was their duty to apply to the payment of necessities furnished to them for the beneficiary, or to the beneficiary himself with their knowledge and consent; and which equity would regard as having been so applied, the court simply directing a formal payment out of the fund, which the trustees should have made without such direction.

CHRISTIAN SCIENCE AND OSTEOPATHY AT ALBANY.—The Legislature has adjourned without passing the Anti-Christian Science bill. While this is a matter of regret, the community is to be congratulated on the fact that it also failed to pass the bill to license osteopaths, which would have flooded the State with quacks.

APPROPRIATION FOR CRAIG COLONY.—Governor Odell has approved the act appropriating \$125,000 for improvements at the Craig Colony for Epileptics.

MEDICAL MEN IN THE REVOLUTION.—At the celebration of the 126th anniversary of the Battle of Lexington by the Society of Sons of the Revolution, at Delmonico's, Dr. Sidney H. Carney, Jr., read a valuable paper on "Medical Men in the Revolution."

CHRISTIAN SCIENCE.—In a recent paper before the Baptist Ministers' Conference, denouncing Christian Science, the Rev. Albert G. Lawson incidentally compared the name of the sect to that of the guinea pig, an animal which, he said, does not come from Guinea and is not a pig.

DIPHTHERIA IN THE BRONX.—On account of the prevalence of diphtheria in the vicinity, the public school, and the parochial and Sunday schools at High Bridge, Borough of the Bronx, have been ordered closed by the Board of Health.

Miscellany.

THE SANITARY CONDITION OF HAVANA.

MAJOR W. C. GORGAS, the chief sanitary officer of Havana, in his report to the Adjutant General, accompanying the vital statistics for the month of March, calls attention to the continued excellent sanitary condition of the city as shown by the general death rate. The general death rate, 26.28, it will be seen, is considerably lower than that of any March since 1889. The lowest previous rate for the preceding eleven years being that of 1893, when we had 27.60; the highest that of 1898, the last year of Spanish occupation, when we had 78. It will be seen from this, that we have had a steady decrease since the American occupation, and that we compare favorably with many other of the larger cities of the world.

According to Marine Hospital reports, Liverpool, for the week ending February 23, 1901, with a population of 668,645, had 338 deaths, being a death rate of 26.26; Dublin, for the week ending February 16, 1901, with a population of 349,594, had 235 deaths, which gives a death rate of 34.84 per thousand; Marseilles, for the month of January, 1901, estimated population 447,344, deaths 1,181, giving death rate 31.20.

The number of deaths for March is considerably larger than that for February, due to the increased number in the diarrheal diseases of children, and an increase of pulmonary troubles generally. As these causes effect the Cuban population mostly, it will be seen that the increase is entirely among the Cubans. The Cubans in February, 1901, had 305 deaths, and in March, 1901, 444.

Particularly attention is called to the condition of the city with regard to yellow fever. The report shows 4 cases and 1 death. The only two years since 1889 showing as small a number of deaths as this were 1892 and 1899, when there was 1 death in March for each of these years. Of these 4 cases reported in March, 1901, only 1 took

sick during March, the other 3 were taken sick during the latter part of February, and remained over into March. In 1900, during March, there were 11 cases and 4 deaths.

Previous to the year 1899, no record was kept of the number of cases, so that no comparison can be made. As a matter of fact, there was only 1 case of yellow fever in Havana since the 1st of March, and since March 23d the city of Havana has been entirely free from that disease. This is the first time this has occurred since June, 1899. There were two occasions in 1900 when the city went for a few days with no fever, but none since the time mentioned that it has been free from fever as long as at the present. Major Gorgas feels very much encouraged at the prospects for the summer.

He thinks the present freedom from fever is in part due to the systematic and extensive way in which they have been killing the mosquitoes for the last month. He has the greatest hopes of destroying the foci as they appear by systematically killing the mosquitoes over a large area around each focus as it occurs.

He is inclined to think that they have been free from fever for a longer time than has ever occurred in Havana before. Our records show longer periods in which no fever was reported in the early part of the year 1899, but at that time physicians had not learned to recognize the milder types of yellow fever, and were much less careful about reporting them, so that a case of yellow fever, which is now promptly recognized and reported, would then have been passed over.

The condition with regard to smallpox is equally satisfactory, and, while this disease is occurring in every part of the United States, in Havana there has not been a single case since August.

On March 3d, the examination of sputum for tuberculosis was begun, and during the month 70 examinations were made.

The sanitary authorities certainly deserve congratulation on the excellent showing made for the enlightened methods of sanitary administration introduced by the medical department of the U. S. army in Havana. The good health of the city is certainly a definite result of the American Protectorate, and in marked contrast to the conditions which prevailed under the Spanish Régime.

Correspondence.

FORMALDEHYDE GAS IN DIPHTHERIA.

Boston, April 15, 1901.

MR. EDITOR:—In a short communication which appeared in the *JOURNAL*, Vol. CXXXVI, No. 23, June 10, 1897, I called attention of the profession to the use of formaldehyde gas in the treatment of diphtheria, especially in cases in which the disease is located in the nasal cavities or their vicinity, and particularly in children. The plan then adopted consisted in placing the patient temporarily in a small room, the air of which was permeated with an uncertain amount of the vapor produced by the clumsy lamp which was the predecessor

of the improved apparatus of today. I was surprised to find that a tender child could not only breathe the air thus charged with formaldehyde gas, which was very irritating to the eyes, nose and throat of the attendants, but that after a long persistence of the diphtheria bacillus in the secretions of the nose, the cultures rapidly became less abundant, and within a few days were negative. This was verified by control.

Since that time, I have continued to employ this method of treatment with most satisfactory results. The only material variation in its use being the entire abandonment of all forms of apparatus for the generation of free formaldehyde gas, by the substitution of a dilute solution of the gas in water, which is now to be easily obtained under a variety of names; formaldehyde, formaline, etc., all of which I suppose to be the same substance placed upon the market by different manufacturers. I have observed no variation in the effect produced.

Further experience has proved that the exposure of the patient to the continuous inhalation of the vapor of formaldehyde is a more efficacious form of germicidal treatment than that previously advocated in the cases earlier reported. I have found that the patient with diphtheria may remain constantly for days or even weeks in an atmosphere which is saturated with the vapor of formaldehyde derived from the evaporation of a 2% solution of the formaldehyde of trade, not only without detriment, but absolutely without discomfort. Towels saturated with this solution are suspended in various parts of the room, and a double sheet arranged in the entrance to the sick room, where continual ventilation affords a constant supply of fresh air, which by its contact with the towels becomes charged with a most potent disinfectant. Each inspiration thus carries with it a volume of formaldehyde reaching to the utmost circulation of the air within the lungs, and the intervening respiratory tract is constantly bathed with an ebb and flow of the gas.

It is not necessary to present an array of cases in support of the treatment here advocated, but perhaps two may be mentioned. The first is that of a frail rachitic girl afflicted with organic valvular lesion of the heart, due probably to longstanding chorea from which she still suffers. In November last she was prostrated by an attack of diphtheria, of a very severe character. Antitoxine was freely employed at once, and on the succeeding day, and the culture sustained the provisional diagnosis. The strictest precautions as to local disinfection, isolation, etc., were rigidly carried out. The seat of the local lesion was upon the roof of the mouth, the soft palate, and the pharynx, chiefly on the right side. A large slough was formed, which was later discharged. Nourishment returned through the nose, and there was severe pain in the ear, and albuminuria soon appeared. This was followed by almost complete bilateral loss of sight, without physical ocular lesion. Somnolence and stupor succeeded, the child could take hardly any nourishment, an acrid and extremely offensive discharge flowed constantly from both nostrils, and the patient showed signs of cardiac failure; the skin became waxy and dull, the prostration increased, and death seemed imminent.

In the meantime the throat had become clear of bacilli, but they were still found in large numbers in the discharge from the nostrils, which were so occluded as to render respiration by these channels impossible. At length, however, there was a free discharge of thick sloughing matter from the nose, and it was possible for the child to breathe by this route. Applications of soothing character had constantly been made to the nostrils, but had seemed to have no effect until the free passage of the air loaded with formaldehyde was possible, when the bacilli soon disappeared and the Board of Health declared the disease at an end. The other concomitant symptoms slowly subsided, and the child has recovered her former state of health. The final disappearance of the bacilli corresponded so closely to the freeing of the nasal passages that the effect seemed more than a coincidence. There were no symptoms of poisoning, nor even of discomfort from the prolonged

breathing of formaldehyde gas, and no bronchial irritation remained after its use.

The second case which I will mention affected a teacher in a public school, who has long been subject to recurrent attacks of "erysipelas" [from her own statement]. The cause of her present illness was really erysipelas, located upon the nose, face, lips, and extended later to the neck, chin and to the border of the hair, where it was arrested by a fence of contractile collodion, across which it did not pass. On the second day, a culture was taken from her nostrils with the desire to obtain the bacterium of erysipelas. What was my surprise to find an almost pure culture of diphtheria germs, some of them of exquisite form, for the opportunity of seeing which, I am under great obligation to Dr. Hill and his assistant at the laboratory of the Board of Health. Formaldehyde inhalation was at once adopted. In this patient, also, the nostrils were closed by the great swelling caused by the erysipelas. There were in all the course of the case absolutely no clinical symptoms of diphtheria, but the bacilli continued present in the discharge. When the erysipelas had so far subsided as to allow nasal breathing, the discharge at once became less, and in a short time the bacilli disappeared from the cultures, and the patient soon entirely recovered. In this case there was no suspicion of infection from diphtheria, and it is an interesting question how long this patient may have been carrying active infection into her schoolroom without any appearances of the disease in her own person.

The above and other similar experiences have convinced me that, in cases of diphtheria, we have in the vapor of formaldehyde a means of obtaining a germicidal action upon the surfaces chiefly affected by the bacilli, which is obtainable in no other way; and which may be thus continuously exposed to efficient disinfection by the most active parasiticide at present known. I think it doubtful if it has any action upon the toxin already formed in the course of the disease, but its effect has uniformly been to destroy the germs upon the surface of the mucous membranes. A chief consideration for its employment is found in its absolute absence of danger to the patient, even when the air of the sickroom is almost intolerable to one entering the apartment. This quality would certainly be of service in cases treated at home; without trained nurses or the benefits of hospital wards. The protection to others is much greater if formaldehyde is used in the care of the patient. I have not been able to find any record of the use of formaldehyde in this way, which antedates my former communication, and only few allusions to the subject in any way. The only reference of this kind which I have seen was kindly given me by Dr. Hill, from the "Tenth Annual Report of the State Board of Health of Maine," issued July 27, 1898, through its secretary, A. G. Young, M.D., as follows. "While formaldehyde gas is irritating to the eyes and nose, the general testimony of those who have worked with it and have been much subjected to its influence is that no permanent ill results follow ordinary exposure to it."

"After disinfection of rooms with formaldehyde, no poisonous substance remains. The odor is comparatively transient and but slightly disagreeable. A temporary airing renders the room habitable again."

"Various authors have recommended formaldehyde as an agent for the local treatment of diphtheria, whooping cough, influenza, tuberculosis and other diseases by inhalation or otherwise."

Dr. C. B. Smith states that he is "satisfied that constant breathing of formaldehyde vapor had been a valuable aid in preventing extension of membrane . . . although antitoxin had been used early and in considerable doses to neutralize the toxin."

Dr. Hill has suggested that the constant inhalation of formaldehyde might be of service in tuberculosis, especially in the laryngeal form of that disease, in certain affections in or about the tonsils, nasopharynx and about the eustachian tube. I think it might be employed in proper dilution as a local application to some of the forms of destructive or malignant growths in the same

region. Its action is that of drying or mummifying the tissues to which it is applied, with destruction of the superficial structures. It would also seem to be appropriate to the treatment of scarlet fever, ozena or other infective conditions of the throat, pharynx and nose, in relation to the extension of the disease to the middle ear, with all that this implies.

Should the claim here presented as to the influence of formaldehyde gas as a valuable aid in the treatment of diphtheria in locations not accessible to topical applications be doubted, the favorable effect upon the surroundings of the patient should still lead to its employment. The putrid and almost insufferable odor which accompanies the severer forms of diphtheria is at once destroyed, vermin will not remain in its presence, and the care of the patient is rendered far less dangerous and immensely less disagreeable. Flies which penetrate to the sickroom have been observed to fall dead before reaching the opposite side of the room. This fact alone would seem to be a recommendation for its use from the increased comfort afforded the patient, particularly in cases which cannot receive the benefit afforded by treatment in hospital.

Yours respectfully,

ALBERT N. BLODGETT, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 13, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Typhoid fever.	Diphtheria and croup.	
New York . . .	3,437,292	1,413	484	26.47	14.51	3.54	.99	3.82	
Chicago . . .	1,686,575	—	—	—	—	—	—	—	
Philadelphia . .	1,293,697	469	142	15.98	14.48	1.27	1.06	1.49	
St. Louis . . .	575,238	—	—	—	—	—	—	—	
Baltimore . . .	308,357	211	52	17.53	14.22	—	.47	—	
Cleveland . . .	381,768	—	—	—	—	—	—	—	
Buffalo . . .	352,387	—	—	—	—	—	—	—	
Cincinnati . . .	325,902	—	—	—	—	—	—	—	
Pittsburg . . .	221,616	152	42	23.46	22.71	1.51	6.81	—	
Washington . .	278,718	—	—	—	—	—	—	—	
Milwaukee . . .	285,315	—	—	—	—	—	—	—	
Providence . . .	175,597	62	17	9.66	25.54	—	1.61	1.61	
Boston . . .	560,892	234	57	25.82	39.59	4.27	.42	2.97	
Worcester . . .	118,421	31	9	16.15	16.15	—	—	3.22	
Fall River . . .	104,863	—	—	—	—	—	—	—	
Lowell . . .	94,969	40	11	10.00	25.00	—	2.50	—	
Cambridge . . .	91,886	—	—	—	—	—	—	—	
Lynn . . .	68,513	21	5	9.52	23.80	—	—	9.52	
Lawrence . . .	62,559	29	9	20.00	25.00	—	—	—	
New Bedford . .	62,442	18	4	22.29	5.55	5.55	—	—	
Springfield . . .	62,059	12	4	11.05	—	—	—	—	
Somerville . . .	61,643	21	4	19.04	38.08	—	—	—	
Holyoke . . .	45,712	16	5	18.75	12.50	—	—	—	
Brookton . . .	40,063	11	6	45.45	—	—	—	—	
Haverhill . . .	32,475	12	2	16.66	41.66	—	—	—	
Salem . . .	35,366	13	3	—	—	—	—	—	
Chelsea . . .	34,072	24	3	20.85	—	—	—	—	
Malden . . .	33,664	8	2	12.50	—	12.50	—	—	
Newton . . .	33,687	6	1	16.67	—	—	—	—	
Fitchburg . . .	31,531	9	—	11.11	22.22	—	—	—	
Taunton . . .	31,036	12	3	—	—	—	—	—	
Gloicester . . .	26,121	7	2	28.56	—	—	—	—	
Everett . . .	24,536	10	4	10.00	—	—	—	—	
North Adams . .	24,200	6	3	33.33	16.67	16.67	—	—	
Quincy . . .	23,899	1	—	—	—	—	—	—	
Waltham . . .	23,431	3	1	—	—	—	—	—	
Fitchfield . . .	21,766	3	—	100.00	—	—	—	—	
Brookline . . .	19,935	—	—	—	—	—	—	—	
Chicopee . . .	19,167	9	5	22.22	11.11	—	—	—	
Medford . . .	18,244	6	3	33.33	16.67	—	—	16.67	
Newburyport . .	14,478	—	—	—	—	—	—	—	
Melrose . . .	12,962	—	—	—	—	—	—	—	

Deaths reported 2,876; under five years of age 876; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 652; acute lung diseases 435; consumption 333; diphtheria and croup 61; diarrheal diseases 49; scarlet fever 71; influenza 10; typhoid fever 34; whooping cough 24; measles 13; cerebro-spinal meningitis 15; smallpox 14.

From whooping cough, New York 10, Philadelphia 6, Pittsburg 4, Boston, Worcester, Chicopee and Medford

1 each. From cerebro-spinal meningitis New York 7, Pittsburgh 1, Brockton 3, Gloucester 2, North Adams and Pittsfield 1 each. From scarlet fever, New York 50, Philadelphia 6, Pittsburgh 2, Boston 10, New Bedford, Malden and North Adams 1 each. From typhoid fever, New York 14, Philadelphia 5, Baltimore 1, Pittsburgh 9, Providence, Boston, Lowell, Chelsea and Clinton 1 each. From measles, New York 10, Boston 3. From smallpox, New York 11, Pittsburgh 1, Boston and Fitchburg 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,000, for the week ending March 30th, the death rate was 19.7. Deaths reported, 4,350; acute diseases of the respiratory organs (London), 393, whooping cough 146, diphtheria 59, measles 120, fever 25, scarlet fever 34.

The death rate ranged from 13.0, in West Ham, to 29.7, in Plymouth; Birkenhead 14.0, Birmingham 23.4, Blackburn 17.6, Bolton 18.5, Bradford 16.6, Brighton 14.6, Bristol 21.5, Burnley 17.7, Cardiff 16.9, Croydon 12.8, Derby, 21.4, Gateshead 20.4, Halifax 17.1, Huddersfield 23.2, Hull 21.4, Leeds 18.7, Leicester 17.4, Liverpool 28.1, London, 18.4, Manchester 22.0, Newcastle-on-Tyne 23.2, Norwich 21.5, Nottingham 22.9, Oldham 20.1, Portsmouth 18.1, Preston 17.8, Salford 22.4, Sheffield 20.3, Sunderland 21.7, Swansea 18.0, Wolverhampton, 19.6.

METEOROLOGICAL RECORD.

For the week ending April 13th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Barometer	Thermometer	Relative humidity	Direction of wind.		Velocity of Wind.		Weather		Inches.
	Daily mean.	Daily mean. Maximum. Minimum.	8.00 A. M. 5.00 P. M.	Daily mean.	8.00 A. M. 5.00 P. M.	8.00 P. M.	8.00 A. M. 5.00 P. M.	8.00 A. M. 5.00 P. M.	8.00 P. M.	
S....7	29.57	44 47 40	98	—	99	E.	N.E.	22	6	R. R.
M....8	29.56	42 44 40	92	—	90	N.	N.	10	9	R. O.
T....9	29.68	47 44 40	88	—	94	N.	N.	8	9	O. R.
W....10	29.85	47 49 40	88	79	84	N.	N.	15	17	O. O.
T....11	30.03	42 46 38	69	56	62	N.	N.E.	16	16	O. O.
F....12	30.17	45 54 36	30	34	36	N.E.	E.	16	3	C. C.
S....13	30.15	46 52 40	32	44	32	N.	E.	9	7	C. C.
Σ 7 th	29.83	48 29	71							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
Σ 7th Mean for week.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The annual meeting will be held at the Medical Library Building, 8 The Fenway, on Saturday, April 27, 1901, at 8 P.M.

Papers: "The Teaching of Therapeutics," by Dr. Franz Pfaff.

Discussion by Drs. F. C. Shattuck, J. J. Putnam, T. M. Ritch, E. G. Wheatley, Edward Reynolds, E. O. Otis and H. W. Lovett.

Business: Report of the librarian and treasurer; election of officers; appointment of delegates to the annual meeting of the American Medical Association; appointment of a committee to consider the advisability of establishing an Academy of Medicine. Supper after the meeting.

HOWARD A. LOTHROP, Secretary,
H. L. BRIDGELL, President,
10 Marlborough Street.

SUFFOLK DISTRICT MEDICAL SOCIETY, CENSORS' EXAMINATIONS.—The censors of the Suffolk District Medical Society, soliciting for the Society at large, will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, May 9, 1901, at 2 P.M.

Candidates should make personal application to the Secretary, and present their medical diploma, at least three days before the examination.

For further particulars apply from 2 to 3 P.M. to

HOWARD A. LOTHROP, M.D., Secretary,
10 Marlborough Street.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.—The Surgical Section will meet at the Medical

Library, 8 The Fenway, on Wednesday evening, May 1, 1901, at 8.15 o'clock.

Papers: "Strangulation of the Testis by Torsion of the Cord," by Dr. C. L. Scudder; "Report of Two Cases of Strangulation of Intestine by Bands," by Dr. J. W. Elliot; "Report of a Case of Intussusception," by Dr. F. G. Balch.
F. G. BALCH, M.D., Secretary,
279 Clarendon Street.

RECENT DEATHS.

GEORGE COGSWELL, M.D., M.M.S.S., died in Haverhill, April 21, 1901, aged ninety-three years.

BOOKS AND PAMPHLETS RECEIVED.

Massage in Raynaud's Disease (Symmetrical Gangrene). By Douglas Graham, M.D., of Boston, Mass. Reprint. 1901.

Two Unusual Cases of Surgery of the Trachea. By W. S. Jones, M.D., and W. W. Keen, M.D., of Philadelphia. Reprint. Illustrated. 1899.

Progressive Pernicious Anemia. By Alfred Stengel, M.D., of Philadelphia; Professor of Clinical Medicine in the University of Pennsylvania. Reprint. 1900.

Some Notes on the Treatment of Rheumatism. By Alfred Stengel, M.D., of Philadelphia; Professor of Clinical Medicine in the University of Pennsylvania. Reprint. 1900.

The Endowment of Medical Colleges. By W. W. Keen, M.D., LL.D., President of the American Medical Association at the meeting in Atlantic City, June 5, 1900. Reprint 1900.

Chronic Urethritis of Gonococcal Origin. By J. De Keersmaecker and J. Verhoogen. Translated and edited with notes by Ludwig Weiss, M.D. New York: William Wood & Co. 1901.

Aneurism of the Arch of the Aorta, with Rupture into the Superior Vena Cava. By Alfred Stengel, M.D., Professor of Clinical Medicine, University of Pennsylvania. Reprint. Illustrated. 1900.

Massachusetts Infant Asylum. Thirty-Fourth Annual Report of the Directors Presented to the Corporation at the Annual Meeting, February 19, 1901. Reprint. Brookline: The Riverside Press. 1901.

The Feeding of Infants. Home Guide for Modifying Milk. By Joseph E. Winters, M.D., Professor of Diseases of Children, Cornell University Medical College. New York: E. P. Dutton & Co. 1901.

Some Remarks Upon Digitalis Treatment in Chronic Disorders of the Circulation, and Especially Upon the Continuous Use of Digitalis. By Medicinalrat J. Groedel, M.D. (Bad Nauheim). Reprint. 1900.

Hygiene and Public Health. By Louis Parkes, M.D., D.P.H., London University and Henry Kenwood, M.B., D.P.H., F.C.S. Illustrated. London: H. K. Lewis. Philadelphia: P. Blakiston's Son & Co. 1901.

A Review of the History of Cardiac Pathology, with Especial Reference to Modern Conceptions of Myocardial Disease. By Alfred Stengel, M.D., Professor of Clinical Medicine, University of Pennsylvania. Reprint. 1900.

Transtransits Indlicted by Animals. By R. Harvey Reed, M.D., of Rock Springs, Wyoming, Division Surgeon Union Pacific Railroad; Emeritus Professor Principles and Practice of Surgery and Clinical Surgery, Ohio Medical University. Reprint. 1900.

Treatment of Prostatic Hypertrophy. By Parker Syns, M.D., Clinical Professor of Surgery in the University and Bellevue Hospital Medical College; Surgeon to Lebanon Hospital; Member of the New York Surgical Society; Member of the American Medical Association; Member of the New York State Medical Association. New York City. Illustrated. Reprint. 1900.

International Clinics. A Quarterly of Clinical Lectures and Especially Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and Other Topics of Interest to Students and Practitioners. By leading members of the medical profession throughout the world. Edited by Henry W. Cottell, A.M., M.D. Vol. I. Eleventh series, 1901. Philadelphia: J. B. Lippincott Company. 1901.

Original Articles.

CONTUSIONS OF THE ABDOMEN.¹

BY CHARLES L. SCUDDER, M.D., BOSTON.

Surgeon to Out-Patients at the Massachusetts General Hospital; Assistant in Clinical and Operative Surgery, Harvard Medical School.

ACUTE abdominal emergencies command the attention of physicians and surgeons alike. The subject which I have the privilege of presenting for your consideration and discussion this evening, "Contusions of the Abdomen," embraces a highly important group of acute abdominal emergencies due to traumatism.

There being no external wound, the physician is first summoned. Upon him rests grave responsibility, for the mortality in these cases is very great—deplorably great. Many cases are fatal if left to themselves and the physician. Surgical intervention, to be successful, must be early, perhaps before a diagnosis is completely made. The physician must be on the alert to the proper interpretation of the signs immediately succeeding the trauma. Patients of this class, who are ignorantly watched, frequently die. Few, even with an hospital experience, meet many of these emergencies. It is for this reason that I have attempted to present this subject in a somewhat systematic fashion, that we may review the facts as they exist today in these important cases. It is impossible to present here, in brief space, all the evidence for and against the views expressed. The evidence presented in literature has been carefully studied, and the following observations seem reasonable in the light of our present knowledge.

INJURIES TO THE URETER.

Rupture of the ureter following a contusion of the abdomen is a rare injury. That it may happen has been demonstrated by the 2 reported cases of Poland and Mackenzie.

Rupture of the ureter is caused either by compression of the abdomen, forcing the ureter against the transverse processes of the third, fourth and fifth lumbar vertebrae, or by traction on the ureter, tearing it at its two most fixed portions. The two fixed portions of the ureter are a little below the pelvis of the kidney and at the brim of the bony pelvis. All ruptures are above the true pelvic brim. Tuffier's experiments and Poland's case confirm these observations.

Twenty-three cases are recorded in medical literature as rupture of the ureter following abdominal contusion. Ruptures of the pelvis of the kidney and of the kidney tissue proper have been improperly reported as ruptures of the ureter. Of the 23 recorded cases, 12 have some good pretension to being classified as injuries to the ureter proper. Of these 12 cases, 5 presented contracted ureters, associated with hydronephrosis following trauma. Five were very probably rup-

tures of the ureter, 2 cases proved without any doubt to have been cases of ureteral rupture.

The general symptoms of shock may be present. These may subside within a few hours. If no lesion of an abdominal organ complicates ureteral rupture, no very grave symptoms will appear. If, after the subsidence of shock, a little blood appears in the urine, it is evidence of injury to the genito-urinary tract. If the amount of blood is small, perhaps only an occasional tiny clot, the suspicion should be great of rupture of the ureter. If, along with this very slight and intermittent hematuria, there is a persistent pain in the side, the evidence for rupture of the ureter is still stronger. The pain may be associated with local tenderness over the ureter. Transient hematuria may easily be overlooked.

If the ureter is torn across, a retroperitoneal accumulation of urine will form. This tumor of urine and blood does not appear for several days. Upon its recognition the diagnosis of injury to the pelvis of the kidney or ureter can be made. This tumor can be palpated through the anterior abdominal wall. Seven days is the shortest time for the development of this retroperitoneal fluid tumor. It is impossible to distinguish clinically between a ruptured pelvis of the kidney and a rupture of the ureter.

If there is complete prolonged obstruction of the ureter, an atrophy of the kidney will occur. If there is partial obliteration of the ureter, and the patient lives, after months or years, a renal abscess, a pyo- or hydronephrosis or a cystic kidney will form.

Wounds of the ureter have very little tendency to spontaneous repair. Wounds of the kidney, on the other hand, heal without great extravasation of urine.

If there is no associated serious injury, and if the peritoneum is uninvolved near the ruptured ureter, there is no especial danger to life in these cases. If the peritoneum is involved, extravasation of urine and blood into the peritoneal cavity adds greatly to the gravity of the accident. It is characteristic, then, of injuries to the ureter that the symptoms which will assist in localizing the lesion are often delayed in appearing. The delay in some cases may be due to the fact that the injury to the ureter is primarily a bruising, which subsequently ruptures through necrosis of the ureteral wall.

As yet no surgical treatment has been attempted upon the ureter itself. When cases are seen early after the injury, immediate suture or anastomosis is the ideal treatment.

After infection has occurred in these cases of retroperitoneal accumulation of urine and blood from ureteral rupture, it is extremely difficult to find the rupture in the ureter. Even if it could be found easily, it is questionable whether success would attend any attempt at anastomosis under the existing septic conditions. Lumbar incision and drainage is indicated in these cases. Nephrectomy should be the secondary operation. Puncture and aspiration of these retroperitoneal cysts

¹ Read before the Surgical Society of the Buffalo Academy of Medicine, April 2, 1901.

is a measure of doubtful curative utility, although it has been successful in a number of cases.

RUPTURE OF THE URINARY BLADDER.

Since the monograph by Rivington, in 1884, nothing more than isolated cases and groups of cases has appeared in medical literature upon this subject.

Rupture of the urinary bladder is infrequently seen. It follows some kind of injury to the lower abdomen. It is frequently met with in connection with fracture of the pelvis. Uncomplicated cases are unusual. The mortality is large. The rupture in these uncomplicated cases takes place at the posterior and upper part of the bladder and in a vertical direction, if the rupture is intraperitoneal. If the rupture does not pass entirely through the muscular wall of the bladder at the time of the accident, no very acute symptoms will appear. At the time there will be a delay in the appearance of these symptoms until the necrosis of the bladder wall completes the perforation. Hegerstedt reports a case in which the delay was three days.

The following initial symptoms of rupture of the bladder are common to both the intra- and extraperitoneal forms, namely: Pain in the abdomen referred to the hypogastrium or umbilicus; a feeling of something having given away within the belly; difficulty in standing and walking; a certain amount of shock or depression; nausea; rectal tenesmus; temporary relief to the desire to make water, followed by a more urgent desire, but inability to do so; catheterization, bringing away blood or bloody urine or nothing at all. The patient may come to the surgeon complaining of retention of urine, so-called. Suppression of urine if present may be reflex and does not prove a bladder rupture to have occurred.

It is sometimes difficult without laparotomy to distinguish between intra- and extraperitoneal rupture. The intraperitoneal ruptures are attended with the most severe symptoms of shock, and peritonitis appears usually after a few hours.

A few cases have been recorded in which clear urine, not bloody, has been drawn by catheter and yet the bladder has been ruptured. The catheter may pass beyond the bladder into the abdominal cavity if rupture is present.

In extraperitoneal ruptures the symptoms of peritonitis will not be present unless the peritoneum has been injured by the violence which occasioned the rupture of the bladder or becomes involved secondarily, by urine under it or by infection through the sloughing sub-peritoneal tissues consequent upon extravasation of urine. Sooner or later, appear signs of septicæmia.

Now, if the bladder is emptied by catheter and a measured quantity of warm boric acid solution injected, if all injected water returns through the catheter, this is pretty good evidence that the bladder is intact. If there is intraperitoneal rupture the patient may feel the injected water enter the abdomen.

Walsham has once injected the bladder, following contusion of the abdomen, with air, as Keen has suggested. The escape of air into the general peritoneal cavity being recognized, it was concluded that an intraperitoneal rupture of the bladder existed, and such was found to be the case at operation. Free fluid in the abdomen will suggest intraperitoneal rupture. Unilateral hypogastric tenderness and tumor will suggest extraperitoneal rupture. Treatment should remove the extravasated urine, render clean the peritoneum or the extraperitoneal cavity, close the intraperitoneal bladder wound, if possible, and temporarily drain the bladder. Suture of the extraperitoneal bladder wound should not be attempted. If there is doubt as to whether the rupture is extra- or intraperitoneal, the abdomen should be opened. The Trendelenburg position and the rectal bag will facilitate the suture of intraperitoneal ruptures.

RUPTURE OF THE LIVER.

It is often associated with lesions of other organs. A blow upon the lower right thorax and falls from a height are the common causes of hepatic rupture. A very small wound of the liver may cause fatal hemorrhage. A large wound of the liver is, of course, most serious. Of 543 cases of injury to the liver more than one-half died within the first twenty-four hours of hemorrhage. Wounds of the liver have only a slight tendency to cease bleeding spontaneously. Usually the right lobe is torn upon its convex surface, and in an anteroposterior direction. The shock present is often out of all proportion to the hemorrhage.

Pain in the abdomen, both local and general, is severe and continuous rather than intermittent. The pain may radiate toward the umbilicus and the right shoulder. Jaundice may appear after a few days. It is rare before the second day. Bile may be found in the urine.

In the treatment of wounds of the liver, suturing, cauterization and tamponing have been successfully employed. Sutures may tear through the liver tissue, although often holding well. Tamponing will be of service in deep tears. Cauterization is adapted to superficial wounds.

The healthy gall bladder is rarely torn.

CONTUSIONS OF THE KIDNEY.

Maas's collection of 71 recorded cases of contusions of the kidney prior to 1878, combined with Spencer's collection of 118 cases reported between 1878 and 1896, make a total of 189 cases of what must be regarded as an unusual injury.

Rupture of the kidney due to trauma is unilateral; occasionally only is it bilateral. The rupture is rather constantly transverse to the long axis of the kidney, in the grain of its development, so to speak.

The following have been some of the accidents causing contusion of the kidney: Falls from a height striking the loin upon a blunt object like a beam, a fence rail, or a stone; a squeeze from a

moving car; compression of the abdomen by a heavy cart wheel; kicks by a horse.

The damage done may be a simple contusion of the kidney substance, a tearing of the capsule overlying the lacerated kidney, a rupture of the pelvis of the kidney, a tearing of the renal vessels, or a complete crushing of the kidney. Various combinations of these lesions may be found in any individual case. If the kidney is simply contused, hemorrhage will take place within the kidney capsule; if the renal capsule is torn, hemorrhage will occur into the perinephritic tissues forming a pseudo-hydro-hematonephrosis; if the peritoneum is torn, it is possible for both urine and blood to accumulate within the abdominal cavity.

Herzog finds that in falls and blows upon the lumbar region, the hilus of the kidney is torn, and that retroperitoneal hemorrhage is present. On the other hand, he finds that in crushes from in front, the kidney is torn anteriorly and crushed, and that hemorrhage usually takes place into the general peritoneal space. Keen has called attention to the fact of a greater frequency of intraperitoneal rupture of the kidney in childhood, as compared with that in adult life. This he thinks due to the late development normally of perinephritic fat tissue. In childhood the peritoneum lies directly in contact with the anterior surface of the kidney with no intervening fat tissue; hence the greater liability to involvement of the peritoneum in rupture of the underlying and contiguous kidney substance.

Hematuria is a sign of injury to the kidney. Of 189 cases of kidney subcutaneous injury, hematuria was absent in only 10 cases. In these 10 cases the absence of hematuria was occasioned by a clot in the ureter, a thrombosis of renal vessels, associated with considerable damage to the kidney substance, and a pre-existing stricture of the ureter. These are rather exceptional conditions, but they must be reckoned with. One case should be mentioned in this connection, that of Newman, in which, following a blow upon the loin, hematuria was present. In this instance no rupture of the kidney existed, but the history of the case determined that the hematuria was due to a pre-existing papilloma of the bladder.

Hematuria may be absent immediately after the accident and appear after several days.

Anuria sometimes follows an injury to one kidney, but is more likely to exist after an injury to both kidneys.

Pain in the region of the injured kidney is usually constant and pretty severe. It may radiate toward the groin.

In extreme laceration of the kidney, the force may have been so great as to cause lesions of other important organs, and all the evidences of kidney lesion may be so concealed as to render it impossible of recognition.

Hemorrhage and sepsis are the two dangers to be feared after rupture of the kidney. If the peritoneum is torn over the injured kidney, the hemorrhage is not restrained by the pressure of

perinephritic tissues. The patient may show evidences of intra-abdominal hemorrhage. An immediate laparotomy and probably a nephrectomy will be necessary in order to check this hemorrhage.

Normal urine is not infective, but if the genito-urinary tract is opened into the peritoneal cavity, an infection atrium is present.

Hematuria is a very unsafe guide to the amount of hemorrhage that is going on. It is no criterion as to whether to operate or not. Hematuria is of value only as a diagnostic sign. It indicates only that the urogenital tract has been wounded.

It is possible that hemorrhage may occur to an alarming extent, entirely extraperitoneally. This will be indicated by signs of hemorrhage in general, and locally by a rapidly forming tumor in the loin which is usually palpable through the anterior abdominal wall, is dull on percussion and is independent of any change in the position of the body. Under the above circumstances immediate lumbar incision and a checking of the hemorrhage is demanded. Nephrectomy may prove necessary. If immediate laparotomy or lumbar incision is unnecessary, an expectant treatment is to be followed. If the extravasation of blood and urine extraperitoneally becomes infected, a lumbar incision and drainage, and possibly a secondary nephrectomy will be indicated.

The mild cases of kidney contusion demanding only expectant treatment and rarely operation, usually recover. Fortunately the mild cases are the most numerous. The graver cases do not recover without operation.

Statistics demonstrate that in primary nephrectomy the mortality is less than in secondary nephrectomy after sepsis is present. Therefore, the following is a wise course to pursue, namely: If there are severe or dangerous symptoms of either hemorrhage or sepsis present, operate in an exploratory way and be guided by circumstances as to whether a nephrectomy is done or not, remembering that the early nephrectomy is safer than the late one. If possible, one should not wait for sepsis to appear. Keetley,² in 1890, did a partial nephrectomy upon a lacerated kidney; the man recovered. Bardenheuer³ resected one-third of the kidney and the patient recovered satisfactorily. This procedure of partial nephrectomy is one to be seriously entertained. Every particle of kidney tissue should be saved rather than to sacrifice any unnecessarily.

In packing the wound after nephrectomy, it should be remembered that several cases are recorded in which the gauze packing compressed the colon to such a degree as to cause intestinal obstruction. Israel has mentioned one such case. Before nephrectomy is done, the kidney of the other side should be palpated to be positive of its presence.

Whenever a nephrectomy is done for contusion of the kidney, the urine should be examined to determine the behavior of the remaining kidney. In nephrectomy for disease or new growth, com-

² *Lancet*, London, 1890, i, 134.

³ *Arch. f. klin. Chir.*, 1891, xlii, 371.

compensatory hypertrophy will have been established in the remaining kidney before operation. In nephrectomy for injury no such compensation exists, consequently, the effect upon the remaining kidney will be quite different from that seen in the first instance.

INJURY TO THE STOMACH.

The stomach wall is very elastic; it is protected by the ribs, the liver and the bowel. Rupture of the stomach, followed by the escape of stomach contents, is rapidly fatal. The anterior wall of the stomach is the location of most ruptures. One case is reported in which operation was done on the fourteenth day; a tear 4 centimetres long was found. The stomach contents had been walled off by local peritonitis. Recovery took place.

An incomplete separation and laceration of the mucous coat of the stomach is not uncommon. Ziegler⁴ reports a cyst which formed in the anterior wall of the stomach, probably from a contusion of the upper abdomen. The cyst was drained and the patient recovered.

Guinard⁵ reports a case of contusion of the abdomen; perforation of the stomach; suture; recovery. The perforation was in the lesser curvature near the pylorus, and was caused by a carriage wheel passing over the abdomen. Blackish vomitus and tarry stools and peritonitis existed.

A severe pain in the gastric region, lasting for a long time, associated with an anxious facies, some restlessness, nausea and the vomiting of blood, is strongly suggestive of stomachic rupture. In 6 out of 11 cases vomiting of blood was especially mentioned. In one instance this symptom was absent, and this proved to be a complete rupture near to the pylorus. Of 11 cases, not including those above, the longest period of life following the accident was fourteen hours.

RUPTURE OF THE INTESTINES.

The form of injury which produces an intestinal rupture is varied. Of 80 cases analyzed, 36 were from horse kicks; 23 from carriage wheel accidents; 13 from man kicks; 8 from spent shells. Violent and sudden percussion of the abdominal parietes is characteristic of all these forms of injury. The force is in each instance exerted over a comparatively limited area of the abdomen. A perpendicular blow is most harmful to the intestine. The small bowel is the seat of the lesion in 75% of all intestinal ruptures due to traumatism. The jejunum and the lower ileum are most often injured. These parts are at the junction of a fixed and movable portion of the bowel. There is usually more than one rupture found in the bowel. The rupture may be caused by a crush or by a bursting of the bowel. If by a crush, the wound in the peritoneum is usually smaller than that in the mucous and muscular coats. If by bursting, the wound in the peritoneum is larger than in the mucous and submucous coats.⁶ There is a suggestion here in treatment,

Be sure that the peritoneum covering all the lacerated mucous and muscular coats is reinforced. It may not be sufficient simply to close the peritoneal wound.

Usually the wounded bowel lies beneath the seat of the contusion of the abdominal wall. Rupture being most frequently due to a crush of the bowel against the lumbar spine, a search should be made, in operated cases, from the seat of the surface contusion back to the lumbar spine. The bowel lying in this line should be very carefully examined. In multiple lesions of the intestine, the lesions are superimposed and are more severe the nearer they are to the vertebral bodies.

If the visceral injury is merely a contusion of the intestinal wall, there being no immediate rupture, the appearance of serious symptoms of perforation may be delayed as much as five or ten days⁷ until the contused area in the bowel has perforated, a necrosis following the contusion.

Contusion of the gut may lead to peritonitis, even when not so severe as to cause gangrene and perforation; the diminished vitality having allowed micro-organisms to penetrate the tissues and initiate an inflammatory process in the adjacent peritoneum.⁸

Rupture of the inner coats of the bowel, with some bleeding into the lumen of the bowel, often occurs when the peritoneal investment remains intact and no perforation occurs.

The researches of Cushing⁹ and the lamented Livingood upon the bacterial flora of the intestinal tract are of very great importance in connection with wounds of this part. Peritonitis, following intestinal rupture, is dependent for its characteristics upon the bacterial flora of the canal at the site of the lesion. The prognosis of such peritonitis will be favorable proportionately with the scarcity and innocuousness of the micro-organisms which are present. In the upper portion of the intestinal tract, the bacterial flora is more scanty than in the lower portion. Wounds of the duodenum and jejunum are less fatal than of the lower ileum and colon. It is worthy of note in this connection that in health putrefactive changes, and consequently putrefactive organisms and their products, are absent from the small intestine.

Evidences of injury to the abdominal wall are usually wanting. There is no one unmistakable sign of rupture of the bowel. Shock may be either slight or profound, usually it is slight. It may be wanting. The army cases are valuable in this connection. A cavalry man, when kicked by a horse, exhibits often so little shock that he immediately remounts and rides some distance before being disabled and giving up. Many such cases have had a perforated bowel. The shock is independent of the severity of the blow.

Shock reduces sensibility to pain. Severe, persistent, localized abdominal pain, appearing either immediately after the injury, or after shock has

⁴ *Centrif. f. Chir.*, April 21, 1894.

⁵ *La Presse médicale*, January 22, 1898, p. 37.

⁶ *Gaz. des hôp.*, Paris, 1895, p. 129.

⁷ L. Mugnier, *Thèse de Paris*, 1883.

⁸ Grawitz *Chante*. *Annalen*, xl, Jahrg., Berlin, p. 770.

⁹ *Johns Hopkins Hospital Reports*, vol. iv.

subsid, is the most important sign of rupture of the bowel. Early, frequent and uncontrollable vomiting is suggestive of rupture of the bowel. Tenderness, localized and persistent, is a very valuable sign.

Absence of liver dullness is suggestive of the escape of gas from a rupture of the bowel to between the liver and chest wall and diaphragm. Adhesion of the liver to the chest wall and to the under surface of the diaphragm would prevent this sign from being in evidence. Great tympanites may cause the liver dullness to disappear. Bloody stools are seen in some few cases of intestinal rupture. This is, however, an uncommon sign. The facial expression is often of very great importance. In intestinal rupture a serious, drawn appearance of the face is present, suggesting a grave difficulty.

Injury to the mesentery may, through hemorrhage, complicate a ruptured bowel. There is comparatively little bleeding from the torn edges of the intestinal wound. If intestinal rupture is suspected even, exploratory laparotomy should be done at once.

The fatality of uncomplicated concealed lesions of the intestine is very great. Cases of uncomplicated intestinal rupture group themselves roughly into three classes:

(1) Those in which shock, collapse and death follow each other in alarming rapidity. No surgical intervention is possible.

(2) Those in which the shock clears up in average rapidity and reaction appears. Some of the local signs become prominent, which have already been mentioned. Early operation will save many such cases.

(3) Those in which there is but slight shock, associated with vague signs of abdominal disturbance. The patient grows very gradually weaker. There is a question as to whether improvement is occurring or not. Meantime, sepsis is beginning in a most stealthy fashion, and even with a low temperature. These are cases to be operated early when it is first noted that improvement has ceased.

Persistent pain and tenderness and early vomiting should lead one to operate.

LACERATION OF THE SPLEEN.

A crushing injury or a blow to the lower left chest or to the upper left abdomen may cause a rupture of the spleen without evidence of external injury.

The signs of internal hemorrhage, together with the greater dullness in the splenic region following an injury to the left hypochondrium and lumbar regions, are sufficient to make a diagnosis of splenic rupture.

The dull area upon the left does not disappear upon turning the patient to the right side. The dullness upon the right side does vary as the individual is turned to the left. This is accounted for by the fact that the splenic blood having an unusually large proportion of colorless corpuscles coagulates rapidly. In Mixter's case (soon

to be reported) the blood filling the abdomen was fluid, without much clotting. This is explained by the fact that the spleen was torn from its vessels and that the hemorrhage took place from the splenic vessels directly before entering the spleen.

The danger attending a ruptured spleen is hemorrhage. Most unoperated cases die from hemorrhage. A few cases which escape death from hemorrhage have a subphrenic abscess. There are a number of cases of rupture of the spleen where spontaneous recovery takes place, as shown by several post-mortem scars in spleens of persons who have previously suffered severe abdominal injuries.

Operative treatment may be: (1) Immediate splenectomy; (2) suture of the torn spleen; (3) or packing the torn spleen after cauterization. The choice of operation depends upon the condition of the patient and of the spleen. If the patient has lost much blood, if the spleen is large and extensively adherent, if the tear is favorably situated, suture is to be chosen. If, on the other hand, the capsule is thin and the spleen is soft and the tear is inaccessible, packing the wound is to be considered. Ordinarily, with a normal spleen, and particularly if it is much lacerated so that fragments are detached, splenectomy is the best operation. Hemorrhage is the paramount reason for operating. The loss of the spleen is untended by such grave dangers as at first was thought probable. Up to date some 25 splenectomies have been done for subcutaneous rupture, with 13 recoveries. Dr. Mixter's case, yet unreported, will make 26 cases, with 14 recoveries and 12 deaths. Two cases were packed, with 1 recovery. One case was sutured, with 1 death.

There have been recorded several instances of unusual injury following contusion of the abdomen, noticeably rupture of the aorta, of the celiac axis, of mesenteric vessels, of the spermatic artery, of the inferior vena cava, of the portal vein, and of the gastroduodenalis artery. Rupture of the gall-bladder is recorded. Rupture of the rectus abdominis muscle is reported with fatal internal hemorrhage from a torn deep epigastric artery, the patient dying in six hours after the injury. Rupture of the diaphragm from external injury is recorded in but 3 instances.

INJURIES TO THE PANCREAS.

Rupture of the pancreas uncomplicated by injury to other organs is rare.

The reported cases of rupture of the pancreas may be grouped in two groups: Those almost immediately fatal and those not immediately fatal. Leith recorded 9 fatal cases of the first group. In only 2 of these 9 cases was the pancreas the only organ implicated. Death is due to hemorrhage. In the second group are those cases in which extensive cicatrization may be found post-mortem without any evidence of its presence during life, excepting that at some time severe abdominal injury was received. Pancreatic rupture is as yet unrecognized. Signs of shock and collapse and internal hemorrhage following

upon sudden trauma to the epigastric region is presumptive of pancreatic hemorrhage. The trauma in the reported instances was directly backward and of considerable severity.

Here should be mentioned cases of "traumatic cyst" of the pancreas. In these cases, the earliest signs of trauma having cleared up after ten days or later, a second group of signs appears: Vomiting, indigestion, an epigastric tumor which occupies the umbilical, epigastric and left hypochondriac regions. It is highly probable under these circumstances that a rupture of the pancreas has occurred, and that a "pancreatic cyst" is forming, or that an epigastric cyst exists, having its origin from the ruptured pancreas.

Lloyd has discussed the relationship which exists between injuries to the pancreas and the accumulation of fluid in the lesser cavity of the peritoneum. It is very likely that many so-called cysts of the pancreas are accumulations of fluid blood and pancreatic secretion in the lesser omental cavity. That such cysts do develop after traumatism is now generally acknowledged. The peritoneum covering the anterior surface of the pancreas is the only barrier in a rupture of that organ to blood and pancreatic secretion, entering the lesser cavity of the omentum. Some 17 pancreatic cysts of traumatic origin are recorded. Early median abdominal drainage is the treatment commonly employed in these cysts.

GENERAL CONSIDERATIONS.

In approaching a case of contusion of the abdomen it is important to bear in mind several facts which are salient. The causes of the contusion should be investigated with great care; too often the effects manifest themselves by blind, delayed and insignificant signs. The resistance of the abdominal walls varies with age, the state of the health and with the amount of contraction of the abdominal muscles. Whether the injury, in other words, was expected or whether the abdomen was taken entirely unawares is worthy of consideration.

The traumatism to the abdominal wall may be severe, the resulting injury may be trivial and *vice versa*. A trivial blow may result in serious damage to intra-abdominal viscera. Usually, in these cases, the greater the force the greater is the injury. A diffused crushing blow results in bruising and laceration. A blow by a small instrument, acting locally, results in local rupture. Even in comparatively simple injuries, it is difficult to estimate the force of the blow. Who can measure the kick of a horse?

A hollow organ, if distended, is more vulnerable than if empty. Inquiry as to the previous meal time and as to the last micturition will afford valuable information. The exact direction of the violence is important; whether it is perpendicular, parallel or oblique to the anterior abdominal wall. The clothes of the patient should always be examined for they may offer some indication as to the injury.

The question to be immediately settled follow-

ing an abdominal contusion is whether or not operative intervention is necessary. The evidence at hand will often be sufficient to justify, even if not to demand, an exploratory operation. On the contrary, the evidence may be insufficient for the making of an exact diagnosis. If an exact diagnosis is waited for, the favorable moment for a successful operation may be lost. The surgeon today is tempted to operate in an exploratory way upon slight provocation. Indiscriminate early exploratory operating for a diagnosis is to be deprecated. It is certainly better, however, to have operated many times and found no lesion than even once to have neglected operation when it might have saved a life.

Aside from the signs of lesions of individual viscera, already related in some detail, there are certain general conditions which may be present and which demand consideration in order to intelligently determine whether operation is wise or not. These are the conditions of shock, hemorrhage, and the extravasation of visceral contents causing peritonitis.

SHOCK; HEMORRHAGE; PERITONITIS.

The presence or absence of these three conditions will be determined by a proper interpretation of the pulse, temperature and respiration, by the existence and character of vomiting, nausea, pain, tenderness, rigidity and distension, by a knowledge of micturition and intestinal peristalsis, and last, but of utmost importance, by a true appreciation of the facies of the individual.

Shock.—Death has followed a blow upon the abdomen with no discoverable pathological lesions in the abdominal cavity. Death from pure shock! Almost every abdominal contusion of moment is associated with some degree of shock, whether a visceral lesion is present or not. Hemorrhage exists in many cases of abdominal contusion. Hemorrhage itself, even though not alarming, produces shock.

It is very important, and at times most difficult, to discover the etiological factors of the shock which is present in a given case. It is impossible to say positively that this much of the shock is dependent upon the blow alone, "nervous shock" so called, and that this much is due to hemorrhage, and this much is dependent upon the extravasation of the visceral contents. The differentiation of the causative elements of the initial shock necessitates keen discrimination in the interpretation of physical signs. The accomplishment of this differentiation will often solve the problem of operative interference.

Shock is very variable in individuals suffering from the same lesion. The temperament of the individual (seen, for instance, in the apprehension of a fatal issue), is often a factor in determining the degree of shock. The nationality of the individual influences materially the expressions of shock. These must all be taken into account. Shock will be manifested by a loss of consciousness. The unconsciousness may be more or less profound, dependent upon the degree of shock.

Pallor and perspiration of the face, low temperature, vomiting and nausea, chilliness and coldness of the extremities; a small, irregular compressible and rapid pulse beat; superficial respiration; anuria; less than the normal reaction to stimulation. These are evidences of shock. They all may be present, many may be absent.

A progressive improvement from the conditions of shock is valuable evidence that the patient may bear operative measures. Ordinary shock is recovered from within about three hours of the injury. Signs of reaction appear then and are soon well established. If recovery is somewhat delayed beyond this period there is presumptive evidence of a grave intra-abdominal lesion. Increasing shock after partial recovery from primary shock should suggest intra-abdominal hemorrhage or visceral rupture. Damaged tissues may be giving way. An absence of shock does not mean an absence of a serious lesion. Operation is absolutely contra-indicated in profound and continued shock.

Hemorrhage.—Bleeding inside the skull is harmful because of the irritation due to pressure. Hemorrhage within the abdomen is serious because of the loss in volume of the blood. In intra-abdominal hemorrhage the blood gravitates. Renal hemorrhage may be retroperitoneal. Dullness in the loin or loins, which changes to resonance as the patient is turned to the opposite side, is suggestive of free fluid blood within the abdomen, if other signs of hemorrhage be present.

In hemorrhage there may be shock, together with restlessness, thirst and a sighing respiration. Vomiting of blood may mean injury to the stomach or duodenum. Collapse with sudden exsanguination means rupture of a large vessel or extensive rupture of the liver or the spleen.

Reynier and Qenu have demonstrated that a slight rise of temperature is not incompatible with hemorrhage.

The pulse, of course, is variable. If there is shock the pulse will be rapid and feeble. It may be slow rather than rapid, if the depression is extreme. An increasing pulse rate with a low or subnormal temperature means hemorrhage, and demands immediate surgical interference.

The temperature is usually subnormal during the initial shock, particularly if the shock is considerable. The gradual rise of temperature to the normal point, associated with a falling pulse rate, denotes a favorable condition. A rise of temperature following an abdominal contusion usually means infection. The height of the rise in the temperature is not indicative of the severity or the extent of the infection.

Pain.—Shock diminishes the consciousness of pain. As the initial shock subsides, evidences of pain may appear. When pain is dependent upon hemorrhage, other signs of hemorrhage will be present. Pain of importance is evident in the face of the individual. The exact meaning of pain is often difficult to determine. Persistent local pain is important. In intestinal injuries it often locates the lesion.

Tenderness is usually general at first in an intra-abdominal lesion, but it soon becomes localized. Honest tenderness, that is, real tenderness, unbiased by the personal equation, coupled with pain, are the two most valuable signs pointing to the localization of intra-abdominal lesions.

Vomiting is very generally an early sign of shock. A simple emptying of the stomach once should not cause alarm. Constant and persistent vomiting means a visceral lesion. Unprovoked vomiting, a regurgitation, means peritonitis. Vomiting without other evidences of shock is significant, and vomiting which reappears after it has once ceased should cause concern.

Distension, with other signs of peritonitis, suggests serious infection.

Rigidity of the abdominal muscles indicates peritoneal involvement. Rigidity of the abdominal muscles and tenderness mean peritonitis. Pain, rigidity, tenderness together are unmistakable evidences of peritonitis.

It will thus be seen that the problem presented to the surgeon when he meets a case of contusion of the abdomen is definite in its demands, but often difficult of solution. These questions must be answered: Is operation necessary? Are there lesions of viscera? Two classes of cases should not be operated upon at first: (1) That class in which little or no shock is present; in which there are absolutely no localizing signs, and (2) that class in which profound shock, amounting perhaps to collapse, exists. Immediate operation is demanded in persistent moderate shock, with or without localizing signs. Immediate operation is demanded in cases of progressing hemorrhage. Immediate operation is demanded in cases of peritoneal infection. Having determined that definite lesions exist in any of the viscera, the form of treatment to be adopted is pretty generally accepted, and has been indicated under the consideration of each organ.

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OBSERVATIONS ON THE USE OF ANTISTREPTOCOCCUS SERUM IN THE TREATMENT OF PUERPERAL SEPSIS WITH A REPORT OF FIVE CASES.¹

BY FRANK A. HIGGINS, M.D., BOSTON.

Assistant Visiting Physician for Diseases of Women to the Boston City Hospital; Physician to Out-Patients, Boston Lying-In Hospital, etc.

This paper has been prepared in the last few days as a consequence of your chairman asking me to report in a short paper my experience with the use of antistreptococcus serum in the treatment of puerperal sepsis. This paper is not, therefore, in any sense a review of the subject of puerperal septicemia, or even an expression of my views in regard to the treatment of the same, any more than may be pertinent in reporting the few cases in which the serum treatment has been employed, and in commenting on the results and treatment in these particular cases.

The antistreptococcus serum has now been in more or less general use for a number of years, and in this time has been subjected to a fair trial, by a large number of men and under varying conditions. In the aggregate, a considerable number of cases have been reported of its successful

use; for the most part, however, they are reports of single isolated cases, and not reports of series of cases treated on a rational basis. Two years ago the committee of the American Gynecological Society collected over 350 cases in which the serum had been used, among which cases there was a mortality of 33%. This is believed to be higher than the average normal mortality in similar cases.

I believe that the general opinion of the profession at large, on the use of antistreptococcus serum in puerperal sepsis, is, that as a therapeutic measure it is a resource of very uncertain value, not to be relied upon with any certainty of success, and applicable only to a few cases as an accessory in desperate conditions.

My observations are confined to the use of the serum in 5 cases, all occurring in the past year, and these 5 cases I have reported in some detail. Before last year there were a few cases, but the notes of these were not available for hurried reference.

CASE I. C. H., thirty years. First seen in consultation May 15, 1900. On May 4th, patient delivered of a full-term child in absence of physician, and no examinations made either before or after delivery by the attending physician. She was sent to hospital and admitted with a temperature of 103.8°, pulse 120 and respiration of 40. Face flushed, dazed and apathetic at times, at other times wildly delirious. Fine tremor of hands and of tongue when protruded. Abdomen slightly distended and tympanitic, not tender and no spasm. Uterus enlarged, os patulous with considerable discharge. Intra-uterine douches and later curettage was performed without finding any débris of consequence. Urine, albumin trace with few hyaline casts. Patient was pretty sick for ten days, running a temperature from 100° to 103°, and her mental condition at this time was rather bad, depressed at times, at others very delirious; but at no time was her condition considered desperate or her life despaired of. Patient did well while in the hospital, but her recovery of strength and mental equilibrium was very slow, and she remained in the hospital nearly three months before she was ready for discharge.

This patient, before entrance, was given three injections of antistreptococcus serum, one daily, 20 cubic centimetres each time, and these injections were followed by daily remissions of temperature to about normal, the temperature going up again at night. After her admission to the hospital no more serum was administered, because her condition was not considered severe enough to demand it. It is possible that the serum may have influenced the case in its favorable termination, although I have always thought, as I did at the time, that the patient would have recovered without it. Her convalescence was slower than uncomplicated cases of puerperal sepsis, but not longer than septic puerperal manias usually require for recovery.

CASE II. E. F., twenty-five years. Entered hospital October 1, 1900. Italian. No history

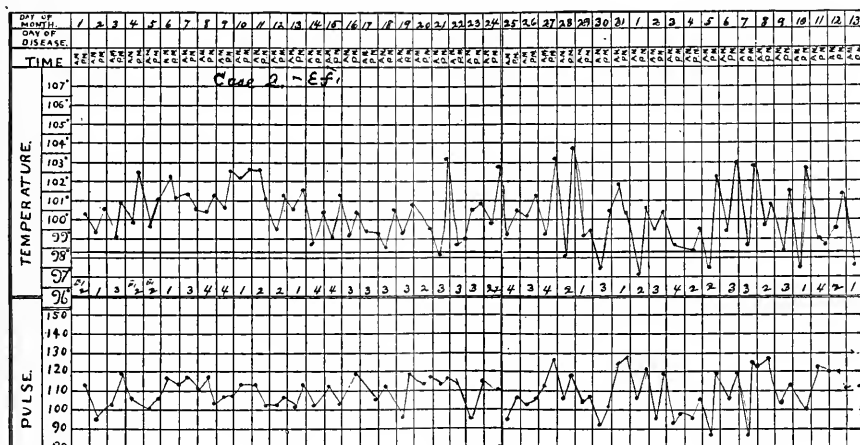
¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, January 23, 1901.

obtainable, except that patient was sent in for a septicemia and peritonitis after miscarriage. Patient in poor condition, weak, with high temperature and pulse; slight abdominal distention and tenderness; uterus enlarged and soft; os patulous with a considerable foul discharge. Patient was curetted shortly after entrance because of condition of uterus, and much foul material was removed. After curettage patient seemed to improve slightly for about a week, when the uterine discharge practically ceased. She was brighter, less apathetic and a little stronger apparently, although the temperature still remained high and very irregular.

After some days, the patient's condition not at that time improving perceptibly, she was given a bottle, 20 cubic centimetres of antistreptococcus serum. The injection did not have any noticeable influence on the patient's general condition or in her pulse and temperature; but she seemed to be

Autopsy showed a general tubercular peritonitis while there were results of an extensive pelvic inflammation, the uterus being adherent to the bladder and drawn to the right and adherent to the right pelvic wall. The right tube and ovary were adherent to intestines, and the left tube to the pelvic wall.

This case was undoubtedly one of general peritoneal tuberculosis and tuberculosis of the uterus, with which occurred a puerperal infection of severe type. Because of these complications occurring together, it is scarcely fair to judge the action of the serum in this case by the patient's death, for had the existence of the tuberculosis been known before the serum was injected it would not have been used. It is probable that the woman was in very poor condition from the tubercular peritonitis, and the puerperal infection was merely the means of hastening her death.



holding her own after its use without any especial change, although being very weak.

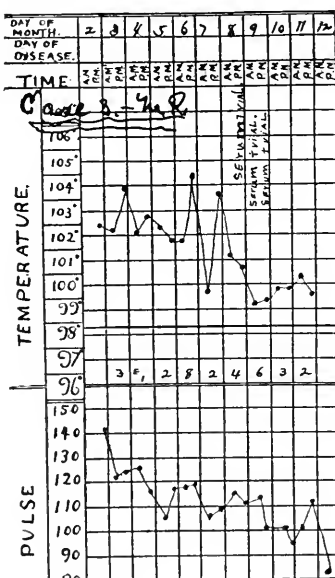
Soon after the injection of the serum, a report on the products of the curettage was received from the pathologist, stating the condition to be tuberculosis of the uterus. This report rather nonplussed us at first, and it was with considerable skepticism that the report was received, as the case seemed clinically a typical puerperal septicemia, not only from the history, but also from the course of the disease and the uterine discharge. The patient was, therefore, kept under observation in the gynecological ward for nearly three weeks, and then, nothing new developing, she was seen by Dr. Sears, who agreed that the condition might be one of tuberculosis, and she was transferred to his service. At this time the abdomen was slightly distended, tender and tympanitic, and her condition generally resembling sepsis. She, however, died two weeks later.

CASE III. M. R., twenty years. First seen October 2, 1900. Six days before, on September 26th, patient was delivered by forceps of a full-term child. Increasing pain, temperature and discomfort since delivery, when a consultation was held and she was removed to the hospital, having a temperature of 104.2° and pulse of 124. At entrance, pulse and temperature were elevated, eyes sunken, face anxious and there was mania present.

On examination, the abdomen was rigid and tender, not much distended. The uterus was enlarged, the os patulous, admitting the finger, and there was tenderness in both broad ligaments. The uterus seemed empty to the finger, although there was considerable discharge, and intra-uterine douches brought away some shreds. A curette was passed over the inner surface of the uterus, without ether, but nothing was obtained. The patient developed a pronounced mania, so that

constant restraint was necessary for her in the ward. The urine was normal in amount, containing a trace of albumin and a few hyaline and granular casts. The intra-uterine douches were continued twice daily. The patient failed gradually, in spite of all treatment, when on the sixth day she became entirely rational, no longer needing restraint, and remarked several times that she was glad to be again in her right mind.

On this day, October 8th, 20 cubic centimetres of antistreptococcus serum was injected, 10 cubic centimetres in the morning and 10 cubic centimetres in the evening. The temperature chart is particularly interesting at this point, for while the regular chart shows a gradual decline from the first administration of the serum, yet the four-hour chart shows evening exacerbations on each day,

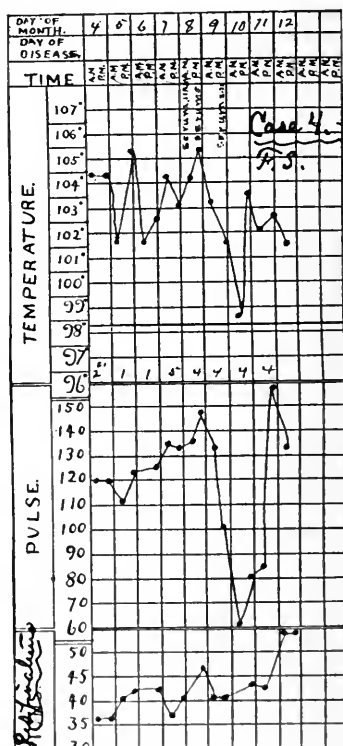


whether or not the serum was injected, varying between 103° and 104°.

On October 9th, the next day, there being no apparent improvement, 20 cubic centimetres of serum was injected in the morning and 20 cubic centimetres in the evening without any noticeable change. At this time, 60 cubic centimetres of serum had been given in all; there had been no change for the better in any respect. On the other hand, the patient had been growing steadily weaker and the pulse intermittent, so that the serum was discontinued, and the patient stimulated merely, until she died three days later, on October 12th, without any marked change having occurred in the symptoms.

The chart of this case is an interesting one, as I have already brought to your attention. The

decline in the temperature and pulse following the injection of the serum, ordinarily favorable symptoms, without any amelioration of the patient's condition. I find we are very apt to look at a patient's chart, and, seeing a lower pulse and temperature, to at once conclude that there is improvement in the condition. I believe it is particularly true of septic conditions that the pulse and temperature chart is a poor guide in many cases, as the normal point is not infrequently reached only to react again shortly. I have also seen a patient die of sepsis in whom the temperature never rose above 100°.



CASE IV. F. S., thirty-seven years. Entered hospital on October 4, 1900. Six days before entrance, patient was delivered of a fetus of between four and five months for placenta previa. She was enured soon after delivery for early sepsis. Patient was in a very poor condition and evidently profoundly septic. The uterus was enlarged, the os patulous, and the lochial discharge somewhat foul. The temperature was 104.2°, the pulse 118. There was dullness at the left base with marked bronchial breathing and numerous râles. Respiration at this time was not much

increased, but the next day it rose to 40, and patient unquestionably developed a septic pneumonia. The uterus was 5 inches in depth, the os admitting the finger, and a considerable amount of debris could be felt inside the uterus. The patient was therefore curetted, and the uterus washed out and packed with iodoform gauze.

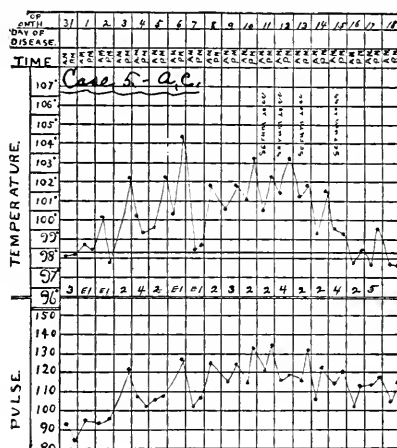
The patient continued in a very serious condition, although for a few days she seemed to be improving slightly; but as this was only temporary, and her condition continuing very precarious, four days after entrance, on October 8th, 10 cubic centimetres of serum were given morning and evening without apparent result, and on the following day, October 9th, 20 cubic centimetres were given at one injection. Early the next day the patient's pulse and temperature fell rapidly to normal, and she almost collapsed, while the respiration remained unchanged at about 40 per minute. Under vigorous and free stimulation the patient rallied temporarily, while the pulse and temperature rose rapidly again to their former line. No more serum was administered, owing to its marked depressing effects. The patient died two days later.

This was a very critical case from the onset of the disease. The general septicemia was complicated by a septic pneumonia, which helped bring about the fatal result. No improvement of any sort was observed from the serum injection, 40 cubic centimetres being used altogether, while its use did result in marked depression of the vital forces, bordering on collapse.

CASE V. A. C., twenty-six years. Admitted to hospital on December 31, 1900, for pelvic abscess and septicemia after childbirth. Confined by midwife 40 days before entrance, and operated for vaginal puncture a few days before being sent to the hospital. Patient was poorly developed and nourished, and her general condition was very seedy. Chest negative, except for a soft systolic murmur at apex. Pulse poor and feeble, 92 per minute, temperature 98°. Abdomen rigid with considerable tenderness, which prevented any satisfactory examination, except that there could be felt a mass in abdomen of considerable size extending half way to the umbilicus. Urine contained trace of albumin, much pus, and numerous hyaline and granular casts and a few brown granular casts. Just to the left and posterior to the cervix was a small opening in the vagina, extending into a cavity into which was inserted a small iodoform wick with not much discharge. This wick was removed daily, the cavity irrigated through a small tube with normal salt solution, and a new wick inserted, while the patient, being in a very poor general condition, was nourished and stimulated. This treatment was continued until the seventh day, when her evening temperature reached 104.4°, having before this maintained a general tendency upwards, as may be seen by a study of the chart. As there was little discharge from the cavity through the vaginal sinns at this time, it seemed probable from the continued rise in temperature that there was an

accumulation of pus in the pelvis which was dammed up and not finding a ready exit. Therefore, it seemed best to give the patient a little ether, which was done, and an incision made posterior to the uterus transversely about one inch long from the side of the old opening through the vaginal wall. Through this opening, with my finger, I carefully separated the tissue up into the cavity which had previously been punctured and was being drained by the wick. No accumulation of pus was found there or elsewhere in the pelvis. The uterus was large, firm and anterior. The cavity was irrigated with salt solution and packed with iodoform gauze, the whole operation not lasting longer than ten minutes at the outside, and very little ether being used.

After the vaginal section the temperature ranged between 101° and 102° for three or four days. There was no marked change in the patient's condition, except it was evident there was no im-



provement, while on the whole the pulse was averaging a little higher, being about 120 per minute, and there seemed to be some loss of strength.

Other measures having failed, I thought it would be at least worth while to give the serum treatment a trial; accordingly, on the fourth day, 20 cubic centimetres of antistreptococcus serum was injected. This injection was repeated on the fifth, the sixth and the eighth days, when there was a marked decline in the temperature, and the patient seemed brighter and better, although still very weak. No more serum was injected, 80 cubic centimetres having been used in all. The temperature was subnormal on the ninth day, being 97.6°; but, nevertheless, the patient appeared to gain a little during the next few days, and seemed to be making fair progress on the road to recovery, when she suddenly collapsed and died in the morning, four days after the last serum was administered, twelve days after the operation, and about sixty days after delivery.

This case illustrates fully the disadvantages under which many of these cases are received into the hospital and treated there, entering in a very weak condition after a period of prolonged septicemia, already continued nearly six weeks, with probably only the most meagre care and surroundings through it all.

It seems fair to assume, and I am willing to admit, that the second operation which I performed was in a measure detrimental to the patient's interests, as it resulted in no improvement, and the probable conditions were not found as expected. On the other hand, the condition was gone over very carefully, and without relief in some form she seemed to be rapidly approaching a fatal termination.

I have never seen but one case up to the present time in which I have felt that hysterectomy was justified for puerperal sepsis, but possibly this case which I have just recounted might have survived under it if performed early.

The study of the results in these 5 cases, while not in themselves sufficient to determine the permanent value of antistreptococcus serum, is of considerable interest and may be of some value. In the observation of these cases, I think we cannot fail to be disappointed in the results of the serum treatment, and also cannot but conclude that as a curative agent its power is limited to a very narrow line of cases. It has also impressed me that the serum has a marked depressing effect on the patient, and is not to be administered to a very sick patient offhand in large and frequent amounts, as the directions are given which come with the serum. When used, I believe it is best endured by the patient and less depression follows, in doses of 10 cubic centimetres, repeated not oftener than every twelve hours until some result is observed. This is usually shown by a marked decline in pulse and temperature. In amounts of 20 cubic centimetres administered repeatedly to a patient in a critical state, the serum is a remedy not without danger and one likely to result in dangerous symptoms.

It is important to bear in mind that these cases of mine were all extremely sick, and in very critical, if not desperate, condition at the time the serum treatment was begun. But none of these cases were moribund, or even so critically ill that it was not considered at least that there was a good fighting chance. It is certainly in these cases that we should expect the serum to assist, if at all, as the milder cases recover without its use.

The mortality of puerperal sepsis, of all cases, mild and severe, is usually believed to be about 25%. In the City Hospital, where we see every year a large number of cases of this class, it certainly is not greater than this, and my impression is that it is somewhat lower. On this subject I hope to present a paper at a later date. In some cases much importance has been attached to the fall of the pulse and temperature which often follows the injection of the antistreptococcus serum. This fall in pulse and temperature does seem to be an attendant symptom on the injection of the

serum, but that is not always an entirely favorable symptom and is not unattended by danger. I am convinced that it is rather a signal of danger and an indication of impending collapse. This occurred in 2 of my cases, only shortly before death, and in one of these the pulse and temperature rose immediately, after touching normal, to 160° and 103.6° respectively. Moreover, severe cases of puerperal sepsis treated, without the use of serum, have frequently in the course of the disease remissions of pulse and temperature, only to recur again in a day or two when one is just ready to conclude that the disease has about run its course.

In every case of puerperal septicemia the virulence of each particular infection, the extent of the constitutional infection and the ability of the individual patient to combat the trouble, all have a direct bearing on the severity of the disease and on the ultimate result.

In puerperal sepsis the streptococcus is generally recognized as the main etiological factor, while a few other varieties of bacteria, as the staphylococcus and the colon bacillus, are believed to be the cause in certain cases, and in others the so-called mixed infections, when two or more of these bacteria are believed to be the exciting causes. In a few cases of pure streptococcus infections the antistreptococcus serum is apparently of great value as a life-saving measure. The varieties of the streptococcus are so many that it is only an occasional case that will be helped by the serum treatment. While in the majority of cases of streptococcus infection, and in all cases of mixed infections, it is useless to expect the serum to cure the disease.

I believe that the serum treatment has no place in the routine treatment of puerperal sepsis, that it should be used only in desperate cases after failure to obtain improvement by other and usually more efficient methods, and that if no improvement is shown after use for two or at most three days and the injection of 40 cubic centimetres to 60 cubic centimetres, it should be discontinued. I believe that its use is not free from danger, that it usually lowers the pulse and temperature, but at the same time it has a correspondingly depressing effect upon the patient, and that it has not apparently lowered the mortality of the disease.

With regard to the general treatment of puerperal sepsis, early curettage of the uterus carefully performed as soon as the diagnosis is established is, I believe, of primary importance, and the same result is not accomplished in my opinion by any other method of procedure. If carefully done it can result in no harm, and if efficiently performed it always removes the primary focus of the disease, and not infrequently removes the disease at its outer limits.

Following curettage, and sometimes in place of it in the mild cases, intra-uterine douches have proved to be of much value.

For constitutional treatment we must mainly rely on stimulation, tonics and forced feeding, with moderate diuresis and catharsis.

A CASE OF CÆSAREAN SECTION IN A FACE
PRESENTATION, COMPLICATED BY
UTERINE FIBROID.¹

BY EMMA S. CALL, M.D., BOSTON.

On the evening of November 13, 1900, I was called by one of the internes of the Pope Dispensary, to a case of face presentation. I arrived about 10 P.M. and found Mrs. B., a healthy-looking Italian woman, age twenty, in labor with her second child. Her first labor, fifteen months before, was apparently normal and not unusually long. Her pelvic measurements were said to be normal. Labor pains began about noon of November 4th, but were not sufficiently severe to induce her to call a doctor till 7 P.M.

Upon examination, the os was found dilated about the size of a dollar, the membranes present but relaxed, and the face presenting in the right mentoposterior position, but above the pelvic brim. This position of the face is, I believe, held by the best authorities to be an indication for interference, owing to the impossibility of delivery, if rotation forward fails to take place in the pelvic cavity. I therefore decided, as soon as the os was sufficiently dilated to permit the easy introduction of the hand, to try first to change the presentation into one of the vertex, or, if that failed, to perform version.

About midnight, the os being fairly well dilated, ether was given, and the attempt was made to flex the head. This was unsuccessful, and after considerable time abandoned. The hand was then introduced into the uterus, the membranes ruptured, a foot seized and brought to the os, but the combined efforts of my hand internally and those of my assistants externally failed to push the head sufficiently from the pelvic inlet to allow the revolution of the body necessary to complete the version. This immobility was not because of any impaction of the head, which was still above the pelvic brim. The whole lower segment of the anterior wall of the uterus seemed thick and unyielding, and the difficulty was increased by the very small amount of liquor amnii.

After a considerable time spent in ineffectual attempts to complete the version, I sent for further assistance, and Dr. Alexander kindly responded. Although the patient had been kept under anesthesia, the manipulations had excited quite vigorous uterine contractions, and when Dr. Alexander arrived, it was considered by both of us unsafe to make any farther attempts at version. These contractions, however, seemed to have no effect in pushing the presenting part downward.

The life of the child was now seriously jeopardized, if not extinct, and we therefore felt that the interest of the mother must be the sole consideration. To try and extract by high forceps seemed useless and harmful, nevertheless the forceps were applied and an endeavor made to compel the face to enter the pelvis, where, if rotation failed, craniotomy could be more easily performed; but a short trial showed that the presenting part

could not be dragged down without force, which would be very serious to the mother's soft parts.

The patient had now been under ether over two hours, and began to show signs of exhaustion, and it was evident that something must be done to deliver her quickly. The choice lay between craniotomy and abdominal section. Craniotomy on the face above the pelvic brim, with extraction, seemed to us both to be a more serious operation than section, though we realized that the manipulation to which the uterus had been subjected, was a decided drawback to the success of the operation.

The question of removing the patient to the hospital was considered; but it was felt that the delay necessarily involved in getting her there, would be more dangerous than to do it at once at home. Fortunately, it was one of the better class of tenements, and unusually clean.

The operation was performed by Dr. Alexander, who has kindly permitted me to report the case, although the honor of its successful termination belongs to her.

An abdominal examination now showed a distinct prominence, involving the left side of the uterus from the pubes half way to the umbilicus, and extending laterally about 7 cubic centimetres to the right of the median line. This surface was very hard and unyielding, and stood out quite plainly during the uterine contractions. On account of this, the uterine incision was made a little to the right of the median line, and only passed through a small part of this prominence.

The child was quickly extracted, and it was then seen that this appearance was caused by an interstitial fibroid, the part through which the incision passed being about 7 cubic centimetres in thickness. The uterus was sutured with silk, and the abdominal walls with silkworm gut. The patient was returned to bed in fairly good condition, the uterine contraction being very satisfactory.

The after history of this case was a very gratifying one. There was some distension on the second day, which was relieved by free action of the bowels and never returned. The wound healed by first intention, and the convalescence was quite uninterrupted.

I examined her about two weeks ago, eight weeks after delivery. The uterus was very little larger than normal, was perfectly moveable, and only a moderate thickening induration of the anterior wall remained.

This satisfactory result was largely due to the careful and constant aftercare given to the patient by our dispensary internes, Drs. Harrington, Myrick and Farquarson, and the dispensary nurse, who devoted themselves to her so assiduously that she was not left alone day nor night during the first week. Later we were much indebted to Miss Strong, director of the class for invalid attendants, who allowed some of her pupils to assist us.

In reviewing this case, our regret is, of course, that we did not operate earlier, when we could

¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, January 23, 1901.

undoubtedly have saved both mother and child. The fact that the woman was only twenty years of age, that she had borne a child without difficulty within two years, and that the tumor, being interstitial, was not so prominent as to make its nature and extent realized until powerful uterine contractions had set in, are some of the facts which led to this mistake.

Clinical Department.

NOTES FROM THE NEUROLOGICAL DEPARTMENT OF THE MASSACHUSETTS GENERAL HOSPITAL.

EXOPTHALMIC GOITRE AND FRIGHT.

BY E. W. TAYLOR, M.D., BOSTON.

THE etiological relationship of various neuroses and fright has long been recognized, however difficult of explanation the association may be. A peculiar interest attaches to exophthalmic goitre in this connection, because of the fact that in its characteristic form it so perfectly represents the physiologic appearances associated with fear. One's experience, however, by no means invariably bears out the supposition that fear is always the exciting cause of the neurosis; in fact, a sufficiently definite association of fear and subsequent symptoms to be of any scientific value is relatively unusual.

The following cases are reported as a contribution to the general subject. All 3 came under observation within a period of five weeks, 2 at the Massachusetts General Hospital and 1 privately. In each, careful inquiry disclosed no other adequate cause for the development of the disease than fright. All were in women.

CASE I. L. H., a housekeeper by occupation, of Irish birth, twenty-eight years of age, had been perfectly well up to October, 1900. Her appearance, when seen at the hospital, justified her claim to health and general nervous stability. In October she was violently frightened by being suddenly roused from sleep, and seeing a man looking in through the window, her sleeping room being on the ground floor. She was for a time wholly overcome by fear, was unable to move, and had a sensation of extreme weakness, which she described as "collapse." Typical nervous symptoms at once appeared, associated with a dread, not yet wholly overcome, of going to a window. She continued to feel unnerved and unlike her former self. She did not, however, notice the presence of a goitre. Several months later, the foregoing symptoms persisting, she was again violently frightened in a similar manner. Soon after this, she noticed an enlargement of the neck, with accompanying nervous symptoms of a marked sort. She is perfectly confident the goitre did not exist before, a matter about which it is entirely unlikely she could be in error, especially since she in no way associated the thyroid enlargement with what had gone before.

Physical examination, March 11th, showed a well marked goitre, not completely bilateral, no exophthalmus, a somewhat irregular pulse of 102, and a certain amount, though not excessive, general nervousness. The heart was normal; the knee jerks within normal limits, and the mental state not noteworthy. The patient presented the picture of an extremely mild, though undoubted exophthalmic goitre.

Improvement has been continuous since first seen, and although the goitre persists there can be no doubt that, under proper care and treatment, the condition will wholly subside.

CASE II. N. H., married woman of thirty-three, of American birth. Twelve years ago, while not in the best condition, the patient witnessed what she thought to be the drowning of her brother. She had immediately fainted on seeing the boat capsize in which her brother was, and on recovering consciousness still thought him dead, which naturally added to her fright. Immediately thereafter symptoms of marked general nervousness, with sensations of weakness, came on, which she is confident she had not had before. Two months later exophthalmus appeared, soon followed by bilateral goitre. For nine years she has been annoyed with rapid heart beat.

Physical examination now shows a perfectly typical picture of exophthalmic goitre; extreme exophthalmus, with slight Graefe's sign; goitre of moderate size, unequally bilateral; pulse 138, regular; typical fine tremor. The condition has remained practically unchanged for several years, under more or less intermittent treatment. The patient has not herself associated her disease with the fright she received at the time of her brother's accident.

CASE III. E. G., a student nurse, unmarried; twenty-eight years old; a native of Canada. She had been unusually conscientious in her work, but had been well up to the latter part of last year. In November, while nursing outside of the hospital, largely on her own responsibility, on one occasion she came into the room in which her patient was, and found her lying on the bed unconscious, and, as she thought, dead. Investigation showed that she had merely fainted as a result of some unusual physical exertion during the absence of the nurse. On recalling this occurrence, the patient distinctly remembers the violent fright into which she was thrown, though here again she did not herself associate the fright with her subsequent symptoms. She went on with her work, and a few weeks later, in December, had another difficult case, resulting in the death of the patient. Symptoms of general nervousness came on, tremor, poor appetite, and difficulty in doing her work. Seen a little later she presented unequivocal signs of exophthalmic goitre: loud, somewhat irregular heart beat; pulse 140; considerable exophthalmus; evident but not large goitre; general tremor; and much appearance of nervousness.

In each of these cases the association of a definite violent emotional disturbance, with the symptoms which came on immediately subsequently, is

too close to be disregarded. The fact of mere coincidence is, of course, never to be dogmatically denied, but it is certainly no straining of a point to maintain the decided probability of cause and effect. Some unknown predisposition, as in all other diseases, must be assumed; but the exciting cause, reasonably enough, may be regarded as the fright. No doubt a more careful investigation than is often made, of the immediate antecedents of the neurosis, would show an emotional disturbance as its precursor in a considerable number of cases. The manner of development of this perfectly characteristic disorder from such a cause is naturally, as yet, quite beyond our power of comprehension. If clinical experience bears out the etiological relationship it must none the less be accepted and seriously regarded, even though our knowledge as yet be purely empirical. The important part is the recognition of the possibility of the deleterious effects on the nervous system of physical traumata. There has been dispute enough about the matter in its practical bearings with relation to the recovery of damages in accident cases. One recalls a somewhat recent ruling denying damages to a plaintiff who has not received a physical injury. However practically useful such a general decision may be from a legal standpoint, in dealing with accident cases, it clearly has no medical justification. Every one who has followed the subject, is aware that in very many cases the original physical injury plays a small part in the ultimately developed neurosis. The physical effect in these disorders is by far the most important element to be considered. If courts can rule that physical contact is essential to establish a case, they must also rule that a neurosis like exophthalmic goitre, about the identity and reality of which there is, and can be, no question, should not be admitted to litigation if its apparent cause is attributable only to violent emotion. From every point of view it is desirable that cases should be reported to the end that more light may be thrown upon a problem, which is of the most intimate concern, not only to the physician, but to the public at large.

Medical Progress.

REPORT ON PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

REPORT OF THE COMMITTEE OF THE AMERICAN SURGICAL ASSOCIATION ON THE MEDICO-LEGAL RELATIONS OF THE X-RAYS.

DR. J. WILLIAM WHITE presented a report on the medico-legal relations of the x-rays at a meeting of the American Surgical Association in May, 1900, and offered the following conclusions:

(1) The routine employment of the x-ray in cases of fracture is not at present of sufficient definite advantage to justify the teaching that it should be used in every case. If the surgeon is

in doubt as to his diagnosis, he should make use of this as of every other available means to add to his knowledge of the case, but even then he should not forget the grave possibilities of misinterpretation. There is evidence that in competent hands plates may be made that will fail to reveal the presence of existing fractures or will appear to show a fracture that does not exist.

(2) In the regions of the base of the skull, the spine, the pelvis and the hip, the x-ray results have not as yet been thoroughly satisfactory, although good skiagraphs have been made of lesions in the last three localities. On account of the rarity of such skiagraphs of these parts, special caution should be observed when they are procured in basing upon x-ray testimony any important diagnosis or line of treatment.

(3) As to questions of deformity, skiagraphs alone, without expert surgical interpretation, are generally useless and frequently misleading. The appearance of deformity may be produced in any normal bone, and existing deformity may be grossly exaggerated.

(4) It is not possible to distinguish after recent fractures between cases in which perfectly satisfactory callus has formed, and cases which will go on to non-union. Neither can fibrous union be distinguished from union by callus in which lime salts have not yet been deposited. There is abundant evidence to show that the use of the x-ray in these cases should be regarded as merely the adjunct to other surgical methods, and that its testimony is especially fallible.

(5) The evidence as to x-ray burns seems to show that in the majority of cases they are easily and certainly preventable. The essential cause is still a matter of dispute. It seems not unlikely, when the strange susceptibilities due to idiosyncrasy are remembered, that in a small number of cases it may make a given individual especially liable to this form of injury.

(6) In the recognition of foreign bodies, the skiagraph is of the very greatest value; in their localization it has occasionally failed. The mistakes recorded in the former case should easily have been avoided; in the latter they are becoming less and less frequent, and by the employment of accurate mathematical methods, can probably in time be eliminated. In the meanwhile, however, the surgeon who bases an important operation on the localization of a foreign body buried in the tissues, should remember the possibility of error that still exists.

(7) It has not seemed worth while to attempt a review of the situation from a strictly legal standpoint. It would vary in different States and with different judges to interpret the law. The evidence shows, however, that in many places and under many differing circumstances the skiagraph will undoubtedly be a factor in medico-legal cases.

(8) The technicalities of its production, the manipulation of the apparatus, etc., are already in the hands of specialists, and with that subject, also, it has not seemed worth while to deal. But it is earnestly recommended that the surgeon

¹ American Journal of the Medical Sciences, July, 1900.

should so familiarize himself with the appearance of skiagraphs, with their distortions, with the relative value of their shadows and outlines, as to be himself the judge of their teachings, and not depend upon the interpretation of others who may lack the wide experience with surgical injury and disease necessary for the correct reading of these pictures.

RESEARCHES ON THE ASSUMED CONTAGIOUSNESS OF ERYSIPELAS.

Dr. Wilhelm Respinger² treats on this subject as follows:

The well-grounded teaching of the contagiousness of erysipelas is based on the epidemics prevalent in pre-antiseptic days as well as on its diminution, save in sporadic form, since the antiseptic era, and finally, on its prevalence alongside of certain specific wound infections; for example, puerperal fever and cellulitis, which have turned out to owe their origin to a common micro-organism. This micro-organism has subsequently been found in rooms occupied by erysipelas patients.

Just how the contagium is disseminated has not been proven. In cases where the erysipelas followed in the wake of an open infected wound, direct infection is evident, and its spread to others under such circumstances is dependent on the contamination of dressings and utensils; wherefore the finding of cocci in such quarters tenanted by erysipelas patients has rightly been attributed to a possible dessiccation and dissemination of the germs from dressings and the bedding.

In view of the fact that a large number of cases of erysipelas exist without a wound, just how these are responsible for propagating the contagium, when it is recalled that the process is a lymphangitis, at first sight appears mysterious. The author has, therefore, sought to prove by experiment that the contagium was spread by the dissemination of atomized particles of the scales which result from the desquamation or from the atomization of the contents of vesicles. Von Eiselberg found this to be the case. Against this the author contends that his cases were accessory to wound infections. To eliminate such infection of scales by continuity, the author chose only idiopathic cases, and in no instance did he succeed in gaining streptococci from the scales; whence he concludes that these, being the only channels by which the contagium can in any atomized form leave the intact skin affected with erysipelas, the latter cannot be classed, *strictu sensu*, as contagious.

The contagium streptococcus always gains its entrance by a wound, however small. At this site the virus is particularly virulent, and its contagiousness is to be viewed only in the same light as any other wound infection. Thus, with erysipelas placed in the same category as streptococcus abscesses and cellulitis, the latter, with their exposed surfaces, are infinitely greater purveyors to the spread of this infection than an ordinary facial erysipelas. Treatment should none the less be

carried on under the strictest antiseptic precautions; but in this light there ought to be as much obligation to report a streptococcus abscess as an erysipelas to the health authorities.³

CARBOLIC GANGRENE.

Dr. Francis B. Harrington read a paper on the subject of carbolic gangrene at a meeting of the Massachusetts Medical Society, June 12, 1900,⁴ from which the following extract is made:

That dilute solutions of carbolic acid, applied to the extremities for a number of hours, may produce gangrene and total destruction of the part, is a fact of which the public at large and even many physicians are ignorant. It is an unfortunate result of the popularization of the antiseptic treatment of wounds. Carbolic acid, once the favorite antiseptic among surgeons, and now discarded, has become a general household remedy for the treatment of slight wounds and bruises. During the last five years at the Massachusetts General Hospital, I have discovered myself, or have seen through the courtesy of the out-patient surgeons, 18 cases of gangrene from this cause. In a large proportion of these cases, amputation has been necessary. These, together with cases which I can find in the medical literature of various countries, make a total of 132 cases of gangrene from dilute solutions of carbolic acid. It would be safe to assume that many hundreds of fingers have been destroyed from this cause. Doubtless many cases occur and are not recognized as due to carbolic acid, and these with many others are never reported. Usually the patient has come to the hospital with a story of having treated a cut, a bruise or a felon with a solution of carbolic acid which has been purchased from an apothecary for the purpose. Occasionally the treatment has been suggested by a physician.

The facts are these: An aqueous solution of carbolic acid (1% to 5%), if applied to an extremity, as the fingers or toes, for a number of hours, in the form of a moist dressing or poultice, may produce gangrene and total destruction of the part. This result is not from compression, but simply from the action of the carbolic acid.

It has been asked why gangrene does not appear on the trunk. Superficial gangrene does occur if the application is sufficiently prolonged and the saturation of dressings is great enough. The result is not so disastrous because of the greater thickness of tissues and because the blood supply cannot be shut off as it is in an extremity. It is the enveloping of the entire part, as the finger or toe, with the dressing which causes the complete destruction of the part, since the gangrene only affects those parts which are thus covered.

The public must be taught to use some safer treatment. Moist dressings are often very soothing and helpful in slight injuries of the fingers or toes. A large part of the benefit to be derived from any form of moist dressing can be obtained

¹ Basel; Annals of Surgery, November, 1900.

² Beitr. zur klin. Chir., Bd. xxxi, II, 2.

³ American Journal of the Medical Sciences, July, 1900.

by using boiled water on clean compresses. Safe household remedies for this purpose are tincture of hamamelis or solutions of borax or boric acid.

It is evident that carbolic acid solutions in any strength applied as a moist dressing are dangerous and ought never to be used. The fact that it is often used without bad results renders it the more dangerous. It is the duty of the medical profession to see that this needless destruction of fingers is stopped. Carbolic acid in any strength should be included in the list of those drugs which can only be procured by a physician's prescription. Whatever the strength, it should always be labeled as dangerous.

(To be continued.)

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

REGULAR meeting Wednesday, January 23, 1901.

DR. E. S. BOLAND, the chairman, opened the meeting with the following remarks:

While our change of meeting place may make no special difference to our section, still it seems hardly civil to omit extending our hearty congratulations to the Medical Library, whose guests we are, on the opening of their beautiful home. Incidentally, we may felicitate ourselves on such pleasant quarters as are furnished here for us by the parent society at no added expense to us as a section.

As a member of the Library, and by your courtesy chairman of this section, it gives me great pleasure to welcome you here tonight. Ten days ago this building was dedicated to its use as a library with the expressed hope that, as a professional meeting place, added usefulness might ensue. At that dedication Professor Osler spoke of the value to the members of the "Attrition of the Medical Society." For the benefit of any who did not hear this man of clearest insight, let me quote three sentences of incisive truth which ought to be memorized by every one of us. "For the general practitioner, a well used library is one of the few correctives of the premature senility which is apt to overtake him. Self-centred, self-taught, he leads a solitary life, and unless his daily experience is controlled by careful reading or by the attrition of a medical society, it soon ceases to be of the slightest value, and becomes a mere accretion of isolated facts without correlation. It is astonishing with how little reading a doctor can practice medicine; but it is *not* astonishing how badly he may do it."

I suppose that we all, in theory, at least, recognize the need of up-to-date literature and professional intercourse; but as we get older we let the little cares and nearer duties crowd out these larger interests that go to make up the possibili-

ties of our lives. It is so everywhere. It was stated in a periodical the other day that, out of a membership of over 500 the London Practitioners' Society had, at the meeting in question less than 15 were present. The "solitary life" which we are prone to lead is our weak point professionally as compared with the law. There, constant professional contact in antagonistic action eliminates the inefficient and develops the strong in their ranks. After graduation and hospital training, except for an occasional consultation, we are not of necessity brought together either in friendly or contentious association, and for professional growth the conditions are not good, but this is the lot of most of us. The fortunate few, on hospital staffs or in teaching positions, get the "attrition" that we need so much and get so little of in our daily work. Strangely enough, we fail to grasp our needs, and the men who are usually found at the meetings are not always the ones who need the benefits the most.

To go back to the Library, there is one feature of the case that ought to appeal to us:—With the passing of the preceptor and student relation—in which passing each has lost much—the practitioner not connected with school or hospital is doing nothing for the profession to which he owes so much. It is little enough, then, that he should contribute to the maintenance of the Library where medical students are welcomed and helped, and where the men in the profession who have the time and taste for study get the results which help us all directly or indirectly in the end. To escape "premature senility" then, our best hope would be to attend the sections which appeal to us most, as a duty which we owe ourselves individually; also to join the Medical Library even if not readers ourselves, and so repay to some extent our obligations to the profession.

DR. H. O. MARCY read a paper entitled

GYNECOLOGY: ITS CONTRIBUTION TO GENERAL SURGERY.

DR. BOLAND: I think it is very hard for any one who has been through the school since the day of aseptic surgery to realize what it was before that; the carelessness with which operations were done. I feel loath to let such a subject go by without discussion. The thought occurred to me how much we owe to gynecology in the domain of obstetrics. I am sure obstetricians will admit that they have received immense advantages over the treatment of twenty-five years ago in the demonstration of the possibilities of gynecology.

DR. EMMA L. CALL reported

A CASE OF CÆSAREAN SECTION IN A FACE PRESENTATION, COMPLICATED BY UTERINE FIBROID.¹

DR. HIGGINS: I do not know that I can add anything of value. I think that recovery from the operation of Cæsarean section, done in a tenement house under these circumstances after the patient has been in labor for a long time, is certainly a cause for congratulation. It strikes me

¹ See page 427 of the Journal.

as being a very unusual case of face presentation with the head high at the brim in which the head could not be flexed or rotated. I have known of a recent case of face presentation in the pelvis posterior where the head could not be flexed, but where it was pushed back and version done. I should think that ordinarily we would consider that an impacted head as this seems to have been indicates craniotomy rather than Cesarean section at this time.

DR. E. W. CUSHING: I think the case reflects great credit on those who carried it through so successfully. It occurs to me that all these cases, when reported, are of the greatest value in leading the minds of the profession to consider Cesarean section earlier, as being in these times a comparatively safe operation which can be done, as it is really, with the saving of the life of the child and with fully as little risk to the mother, very often, as a severe case of obstetrics, terminated with great difficulty by the forceps, or even by craniotomy. For you are not quite safe in craniotomy from injuring the mother, and certainly the life of the child is worth a good deal. I would like to ask the doctor if this incision went right through the fibroid? If so, whether it would be possible to have enucleated it, or if the fibroid was large enough to cause the question of removing the uterus to be considered? I did not understand how large the fibroid was. It may be the fibroid was so large it would be a favorable time to remove the uterus, although I can imagine that in such a vascular affair as the pregnant uterus it would not be a favorable time to enucleate the tumor. The cases of fibroids complicating pregnancy are not so very uncommon. I have had three or four where it was necessary to remove the uterus for a fibroid where pregnancy was present as a complication. One such case was in the wife of a physician a few months ago. There was a large fibroid in the lower part of the uterus, so that delivery would have been impossible. She was pregnant about three months. I have had, I think, 4 cases of that kind, although not at term. I have seen Dr. Price, of Philadelphia, remove the pregnant uterus, fibroid and child by Porro's operation, twice, I think. So far as I know all these have done well, so that my opinion would be in favor of a Cesarean section in competent hands as against craniotomy where the child is living.

DR. ALEXANDER: In reply to Dr. Cushing's inquiry concerning the enucleation of the fibroid, that was thought of at the time, but it was decidedly interstitial and occupied the entire thickness of the uterine wall from the mucosa to the peritoneum, so that it was not possible to have enucleated under any circumstances, whether it were pregnant uterus or otherwise, and there was no doubt in our minds at the time as to the route, that delivery must be effected abdominally; but there was a question after the child had been delivered as to the best method of finishing the operation, whether to do a conservative Cesarean or a Porro. The woman was very young, about twenty, very anxious to have more children; all

the manipulations as far as the preceding ones were concerned had been done carefully, and under proper precautions, so that the uterus was probably not septic, and the fibroid could not be enucleated. It was, therefore, decided to do a simple conservative Cesarean, and the result seemed to justify the conclusion.

DR. GOLDTHWAIT: I might mention 1 case which occurred about twenty years ago. I attended a colored woman in confinement, and it was impossible to deliver by the natural passage. I called Dr. Aikin in, who found the case rather beyond his powers, and he called Dr. Storer. Each one of us tried to deliver with forceps. Failing in this, craniotomy was resorted to. The operation was done with great difficulty. The child was very large, the pelvis somewhat deformed and contracted. There was also in the wall of the uterus a fibroid, apparently like the one mentioned. It had nothing to do with the failure to deliver, however. She recovered, and several months later came to me with a great deal of pain and considerable enlargement of the womb. I could not determine whether it was this fibroid or not. She had not had her periods since the operation. I called in a young confrere at that time to see her with me. We could not make out what the trouble was. It was impossible to find a well-defined os. A month later she returned complaining of a great deal of pain. We again examined with a like result. The next day, however, she came to my office, and after a very protracted examination, I thought I felt what should be the os. I succeeded in introducing a blunt sound. On its withdrawal, I should think a pint of blood followed. Apparently it had been confined there. I suppose the os had become occluded by the instrumental manipulations, and a fragment of bone. I do not know that I ever heard of anything like that. She recovered and became regular, though never again pregnant.

If, at the present day, I were again confronted with similar conditions I should resort to Cesarean section, thereby giving the child a chance for life without increased risk to the mother.

DR. HIGGINS: In my remarks I did not intend to criticize the operator, nor would I wish to be considered as advocating craniotomy on a child who had a fair chance of being saved by Cesarean section, and certainly never would advise it or do it on a living child if the mother were in good condition; but it seems to me a case of impacted head high, which could not be pushed back to flex or rotate or do version, would be considered as an impacted head, and probably an impacted head under those conditions could not be removed without great difficulty and considerable strain on the child even after opening the abdomen. Symphysiotomy would undoubtedly release the head under such conditions, and would in my opinion be a conservative operation to perform if the child were alive, and if not I should not hesitate to advise craniotomy. It would seem to me to be a very unusual case in which Cesarean section would be indicated, or would be considered a conserva-

tive operation if the baby were not living. I am sorry Dr. Call did not say more about the condition of the baby, whether the baby's heart was beating before and also after delivery. These conditions are important, I think, in guiding us to future operations.

DR. CALL: The baby's heart was beating until within a short time of the Cesarean section, but we were not sure of it at the time we began the operation. I know it seems as if there were a very decided want of skill to say that the head could neither be flexed, nor version performed. Of course no one can tell whether some one else could not have done it. All I can say is, that this fibroid was more like an infiltration than a distinct tumor, and seemed to involve a great portion of the anterior wall of the uterus on the left side and extended into the right, so that the whole lower segment appeared to be unyielding, and, moreover, I do not think there was more than a cupful of liquor amnii. The membranes were not ruptured, until I had tried for some time to flex the head. I think those two conditions were undoubtedly the cause of our failure to do the usual operation, and, in fact, the reason I suppose that the abdominal operation was delayed so long, was because it seemed to me as if it must be done, and I think I worked over it longer than I should have done. The whole of the presenting part was above the pelvic brim, and the anterior section of the uterus pressed down in front of it, so that craniotomy would have been an extremely difficult operation. It seemed to us both that, even although there had been a great deal of manipulation, craniotomy under the circumstances would be such a serious thing, that Cesarean section offered the better chance of saving the mother's life.

DR. F. A. HIGGINS presented a paper entitled

MY EXPERIENCE WITH ANTISTREPTOCOCCUS SERUM
IN PUERPERAL SEPSIS.²

DR. BOLAND: I have seen this treatment used in only one case, and that in the practice of a neighbor. The physician was warned by the patient that she always had childbed fever, and he was especially careful. But the symptoms developed. The temperature ran to 104° F. There were tympanites, delirium, weak pulse; in fact, all the classical symptoms. He curetted, stimulated, employed intra-uterine injections and used anti-streptococcus serum. The effects Dr. Higgins spoke of, namely, temporary depression of the pulse and temperature was noted. This treatment was finally discontinued and the woman made a good recovery. Evidently she responded more to stimulation than to the serum treatment. Until bacteriology determines just what the pathogenic agent is, and that we have nothing to deal with but that single infection, it seems to me any deductions from the use of antitoxin must be fallacious. I fully agree with what Dr. Marey has said as to the caution we should use in our predictions of any form of treatment.

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HOSPITALS IN JAPAN.

WE ordinarily think of Japan as a country in which all the refinements of civilization are firmly established. Before analyzing the facts it is not a little surprising for us to learn, therefore, on the authority of Dr. E. C. Register, writing in the *Charlotte Medical Journal*, that there are but 10 notable hospitals in the entire country, with its population of 45,000,000. Some cities with a population of 100,000 have no hospital, and the very largest cities are far from liberally supplied. Tokio, for example, has only two, one of which, however, cares for about 2,200 patients a year, outside of out-patient departments, and has a staff of 80 resident physicians and 600 trained nurses. It is at this institution that Dr. Kitasato has his laboratory.

Surgery is done throughout Japan with much skill and success, but under considerable difficulty, owing to the deeply rooted prejudice among the people against surgical operations, due in great measure to the influence of the teachings of Buddhism. The prejudice is being slowly overcome, but still, in this hospital the amount of surgery is relatively less than work done in the departments of medicine. A striking feature of the hospital is the amount of tuberculosis treated in its wards. At the time the paper was written from which we quote, 40% of the patients had tuberculosis, and the records for the preceding five years show that 35% of all cases admitted were tuberculous. Tuberculosis appears in general to be very prevalent among the Japanese, no doubt due in great measure to their manner of life. Statistics show that 32% of all deaths in Japan are due to this disease. Skin diseases are correspondingly rare, no doubt due to the great cleanliness and bathing propensities of the people.

In Yokohama there is but one small and poorly equipped hospital, and Kiota, the former capital

² See page 422 of the Journal.

of Japan, with a population of some 600,000 has only one good hospital, which is combined with a medical school. Pharmacy and medicine are both taught, partly by native and partly by foreign teachers, and last year 21 students were graduated. Other large cities are usually provided with but one hospital. Of the hospital at Kobe, Dr. Register writes as follows: "Its buildings are very large and it is evidently well patronized. They have 80 trained nurses, and an average of 250 patients. Its reception rooms for out-door patients were crowded to overflowing. The general operating room for third-class patients interested me more than anything surgical I have seen in Japan. Here 7 operations in one room were being performed at one time. It reminded me of Barnum's circus, it had so many attractions going on at one time. It had no preparatory ante-room for undressing or dressing. The anesthetic was administered and, in fact, everything connected with each case was done in this one room. Female as well as male patients were admitted and treated or operated on as their time came. I noticed one surgeon was operating for urethral stricture in the male, another setting a broken arm for a little boy, while another was doing gynecological work."

The medical centre of the country is the Imperial Hospital at Tokio. The distances from other parts of the country are comparatively small, and it has therefore become the custom for patients with complicated diseases to resort to it for treatment. The general impression one gets from Dr. Register's interesting paper is that Japan is in no way behind in the methods of surgery and medical treatment, but that it has not yet seen the necessity of multiplying institutions, a fact which we certainly cannot forthwith regard as unprogressive.

TWO PUBLIC DOCUMENTS.

We have before us the yearly reports of the Pauper Institutions Department and of the State Board of Insanity. Both show that material progress has been made in the care and classification of the charges coming under the jurisdiction of the two boards.

At Long Island the hospital department has had a renewed stimulus given it in the establishment of a pathological laboratory. On this point the report of the Visiting Medical Staff reads: "No one thing has conduced more toward the rapid development of the hospital than the establishment of an adequate laboratory under the immediate direction of a salaried pathologist. It is now possible, for the first time in the history of the institution, to afford the sick the advantages which come directly and indirectly from modern labora-

tory methods of diagnosis and research. We are confident that the experience of this hospital will be like that of others, in which working laboratories have been established, in creating enthusiasm, fostering observation and accuracy, and thereby leading to the more intelligent treatment of the patients." The immediate future is also likely to see at this hospital the building of a nurse's home and a large model ward for the special care of tuberculous patients. In this ward the possibility of a city hospital for chronic consumptives is foreshadowed. In general this report shows that progress towards an adequate hospital for the treatment of chronic disease is being made, a fact which we note with gratification.

The State Board of Insanity in its report presents in clear form the problems to be met, and offers many admirable suggestions regarding classification and the more adequate treatment of the various types of mental disease. In view of the gloomy reports of the supposed increase of insanity which from time to time reach us, the following conclusions are of interest: That the increase of registered insane does not necessarily imply an increase of occurring insanity out of proportion to the growth of population; that the rate of increase of occurring insanity is certainly much less than the apparent increase of the insane; that there is a marked and growing tendency to commit all classes of the insane to institutions, especially in the case of old people, of the feeble-minded and of criminals; that a thorough inquiry into the specific causes of such tendency should be instituted as soon as possible.

To those interested in social problems, as well as in disease simply from a medical point of view, we cordially recommend a careful perusal of this scholarly report.

DEFEAT OF THE BILL TO REGULATE VIVISECTION.

We note in another column the fact that the bill recently introduced into the legislature to regulate the practice of vivisection in Massachusetts was rejected without argument on the adverse report of the committee. Extended comment is unnecessary. To those who followed the discussion as presented at the State House, there could be no surprise at the final attitude of the committee. The same arguments, differently worded, that always have been, and always must be used, were employed, statements of fact on the one hand, and sentimentalism on the other. Unfortunate as it is that the world is so constituted that progress in medicine must be made by the sacrifice of animal life, the fact remains that such is the case, and that our knowledge of disease and its causes is likely in the future to be more and

more dependent upon this sort of experimentation. It is a hopeful sign, therefore, that the legislative committee, before whom the question was this year argued, was judicial rather than sentimental, and voted, as they in reason were obliged to, against a restrictive legislation, which would have been far-reaching in its harmful influence on the development of scientific medicine throughout the State.

MEDICAL NOTES.

THE WOMAN'S HOSPITAL OF MANILA.—This hospital, which was founded on January 16, 1901, by a gift of \$5,000 from Mrs. Whitelaw Reid, of New York, was designed to afford a suitable place for the care of cases of sickness and confinement, affording suitable facilities for the care of those able to pay, which was previously wanting in the city. A suitable house and premises were secured on February 16th, situated on Ceurval Solano in San Miguel, and having a water front on the Parig, thus making the hospital accessible by land and water transportation. Five trained nurses are employed. Miss Mary E. McDonald, a graduate of Bellevue and former chief nurse in the army service, is superintendent. The hospital is fully equipped, has "every modern appliance" for the care of the sick and is lighted by electricity. The hospital is under the charge of a board of eight trustees, and there are thirteen members on the Board of Consulting Physicians and Surgeons. Dean C. Worcester is president of the board of trustees. Such an institution must be of inestimable value to foreigners needing surgical or medical care in Manila. A directory for nurses is also a useful adjunct to the hospital.

CHRISTIAN SCIENCE IN GEORGIA.—It is reported that Judge Lumpkin, of the Superior Court in Atlanta, Ga., has ruled that Christian Scientists cannot practice their treatment of disease in Georgia without having been regularly graduated in medicine, or having passed an examination before the medical examining board, as is demanded of physicians. He furthermore holds that, according to the decision of a case in the Supreme Court of Nebraska, Christian Science is the practice of medicine, and that the practice of medicine in Georgia, according to the State law, must be done by persons who are regularly graduated from a medical school.

PLAGUE IN VARIOUS PLACES.—An investigation by the Marine Hospital Service shows the undoubted presence of plague among the Chinese in San Francisco, from which a few deaths have occurred. A recent estimate of the prevalence of the disease in Cape Town, South Africa, showed that altogether there have been 455 cases of the

disease, of which 113 patients have been Europeans, and that the total number of deaths has been 185, including thirty-two Europeans. New cases continue to be reported, both among Europeans and natives. According to Hong Kong advices, 18,000 people have died of plague in the Lamko district of Hai Nan Island during the past few months.

PRECAUTIONS AGAINST PLAGUE IN CANADA.—Special precautions are being taken to prevent the introduction of plague and smallpox into Canada. Orientals entering by way of the Pacific are compelled to undergo a bath at the quarantine station, and their clothing and effects are disinfected. Officers have been appointed to watch the boundary between Canada and the United States, and all suspected cases of smallpox are ordered into quarantine.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, May 1, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 68, scarlatina 19, measles 138, typhoid fever 9.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending April 27th was 246, as against 237 the corresponding week last year, showing an increase of 9 deaths, and making the death rate for the week 22.88. The deaths from consumption were 18, pneumonia 46, whooping cough 4, heart disease 27, bronchitis 3, marasmus 3. There were 5 deaths from violent causes. The number of children who died under one year was 55; under five years 76; persons more than sixty years 46; deaths in public institutions 82.

SUIT FOR ALLEGED INJURY FROM X-RAYS.—A suit of \$15,000 has been brought by a woman in the Superior Court at Salem, Mass., for alleged personal injuries received while undergoing x-ray examination for the purpose of diagnosing an intra-abdominal disorder. It is claimed by the plaintiff that after three exposures of twenty, forty and fifty minutes, a blister appeared, which has not healed. This is said to be the first case of the kind which has come to trial in Massachusetts.

FAILURE OF BILL FOR RESTRICTION OF VIVISECTION.—The Senate has accepted without debate the adverse report on the bill in further restriction of the practice of vivisection.

A CENTENARIAN.—Mrs. Eunice Russ (Ames) Davis, the oldest resident of Dedham, Mass., died April 26th. She was born in Andover, October 26, 1800, making her at time of death one hundred

years and six months of age. Her mother is said to have been a full-blooded Narragansett Indian. She is survived by eight grandchildren.

NEW YORK.

OFFICIAL CHANGES UNDER THE AMENDED CHARTER.—Among the changes of special interest to the medical profession effected by the amended charter of the city, which was passed by the legislature over the veto of Mayor Van Wyck and signed by Governor Odell, are the following: One Commissioner of Charities will succeed to the duties of the present board of three commissioners, and on February 1, 1902, the care of Bellevue Hospital, the Gouverneur, Harlem and Fordham Hospitals, and the Emergency Hospital will be transferred from the Department of Charities to a board of trustees, to be appointed by the mayor. The Health Department is to consist of one commissioner, appointed by the mayor, the police commissioner and the health officer of the port. At present there are five members of the Board of Health, a president and two commissioners (all appointed by the mayor) the police commissioner and the health officer. The powers of the Health Department, in respect to the supervision and inspection of tenements, are transferred to the new Tenement House Department, which will also have authority to regulate the construction or alteration of tenement dwellings.

THE NEW YORK COUNTY MEDICAL ASSOCIATION.—At the annual meeting of the New York County section of the New York State Medical Association, held April 15th, the following officers were elected: President, Dr. Parker Syme; First Vice-President, Dr. Alexander Lambert; Second Vice-President, Dr. Francis W. Murray; Recording Secretary, Dr. Ogden C. Ludlow; Corresponding Secretary, Dr. Montefiore L. Maduro; Treasurer, Dr. Charles E. Denison.

SMALLPOX AT FOUNDLING ASYLUM.—On April 24th 7 cases of smallpox, one of the patients being a nurse, were reported from the New York Foundling Asylum, on Third Avenue, making 17 cases of the disease in the institution within two weeks. It seems very difficult to understand why so much smallpox should develop among the inmates of such an institution, where it can scarcely be doubted that careful vaccination is very rigidly enforced.

THE SOCIETY FOR MEDICAL JURISPRUDENCE.—The eighteenth annual banquet of the Society of Medical Jurisprudence was held at the Waldorf-Astoria on April 21st. Dr. Frank Ferguson presided, and among the toasts responded to were, "The Future of the Municipal Government and the Doctor and the Lawyer in It," by Judge Wm. J. Gaynor, and "Lawyer and Doctor," by Dr. Wm. M. Polk.

Miscellany.

REPORT OF JOINT COMMITTEE OF STATE CHARITIES AID ASSOCIATION.

A CONTINUATION of the happy results previously reported is shown in the report for the third fiscal year of the Joint Committee of the State Charities Aid Association and the Association for Improving the Condition of the Poor, which was formed in the interest of the children in the city's Infant Hospital on Randall's Island. The report of the New York County visiting committee of the State Charities Aid Association, in December, 1897, showed that of 366 infants under six months old admitted to the hospital during 1896, but 12 remained alive on April 15, 1897, a mortality rate of 96.7%. The joint committee, then organized, submitted to the Commissioner of Public Charities an offer to transfer a certain proportion of the infants to carefully selected boarding homes in the country, and the commissioners accepted the offer, agreeing to pay \$2.00 per week per capita toward the board of the children, the committee to meet the additional expense. The work was begun in April, 1898, and the mortality among the infants thus boarded under the care of the committee has been as follows: During the years ending March 31, 1899, 55%; March 31, 1900, 31.1%; March 31, 1901, 18.9%.

In the providing of good permanent homes by adoption the committee has been equally successful, and during the three years a rapidly increasing number of children have been so placed. It has been found with surprise and pleasure that there are large numbers of childless families—many of them in very comfortable circumstances—who are not only willing but anxious to receive these unfortunates as their own.

Obituary.

WILLIAM H. DRAPER, M.D.

THE death of Dr. William H. Draper, of New York, was announced April 26th. He was born in Brattleboro, Vt., October 14, 1830, was educated at Columbia College, and was also graduated in medicine at the College of Physicians and Surgeons. After serving at Bellevue Hospital, he studied in London and Paris. Returning, he became clinical professor of diseases of the skin at the New York College of Physicians and Surgeons in 1869, professor of clinical medicine in 1880, and professor emeritus in 1898. He was a trustee and also president of the College of Physicians and Surgeons before it was merged with Columbia, and he was a trustee of Columbia University from 1880 until his death. In the New York Hospital his service covered a period of thirty-nine years. He was first appointed physician in 1862, and in 1893, after four years as consulting physician, he resumed the more active work, and so continued until a year ago. Then he was again retained as consulting physician. He was attending physician at Roosevelt Hospital from the time of its organization in 1871 until he resigned and became consulting physician in 1897. He was also connected with St. Luke's, the Presbyterian and Trinity Hospitals and other institutions. He was president of the Academy of Medicine in 1886. Both as a man and as a physician

his death comes as a distinct loss to the community in which the greater part of his life was spent.

For many years Dr. Draper was one of the most esteemed consultants in New York. To unusual ability and skill were added the utmost refinement and a delightful charm of manner. Aside from his profession, he was a man of high attainments, and he was always an appreciative and liberal patron of music and art. He leaves a wife and eight children. His oldest son, Dr. William K. Draper, has for some time been associated in practice with Dr. Francis P. Minicenti.

Correspondence.

STATUS OF THE LAWS AND REGULATIONS IN REGARD TO IMPORTATION OF SURGICAL INSTRUMENTS BY HOSPITALS.

Boston, April 26, 1901.

MR. EDITOR:—I send you the following in regard to the importation of instruments by hospitals, as it seems to me that it will interest a certain class of your readers, and I will take for example the importations which have been made by the Massachusetts General Hospital.

Prior to July 24, 1897, and by the Customs Administrative Act of 1890, the law read:

INSTITUTIONS.—Philosophical and scientific apparatus, instruments and preparations; statuary, casts of marble, bronze, alabaster or plaster of Paris; paintings, drawings and etchings, specially imported in good faith for the use of any society or institution incorporated or established for religious, philosophical, educational, scientific or literary purposes, or for the encouragement of the fine arts, and not intended for sale.

Before this law was changed, the Massachusetts Hospital had on several occasions imported surgical instruments and surgical glassware without any question of duty. They were always entered free. All of a sudden one of their importations of glassware and instruments was held up for duty on the ground that they were not scientific or philosophical instruments; that the surgical instruments were tools and the glassware was glassware. The hospital paid the duty under protest and argued the case before the Board of Appraisers in New York, producing witnesses and drawings of various instruments. The Board of Appraisers in New York sustained the decision of the collector, maintaining that the exhibit was not one of scientific and philosophical instruments. The hospital then appealed to the United States Circuit Court and the case was argued before Judge Colt, who decided, briefly, that they were scientific and philosophical instruments and as such were intended to be, by law, free from duty. The Treasury Department appealed from this decision, and the case was again decided in favor of the hospital by Judge Lowell, and the duties paid under protest were refunded; all this after a litigation of about three years, if my memory is correct.

The next importation of instruments which occurred after July 24, 1897, was also held up for duty, and it appears the law was changed by the revision of the tariff which went into effect in 1897, and the law read as follows:

INSTITUTIONS.—Philosophical and scientific apparatus, utensils, instruments and preparations, including bottles and boxes containing the same, specially imported in good faith for the use and by order of any society or institution, incorporated or established solely for religious, philosophical, educational, scientific or literary purposes, or for the encouragement of the fine arts, or for the use or by order of any college, academy, school or seminary of learning in the United States, or any State or public library, and not for sale, subject to such regulations as the Secretary of the Treasury shall prescribe.

the important change in the law being in the insertion of the word "solely"; "solely for religious, philosophical, educational, scientific or literary purposes." Duty was paid under protest on this importation and the case was argued before the Board of Appraisers in New York. They decided in favor of the Collector of the Port, on the ground that the Massachusetts Hospital was not established or incorporated as a seminary of learning

or solely for scientific or literary purposes, and in fact, did not come under the head of Institutions which were intended to be exempt. The case was appealed and came up before Judge Colt again, in the United States Circuit Court. Judge Colt stated that the Massachusetts Hospital in effect did not come under the heading of these institutions which were intended to be exempt. The hospital, therefore, paid the duty and this is the present state of the laws regarding importation of instruments and utensils by hospitals.

I do not believe that the framers of this tariff really intended to exclude hospitals from the benefit of free entry when they were willing to allow "libraries, institutions of learning, religious, philosophical or fine arts institutions," to import free, and I feel very sure that if some effort were made to have this law repealed, it could be done without much trouble; and it seems to me the way to do it would be to have the representatives of every hospital write to their congressmen and call their attention to the fact that the law, previously in their favor, has been changed, and that it is a hardship which other institutions of a similar nature do not have to put up with, and that they request the law be changed to the old law before 1897.

Yours very truly,

C. G. WEID.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 20, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Whooping cough.	Diphtheria and croup.	
New York.	3,437,202	1,368	428	26.46	15.13	2.70	.22	3.29	
Chicago.	1,698,575	—	—	—	—	—	—	—	
Philadelphia.	1,181,057	—	—	—	—	—	—	—	
St. Louis.	575,258	—	—	—	—	—	—	—	
Baltimore.	508,957	168	51	18.44	15.48	—	—	1.19	
Cleveland.	381,768	—	—	—	—	—	—	—	
Buffalo.	352,587	—	—	—	—	—	—	—	
Cincinnati.	325,902	—	—	—	—	—	—	—	
Pittsburg.	321,616	1.6	.38	21.42	11.11	1.58	1.58	1.58	
Washington.	278,718	—	—	—	—	—	—	—	
Milwaukee.	285,315	—	—	—	—	—	—	—	
Providence.	175,507	84	17	19.04	17.85	—	—	2.38	
Boston.	566,892	229	68	26.66	24.64	3.79	.97	4.37	
Worcester.	118,421	30	5	16.09	23.31	—	3.33	—	
Fall River.	104,863	41	13	36.84	17.08	—	—	—	
Lowell.	94,969	32	1	21.85	28.08	—	6.24	—	
Cambridge.	91,886	33	10	20.30	12.12	3.03	—	3.03	
Lynn.	68,513	19	7	10.52	5.26	—	—	5.26	
Lawrence.	62,559	20	1	25.00	—	—	—	—	
New Bedford.	62,442	21	6	14.28	4.76	4.76	—	—	
Springfield.	62,059	37	9	13.50	5.40	—	—	2.70	
Somerville.	61,643	17	2	11.76	17.64	—	—	—	
Holyoke.	45,712	16	1	12.50	12.50	—	6.25	—	
Brookton.	40,063	6	—	50.00	—	—	—	—	
Haverhill.	37,175	13	1	15.38	7.69	—	—	—	
Salem.	35,956	19	1	20.00	20.00	—	—	—	
Chelsea.	34,672	8	—	12.50	—	—	—	—	
Malden.	33,661	9	—	22.22	11.11	—	—	—	
Newton.	33,587	6	—	33.33	16.67	—	—	—	
Fitchburg.	31,531	9	5	—	22.22	—	—	—	
Taunton.	31,406	—	—	—	—	—	—	—	
Gloucester.	26,121	3	1	—	—	—	—	—	
Everett.	24,336	5	1	60.00	—	—	20.00	—	
North Adams.	24,200	7	4	—	—	—	—	—	
Quincy.	23,809	9	—	11.11	33.33	—	—	—	
Waltham.	23,481	7	1	12.50	42.86	—	—	—	
Pittsfield.	21,766	8	—	11.50	12.50	—	—	12.50	
Brookline.	19,935	—	—	—	—	—	—	—	
Chicago.	19,167	2	1	23.07	15.38	—	15.38	—	
Medford.	18,244	2	1	—	—	—	—	—	
Newburyport.	14,478	3	—	33.33	—	—	—	—	
Melrose.	12,962	—	—	—	—	—	—	—	

Deaths reported 2,373; under five years of age 708; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 568, acute lung diseases 372, consumption 305, diphtheria and croup 65, diarrheal diseases 50, scarlet fever 49, influenza 2, typhoid fever 23, whooping cough 14, measles 15, cerebro-spinal meningitis 8, smallpox 10.

From whooping cough, New York 3, Pittsburg 2, Boston 2, Lowell 2, Chicopee 2, Worcester 1, Holyoke 1, Ever-

ett 1. From cerebro-spinal meningitis. New York 4, Baltimore, Worcester, Lowell and Springfield 1 each. From scarlet fever, New York 37, Pittsburgh 2, Boston 8, Cambridge 1, New Bedford 1. From typhoid fever, New York 13, Pittsburgh 9, Boston 2, Fall River 1, Lynn 1. From measles, New York 10, Boston 4, Somerville 1. From small-pox, New York 10.

In the thirty-three greater towns of England and Wales, with an estimated population of 1,580,000, for the week ending April 6th, the death rate was 19.2. Deaths reported, 4,341; acute diseases of the respiratory organs (London), 550, whooping cough 109, diphtheria 64, measles 105, fever 22, scarlet fever 30.

The death rate ranged from 9.7, in Croyden, to 27.7, in Liverpool; Birkenhead 11.8, Birmingham 24.2, Blackburn 19.9, Bolton 22.0, Bradford 22.1, Brighton 12.5, Bristol 20.0, Burnley 19.5, Cardiff 16.2, Derby 17.6, Gateshead 24.1, Halifax 22.4, Huddersfield 20.8, Hull 15.9, Leeds 18.4, Leicester 18.6, London 17.6, Manchester 24.3, Newcastle-on-Tyne 16.9, Norwich 18.8, Nottingham 21.2, Oldham 17.7, Plymouth 15.6, Portsmouth 14.1, Preston 18.2, Salford 24.7, Sheffield 19.8, Sunderland 23.4, Swansea 18.0, West Ham 13.6, Wolverhampton, 24.8.

METEOROLOGICAL RECORD.

For the week ending April 26th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Baro- meter		Ther- mometer.		Relative humidity		Direction of wind.		Velocity of wind.		Weat- her.		Rainfall in inches.
	Daily mean.	Daily maximum.	Daily minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S., 14	30.16	44	48	63	73	47	S.E.	E.	4	7	F.	F.	.0
M., 15	30.04	44	47	60	70	68	S.E.	N.E.	27	20	O.	O.	.03
T., 16	30.04	42	46	58	74	87	N.E.	E.	21	12	R.	O.	.76
W., 17	30.20	42	46	58	75	78	N.E.	N.E.	20	15	C.	O.	.76
T., 18	30.25	42	46	58	83	89	E.	E.	10	6	O.	O.	.76
F., 19	30.22	40	44	56	87	94	E.	E.	4	8	O.	C.	.1
S., 20	30.12	40	43	57	—	—	E.	N.E.	12	17	R.	R.	.03
26	30.15	45	38	—	83	—	—	—	—	—	—	—	—

O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. — Indicates trace of rainfall.
26.7 Mean for week.

SOCIETY NOTICES.

AMERICAN LARYNGOLOGICAL ASSOCIATION. — The twenty-third annual congress of the American Laryngological Association will be held in New Haven, Conn., May 27, 28, 29, 1901.

NEW HAMPSHIRE MEDICAL SOCIETY. — The one hundred and tenth anniversary meeting of the New Hampshire Medical Society will be held May 16, 17, 1901, in Concord, N. H.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — The last regular meeting of the society for the season will be held at Spague Hall, Medical Library Building, Fenway, on Monday, May 6th, at 8.15 P.M.

Papers: Dr. E. C. Brackett and Dr. F. J. Cotton will present a short communication entitled "Intermittent Hydrops." Dr. C. H. Allen, U. S. A., retired, will read a paper on "The U. S. Army System of Personal Identification." Dr. Weston P. Chamberlain, U. S. A., will read on "The Medical and Sanitary Conditions in the Philippines."

ARTHUR K. STONE, M.D., Secretary,
657 Boylston Street.

RECENT DEATHS.

ROBERT WILLARD GREENLEAF, M.D., M.M.S.S., of Boston, died April 28, 1901, aged forty-five years.

LAWRENCE JOHN Mc DONOUGH, M.D., M.M.S.S., died in Lowell, March 2, 1901, aged forty-two years.

DR. ROY FOLGER, of Jersey City, N. J., died of tuberculosis at Denver, Col., on April 26th. He was graduated from the College of Physicians and Surgeons, New York, in 1890.

DR. JAMES S. CARRADINE, of New York, died at East Orange, N. J., on April 26th, of pneumonia. He was born in Yazoo, Miss., and was graduated from the Pennsylvania Medical College in 1858. During the Civil War he served as surgeon in the Confederate Army.

DR. FREDERICK J. BROOKWAY, an assistant demonstrator of anatomy and Secretary of the Medical Faculty of Columbia University, died of meningitis on April 21st. He was born in South Sutton, N. H., February 24, 1860. He was graduated from Yale in 1883, and from the College of Physicians and Surgeons, New York, in 1887. Dr. Brookway has devoted his life to scientific work and teaching.

DR. RICHARD C. BAKER, a prominent physician of Williamsburgh, Borough of Brooklyn, N. Y., died at Otsego, Otsego County, N. Y., his birthplace, on April 24th, at the age of forty-seven. He was graduated from the medical department of the University of the City of New York in 1874, and during the administrations of Mayors Chapin and Roody was Secretary to the Brooklyn Board of Health. Dr. Baker was in the visiting staff of the Eastern District Hospital, Williamsburgh.

BOOKS AND PAMPHLETS RECEIVED.

New-Yorker Brief. By Carl Beck. Reprint. 1901.

Annual Report of the Health of the Imperial Navy for the Year 1898. Tokyo.

Fissure of the Head of the Radius. By Carl Beck, M.D., of New York. Reprint. Illustrated. 1901.

Sonderabdruck aus dem Archiv für klinische Chirurgie. By Carl Beck, M.D., of New York. Reprint. Illustrated.

Sanitation and Yellow Fever in Havana. Report of Major V. Havard, Surgeon U. S. A., Chief Surgeon. Reprint. 1901.

The Representation of Biliary Calculi by the Röntgen Rays. By Carl Beck, M.D. New York. Reprint. Illustrated. 1901.

The Relative Susceptibility of the Domestic Animals to the Contagia of Human and Bovine Tuberculosis. By R. R. Dinwiddie. Reprint. 1900.

The Theory and Practice of Military Hygiene. By Edward L. Munson, A.M., M.D. Illustrated. New York: William Wood & Co. 1901.

Contribution to the Surgery of Multilocular Renal Cyst. By Carl Beck, M.D., of New York, Visiting Surgeon to St. Mark's Hospital and to the German Poliklinik. Reprint. Illustrated. 1901.

The Typhoid Epidemic Traced to its Origin. Complete Report of Dr. Mitchell, Bacteriologist of the Colorado State Board of Health, showing the Cause of the Recent Outbreak of Typhoid Fever. Reprint. 1900.

Diseases of the Heart. A Clinical Textbook for the Use of Students and Practitioners of Medicine. By Edmund Henry Colbeck, B.A., M.D. Cantab., M.R.C.P. London, D.P.H. Cantab. Illustrated. London: Methuen & Co. 1901.

Merck's 1901 Manual of the Materia Medica. A Ready Reference Pocketbook for the Practicing Physician and Surgeon. Compiled from the most recent Authoritative Sources and published by Merck & Co. New York and Chicago. 1901.

Three Thousand Five Hundred Questions on Medical Subjects. Arranged for Self-Examination. With Proper References to Standard Works, in which Correct Replies will be found. Third edition, revised. Philadelphia: P. Blakiston's Son & Co. 1901.

A Contribution to the Radical Operation for the Radical Relief of Prostatic Obstruction. By L. Bolton Bangs, M.D., of New York, Professor of Genito-Urinary Surgery in the University and Bellevue Hospital Medical School; Surgeon to Bellevue Hospital, etc. Reprint. 1901.

Tumor of the Superior Parietal Convolution, Accurately Localized and Removed by Operation. By Charles K. Mills, M.D., Professor of Mental Diseases, and of Medical Jurisprudence in the University of Pennsylvania, and W. W. Keen, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College. With a Pathological Report on the Nature of the Growth. By W. G. Spiller, M.D., Professor of Diseases of the Nervous System in the Philadelphia Polyclinic. Reprint. Illustrated. 1900.

Original Articles.

Contributions on Typhoid Fever.

SOME REPORTED CASES OF TYPHOID FEVER ATTRIBUTED TO CONTAMINATED OYSTERS, WITH CERTAIN FACTS CONCERNING THIS MEANS OF INFECTION.

BY CHARLES HARRINGTON, M.D., BOSTON.

IN 1880, Sir Charles Cameron² brought to the attention of the profession, that oysters, transplanted from the coast of the County of Wexford to the Northern shore of Dublin Bay, had for some years been much subject to disease and had died in large numbers. Specimens which were examined were found to contain sewage matters, and investigation showed that the beds "were literally bathed in sewage." He offered the suggestion that raw oysters, taken from the shore close to sewer outlets, were, perhaps, as likely to act as the vehicle of typhoid fever and other diseases as contaminated water or milk, and advised that "oyster beds should not be laid down at any point on or close to the mouth of a sewer." But the warning appears to have excited no more than a languid interest until 1893, when the late Sir R. Thorne-Thorne, in a report to the Local Government Board, stated his belief that the sporadic cases of cholera which had occurred at various inland places in England in that year were due to oysters and other shellfish from sewage-contaminated water at Grimsby, where there had been a small outbreak of the disease.

In the following year occurred the well-known outbreak of typhoid fever at Wesleyan University, which was so ably and conclusively traced by Professor Conn of that institution to polluted oysters. His report,³ a model of etiological inquiry, has been very extensively reprinted and abstracted, but in view of the recently aroused public interest in the possible danger to public health from the consumption of polluted oysters, I venture to rehearse briefly the essential facts of the outbreak, which not only was the first, but stands today the most thoroughly investigated, as well as the most extensive, case of its kind.

On October 20, 1894, several of the students were reported as slightly ill, with a moderate degree of fever. The number of cases grew from day to day, and shortly included several of undoubted typhoid fever. By November 1st, there were 20 cases of the disease, which number was shortly further increased to 23. All of the victims were of the male sex; there was no illness among the fifty-eight women students. Investigation completely absolved the water supply, the general and particular food supplies of the various boarding places, and the local conditions of the dormitories and outside lodgings of any suspicion of blame. It appeared that nearly all of

the victims were members of three of the seven college fraternities. The combined membership of the three was about one hundred. On October 12th, eight days before the development of the first symptoms, all seven fraternities had had their initiation ceremonies and had celebrated in the usual way with a supper. Investigation of the origin of the components of the suppers showed that there was but one dish from a common source, and that was oysters. The three afflicted societies and one other had obtained their oysters from a local dealer; of the remaining three, two had had no oysters, and the third had had some from a dealer in Hartford. Of the four supplied by the local dealer, one had eaten the oysters cooked, and its membership was not invaded. Thus the trouble became sifted down to the raw oysters from the local dealer. But there was one victim who was a non-society man, and, clearly, his case could not be traced to the initiation supper. Investigation of his dietetic history established the guilt of the local oyster supply even more securely, for it was shown that he had eaten raw oysters from the same lot at the shop of the dealer. It was learned, too, that 5 men from Yale had attended the exercises of the societies in which the outbreak occurred, and inquiry developed the information that 2 of the 5 were seized with typhoid fever some weeks after their return to New Haven.

Further investigation revealed the fact that the incriminated oysters had been brought from a bed from Long Island Sound, and, on October 10th, two days before use, had been stored in a bed at the mouth of the Quinnipiac River, a short distance (300 feet) from the outlet of a private drain from a dwelling, in which 2 persons, mother and daughter, lay ill with typhoid fever.

Shortly after the publication of this case, Sir William Broadbent,⁴ published the facts of a number of cases of typhoid fever, seen by him in consultation with several practitioners, which appeared to be connected with the ingestion of raw oysters, although no absolute proof was adduced, the evidence being purely circumstantial. His cases follow:

CASE I. On November 12th, he saw a young woman who had been confined a month previously and had made a good recovery. The water and milk which she had taken had been boiled; the sanitary arrangements of the house were perfect; no other inmate of the house was sick in any way. In the course of her convalescence she had eaten some oysters, and ten days later she came down with typhoid fever of an unusually severe type, from which she did not recover.

CASE II. On November 19th, he visited two young men, living in the same house, in which no other person was sick. Both the house and the place of business where both were employed were in good sanitary condition. They had been seized, simultaneously, with typhoid fever of an unusually severe form, for which there was no apparent cause, except that ten days before the appear-

¹ Read before the Clinical Section of the Suffolk District Medical Society, February 20, 1901.

² British Medical Journal, September 18, 1880, p. 471.

³ Medical Record, December 15, 1894, p. 743.

⁴ British Medical Journal, January 12, 1895, p. 61.

ance of any symptoms they had had an oyster supper together. Both cases terminated fatally.

CASE III. On November 23d he saw a young woman, who, ten to fourteen days previously, had on two occasions eaten a half dozen oysters with a cousin of about the same age. She had a mild case of the disease, as did also the cousin, who in the meantime had gone to Italy, where she was seized.

CASE IV. On November 27th, he saw a man and wife who had come down with the disease at the same time in a house which was sanitariously perfect. No possible cause was apparent, other than the fact that, two weeks before, they had indulged in oysters. At the same time, he heard of a case of a child of eight years in a house in which no other person was sick, and for whose illness no other reason could be given than that, shortly before being attacked, he had eaten a dozen oysters at the house of some friends.

CASE V. On December 6th, he saw a young man who had been sick for three weeks with influenza and bronchial catarrh. He had partaken freely of oysters and had developed typhoid fever. No other person in the household, which was a large one, had been seized.

CASE VI. Early in December he had been called to the country, where typhoid fever was unknown, to see a clergyman and his daughter, twelve years of age, who were suffering from the disease. The sanitary condition of the house was good, and no other member of the household was sick. Inquiry showed that about two weeks before they had twice had oysters from London, and that they alone had eaten them.

Following the report of Broadbent's cases came a communication from Sir Peter Eade,⁵ who called attention to the mussel as well as the oyster as a means of spreading typhoid fever, and mentioned having lately seen a case of the disease supposedly due to oysters, eaten ten or twelve days before the initial symptoms, while on a visit to London. A little later, Dr. H. J. Johnson-Lavis⁶ related certain facts which he had noticed while in practice at Naples in 1879. Gastro-intestinal disorders were especially prevalent among strangers. They varied in intensity from evidence of simple irritation to the most severe forms of typhoid fever. He noticed that, whenever he and his wife ate oysters, they suffered from colic, diarrhea and tenesmus, and that gastro-intestinal symptoms in his patients very commonly followed eating raw oysters. These cases included chronic gastro-intestinal disturbances, very stubborn in character, and typhoid fever, often of a very severe type. He noticed, too, that though no sickness was caused by oysters at the several places along the Italian coast from which the Naples supply was obtained, when they were brought to Naples and kept for weeks and sometimes months in the harbor in a bed less than sixty feet removed from the outlet of one of the main sewers, their use was by no means unattended by risk. At this place, in-

dividual dealers stored their oysters in baskets, which were pulled up through the filthy water as occasion demanded. Some of the oysters were examined. They yielded evidence of sewage in the water between their shells.

Dr. Arthur Newsholme,⁷ medical officer of Brighton, England, reported that, during 1894, 83 cases were reported to him as typhoid fever. In 15 instances, the original diagnosis was found to be incorrect, and an equal number were found to be imported cases. He investigated the probable causes of the remaining 53 cases, and decided that no less than 15 were due to oysters, and 6 to other contaminated shellfish (clams, cockles and mussels). In other words, 40% of the genuine cases of typhoid fever were due to these articles of food. In a later communication,⁸ after a thorough examination of the cases occurring during a period of four years, he reported the percentages of cases probably due to oysters and mussels as follows: In 1894, 38.2; 1895, 33.9; 1896, 31.8; 1897, 30.7.

Chantemesse⁹ relates the following case. There had been no case of typhoid fever in the little village of l'Herault Saint André de Sangonis for about a year, when, on February 15th, a shopkeeper received a consignment of oysters from Cette. The entire lot was consumed by 14 persons, all of whom were made sick. In the six dwellings in which the victims lived, no other inmates were sick in any way. Eight of the number were made only slightly ill, the symptoms, which included abdominal pain, vomiting, diarrhea, borborygmus, anorexia and general malaise, lasting but two or three days. The 4 youngest, who ate but a few, were very sick for a much longer time (fifteen to twenty-five days), but recovered. The stools were very offensive, were passed with pain, and were dysenteric in appearance; there was tympanites with tenderness and gurgling. All 4 were greatly prostrated. The remaining 2, a young woman of twenty and a young man of twenty-one, developed very severe cases of typhoid fever. The young woman died.

To satisfy himself as to the probability of oyster infection, Chantemesse secured specimens from several sources (Maronne, Ostende, Portugal, etc.) and made bacteriological examinations. They yielded an abundance of bacteria and many were found to contain *B. coli communis*. He placed some of them in water intentionally infected with typhoid stools and cultures, and after twenty-four hours, removed them and kept them another like period before subjecting them to bacteriological test. They yielded the typhoid organisms and *B. coli communis* in great numbers.

Dr. Mosny,¹⁰ to whom the French authorities referred the whole subject of mollusk poisoning for investigation, has reported a case in which 5 members of a family of 7, living in a village in a suburb of Paris, in which there had been no case of typhoid fever in four years, were made sick

⁵ British Medical Journal, January 19, 1895, p. 121.

⁶ British Medical Journal, March 9, 1895, p. 559.

⁷ British Medical Journal, June 8, 1895, p. 1285.

⁸ Public Health, September, 1897, p. 588.

⁹ Bull. de l'Acad. de Med., 1896, 75: 36, p. 588.

¹⁰ Rev. d'hyg., January, February and March, 1900.

after eating oysters sent to them from Cette. Four were seized in the evening of the following day with gastro-intestinal disturbance, which lasted twenty-four hours. On the eighteenth day, a youth of seventeen years developed unmistakable symptoms of typhoid fever, of which, nine days later, he died.

In March, 1897, Dr. T. Chatin¹¹ reported to the French Academy of Medicine the case of a family, of which several members were stricken after eating raw oysters from a bed which was contaminated by sewage matters. One member died. Many other such cases are to be found in foreign medical literature.

A very brief consideration of the viability of the typhoid and other organisms in the water retained between the shells and within the tissues of oysters and in sea water itself is now in order. The work of others than those quoted is merely confirmatory.

In 1889, De Giæxa¹² made a series of investigations of the influence of sea water on pathogenic bacteria, and found the following conditions to be favorable to growth and multiplication of micro-organisms in harbor water: shallowness, stagnation and high temperature of surface water, abundance of vegetation, and admixture of sewage rich in organic matter. Certain pathogens were found to succumb very quickly to the influence of the ordinary species of water bacteria and others to be far less susceptible. Some were found to thrive well in sterilized sea water and retain virulence many days.

It was shown by Foote,¹³ after the outbreak at Wesleyan University, that typhoid cultures, introduced within the shells of oysters from the bed from which the incriminated oysters were derived, were virulent at the end of forty-eight hours, which was the period which elapsed between the gathering and consumption of those which caused the outbreak. Furthermore, it was demonstrated that if the specimens were kept at 57° F., the organisms were active as long as a month later.

Dr. Joseph Polak,¹⁴ of Warsaw, examined oysters from Ostend, Holland and Odessa, and concluded that, during transportation, the life processes have an undoubted inimical influence on bacteria, diminishing, and in certain cases, abolishing them completely. His conclusions were distinctly opposed to those of others who had determined that the typhoid fever organism lives longer in the tissues and juice of the oyster than in the sea water itself.

Klein detected *B. coli communis* in oysters from typhoid-infected beds, and has found that oysters, kept for a time in sea water intentionally infected with bacillus typhosus, yield the organism after four to eighteen days. Cholera bacteria were demonstrated in an active state after four to eighteen days. Wood subjected oysters to cholera-infected sea water and found the bacteria at the end of eighteen, but not after twenty, days.

According to Boyce, the typhoid organism will

not grow in the tissues of the oyster, and, in fact, perishes rapidly therein if the oysters are removed to pure sea water. But, according to Klein and Foote, the organism lives, multiplies, and is virulent for a long time if the oysters are stored in polluted water. Klein found it virulent after three weeks, and Foote reported that, during the first two weeks of immersion in typhoid-infected water, it multiplies in the tissues of the oyster and then diminishes, but can still be found after thirty days. Other observers have found the bacteria of cholera and typhoid fever, *B. coli communis*, *B. proteus vulgaris* and other organisms, in oysters contaminated by sewage, and all unite in the opinion that the presence of *B. coli communis* should arouse suspicion and induce improvements in the management and supervision of oyster beds.

In the investigation of outbreaks of typhoid fever supposedly due to oysters, bacteriological proof of specific infection of those eaten or of others from the same lot always has been and always will be wanting, since, long before the appearance of the first symptoms of the disease, the material is no longer available for investigation. But, in view of the fact that pathogens have been found in the water between the shells of oysters from polluted beds; that they have been known to live for days in the tissues and retained water; and that, in the cases investigated, the beds have been found to be exposed to the influence of sewage, we may properly conclude that a causal relation is very possible.

The danger of infection arises wholly from the presence of sewage in the water where the oysters are planted or stored. The remedy lies either in transferring the beds to cleaner situations or storing the contaminated oysters in clean sea water until the bacteria have either perished or been washed away. What constitutes a sufficient length of time to insure purification is a matter of some disagreement. Many believe that a week is enough; others, that sixteen days should be allowed. They should not be stored where sewage matters can reach them through long distances by currents along the shore, nor where the prevailing winds can exert a harmful influence to the same end.

For a very thorough discussion of the subject of the proper management and supervision of oyster beds, the reader is referred to the exhaustive report of Dr. Mosny on the general subject of mollusk poisoning, published in *Revue d'Hygiène*, December, 1899, January, February and March, 1900, to which I am much indebted for many of the facts above given.

A GIFT TO THE HOSPITAL OF AIX-LES-BAINS.

—A daily paper is authority for the statement that J. Pierpont Morgan has donated \$10,000 to the hospital of Aix-les-Bains, France, and that the municipality has shown its appreciation of the gift by presenting him with a "magnificent bouquet."

¹¹ La Semaine Médicale, 1897, p. 91.

¹² Zeitschr. f. Hyg., vi, p. 162.

¹³ Medical News, March 23, 1895, p. 320.

¹⁴ Sanitary Record, April 30, 1897, Supplement, p. 47.

EXPERIENCE WITH THE WIDAL REACTION IN TYPHOID FEVER.¹

BY CHARLES F. WITHERINGTON, M.D., BOSTON,
Visiting Physician, Boston City Hospital.

THE general experience of the last four or five years tends to confirm the favorable impression of the value of the Widal reaction as a diagnostic sign in typhoid fever. The usual percentage of 95% of successful results indicates, certainly, a valuable diagnostic aid. The limitations of the test, however, as to the time of its first appearance, which is rarely before the sixth day, and often not before the ninth or tenth, are such as to deprive it of the value which one would like to attach to it for early diagnosis.

In the earlier years of its employment in the City Hospital, the failures which were noted were open to the criticism, in some cases, that insufficient numbers of tests were made. For example: the test would be applied on the patient's entrance and once or twice afterwards, and such cases were erroneously construed as failures of the Widal reaction.

During the last year, it has been the custom to perform the test more frequently than at first, and it has been found that while the reaction sometimes appeared at a very late period—twenty or twenty-five days from the onset of the fever—nevertheless it was generally eventually obtained.

The method of applying the test has been the following: A few drops of blood have been drawn from the patient's ear into a small section of glass tubing, sealed at one end by heat and left open at the other. After the serum has separated, 1 drop of it is mixed with 10 drops of an active culture of typhoid bacillus, twenty-four to thirty-six hours old. The dilution is, therefore, 1 to 11, or 9%. For a control, a few drops of the unmixed culture is usually put on the other end of the slide. If immobility and clumping are present in the serum culture mixture in course of one-half hour, the reaction is reported as positive, otherwise not. In the majority of cases the reaction appears in ten or fifteen minutes.

With the assistance of my house officer, Dr. H. H. Smith, I have been able to present the results of Widal examinations in all the cases of typhoid fever at the City Hospital during a period of six months, from May 28 to November 28, 1900. There were during this period 253 cases of typhoid fever in the hospital which were tested, repeatedly, by the Widal reaction, in all cases until a positive result was obtained. In 10 of these cases there was a constant absence of Widal reaction, or 4% of failures.

In Case I, which was under observation only three days during the fifth week of the disease, the Widal proved negative 3 times.

In Case II, the Widal was absent 10 times, first on the twelfth day, last on the thirty-third day of the disease.

In Case III—a case fatal from perforation on the twelfth day—it was absent in 4 tests.

In Case IV, it was absent 15 times between the tenth and fifty-fourth days of the disease.

In Case V, it was absent 7 times between the fourth and twenty-second days of the disease.

In Case VI, it was absent 12 times between the sixth and thirty-fifth days.

In Case VII, it was absent 6 times between the fifth and fortieth days.

In Case VIII, there were 14 negative tests; Case IX, 12; Case X, 11.

In all of the above cases, the clinical evidence of typhoid was satisfactorily conclusive, except in one where the diagnosis was from autopsy, and in which, during life, symptoms were uncertain. This case was, briefly, that of an Italian, speaking no English, who entered in an unconscious state without any history ever being obtained. There were no rose spots; size of spleen was doubtful; the abdomen was retracted; there was no diarrhea. In this case a lumbar puncture was made four days after entrance; fluid was clear and contained no organisms. The white blood count remained at 6,000 until the last day of life, when it rose to 14,000. The diagnosis remained in doubt, but the autopsy showed typhoid ulcerations, representing, in the opinion of the pathologist, the fourth week of typhoid fever. The spleen was enlarged, and cultures from the gall-bladder gave bacillus typhosus; the moderate leucocytosis may have been "terminal" or else due to a little abscess between the right lobe of liver and diaphragm.

Case II had many rose spots, spleen was palpable and the patient had intestinal hemorrhages.

Case III presents so many points of interest that I take leave to report it somewhat in detail. The patient, a boy of fifteen, entered September 7th, having had headache for twelve days, with watery greenish stools for a week. He kept about, however, till the day before entrance, when he went to bed and had epistaxis. Rose spots were present on the eleventh and the spleen was felt; temperature rather irregular. Widal tests negative on the second, fifth, eighth and tenth days. Plasmodia absent. The perforation occurred at 6 A.M. on the tenth day when patient was taken with sharp abdominal pain—general, not localized, without nausea or vomiting. One hour later onset of rigor lasting two hours. At 8.45 A.M. examination showed slight general distention with slight spasm, more marked in right lower quadrant. Temperature subnormal, pulse increased in rate, expression rather anxious and patient suffering considerable pain. Diagnosis of perforation made by Dr. Ames, in whose care he was. After administration of $\frac{1}{4}$ grain of morphia and $\frac{1}{160}$ grain of atropia patient's condition improved slightly. Heaters given and hot fomentations applied to abdomen.

At 9 A.M. seen by Dr. Lund and a few minutes later by Dr. Munro, who recommended transfer. Seen one hour later by Dr. Witherington who confirmed diagnosis and recommended operation. Parents refused consent. At 12 (midnight). Patient has steadily grown worse, with rise of

¹ Read before the Clinical Section of the Suffolk District Medical Society, November 20, 1901.

pulse and temperature. Expression anxious, face rather pinched, complains of slight abdominal pain. Locally distension has increased, with marked spasm over whole abdomen. Considerable tenderness. Pulse poor.

September 16th (10 A.M.). Patient has had no nausea or vomiting, slept four hours during the night. Has had two stools since yesterday morning, both of which were well formed, light yellowish, without blood. General condition has grown steadily worse. Facies septic. Slight cyanosis. Abdominal distension more marked, with great rigidity and spasm, more marked on right.

September 17th. Since last note patient has grown steadily worse, though pain in abdomen is somewhat less. Abdomen excessively distended, tympanitic, resistant with general spasm. Facies pinched, anxious, slightly cyanotic, vomiting has been frequent and controlled only slightly by morphia. Died at 10.20 A.M.

The temperature dropped immediately after the perforation to 97°, but rose again to 102°. The white counts which were made during the fifty-two hours between perforation and death were interesting as showing the development of the peritonitis.

On September 15th, 9.20 A.M., whites, 8,800; 10.20 A.M., 14,300; 11.20 A.M., 8,600; 12.20 P.M., 12,800; 1.20 P.M., 10,600; 2.20 P.M., 8,400; 5.30 P.M., 10,600; 8.10 P.M., 14,300; 10 P.M., 13,000. On September 16th, 8.15 A.M., 20,000; 10 A.M., 22,200.

Case IV had a few rose spots, the spleen was felt and there were several intestinal hemorrhages. In this, as in all the previous cases, the temperature chart was characteristic of typhoid.

In Case V, the temperature curve was unusually brief, about twelve days, but the spleen was felt; there were headache, vomiting and chills at the outset; probable rose spots; plasmodia were absent and the case seems pretty certainly to have been typhoid.

In Case VI, the chart was also characteristic; no rose spots were seen; there was a low white blood count, and at the end of twenty-two days, phlebitis developed in the left leg, which recovered after two weeks.

In Case VII, there was a pneumonia at the outset, but the spleen was enlarged and a few probable rose spots were noted. The temperature subsided by the lysis typical of a typhoid fever.

The remaining cases were also fairly typical of typhoid, one of them, Case IX, having a phlebitis.

We have, thus, 253 cases of undoubted typhoid with 10 failures of the Widal reaction. But besides these, there were 6 other cases, in which, although the evidence is not perfectly conclusive, the diagnosis of typhoid was made, and they all seem to me to have been probably actual cases of the disease. In these the following number of negative Widal's, respectively, was obtained: eleven, nine, five, five, nine, seven. For the reason that objection might possibly be made

to the certainty of the diagnosis I have rejected them from the foregoing list; but if we were to include them, as we perhaps fairly might, we should have a total of 259 cases during six months, with a failure of the Widal reaction in 16, or a little over 6%.

A typical instance of the tardiness of the Widal response is illustrated in 1 case, where, after 8 consecutive failures, it was positive for the first time on the twenty-ninth day.

THE WIDAL REACTION IN TYPHOID FEVER.¹

BY GEORGE B. SHATTUCK, M.D., BOSTON,
Visiting Physician, Boston City Hospital.

Four years ago I presented a paper on the "Serum Test in Typhoid Fever," at a meeting of the Association of American Physicians, when I reported and attempted to analyse 125 cases of typhoid fever (clinical) at the Boston City Hospital in which the Widal test had been used.

The conclusions drawn from those cases at that time were as follows:

(1) The serum reaction may be obtained toward the end of the first week of typhoid fever, but is both more pronounced and more usual later in the disease.

(2) It may be present without a relapse at the end of the fourth month.

(3) It may be absent one day and present the next.

(4) Of 125 cases of typhoid fever (clinical) the reaction was absent in only 1 case. In 2 cases it failed, but there was in each only 1 test, in 1 case on the twelfth and in the other on the eighty-second day.

(5) In 19 cases of other diseases clearly uncomplicated by typhoid there was no reaction.

(6) In 1 case, where the diagnosis must remain doubtful, although typhoid cannot be positively excluded, there was a reaction.

(7) In a number of difficult and perplexing cases the serum test was of distinct service in establishing or correcting the diagnosis.

(8) This test will probably prove itself a useful aid to clinical diagnosis, and especially in hospital practice.

Dr. Withington's series of 259 cases from the same hospital, at this later period and after further experience, is comparable with my previous series and therefore, to me, at least, of a double interest. To supplement his cases, drawn from the three medical services over a period of six months up to November 27th, I have gone over the cases of typhoid fever (clinical) in my own service for a little more than two months from November 27th last to February 1st, 25 cases in all. I see no reason to essentially modify the conclusions reached four years ago and above reported. Out of these 25 cases, 1, with a non-typhoidal chart and otherwise somewhat doubtful clinically, gave a positive reaction on the tenth

¹ Read before the Clinical Section of the Suffolk District Medical Society, February 20, 1901.

day; 1 case with a clinical diagnosis of typhoid—chart, rose spots, gurgling, tympanitic abdomen, no spleen detected, course of four weeks—gave 5 negative Widal's at intervals, no positive reaction, and was discharged well.

One case not included in the above, entering after three weeks' illness with doubtful clinical symptoms, gave 1 positive reaction. Subsequent tests were negative. This patient had been in the City Hospital two years before with typhoid fever accompanied then by a positive reaction. He subsequently developed pulmonary gangrene and died.

Among the cases included in Dr. Withington's statement were 2 occurring in the first two months of my service at the hospital this autumn, which should be grouped with the last 3 cases reported as exceptional. One of these entered with a history of four days' illness. The edge of the spleen could be felt, the abdomen was tympanitic, there was gurgling in the right iliac fossa, and a few possible rose spots. The chart was typical of the last week of typhoid, the patient was discharged well at the end of three weeks. The clinical diagnosis was typhoid fever, but there were 8 negative Widal's. The other case entered with a history of illness for eleven days. There were numerous rose spots, a doubtful spleen, a tympanitic abdomen; whilst in the hospital there were two hemorrhages from the bowels. The chart was typical of the last ten days of typhoid. The patient was discharged well three weeks from entrance. The clinical diagnosis was typhoid, but there were 8 negative Widal's.

In all 5 of these exceptional cases there was a low white count and the plasmodium malarie was excluded.

My recent service of four months at the City Hospital, therefore, may be summed up as offering a total of 62 cases, with a clinical diagnosis of typhoid fever; of these 3 failed to respond to the Widal test. One case not included in the above, with a doubtful clinical diagnosis, gave a positive reaction. One case also not included, and doubtful at first but subsequently developing a different disease, gave 1 positive reaction but it was also learned that he had undoubted typhoid fever two years before.

I also find among my notes the following exceptional cases on the same medical service of the same hospital occurring between July 15, 1898, and January 1, 1899, during which time there were 110 cases with a clinical diagnosis of typhoid fever.

CASE I. Seven negative Widal's. Typical history and chart, epistaxis, rose spots, enlarged spleen and abdominal tenderness.

Diagnosis.—Typhoid fever.

CASE II. One positive Widal. History referable to thorax, no spleen, irregular temperature, tubercle bacilli found, later meningeal symptoms.

Diagnosis.—Tuberculosis.

CASE III. Positive Widal. Patient had malaria; plasmodium found. Died five days following admission.

Autopsy.—Enlarged and pigmented spleen and liver, no ulceration of Peyer's patches nor other typhoid lesions.

Diagnosis.—Malaria.

CASE IV. Positive Widal. Sudden onset, chills, yellow expectoration, pain in chest, consolidation of right lower lung, crisis on ninth day, normal temperature following.

Diagnosis.—Pneumonia.

CASE V. Two negative Widal's. Soldier, indefinite history covering last two weeks, enlarged spleen, rose spots, symptoms of perforation, death.

Autopsy.—Typhoid perforation. Many ulcerated Peyer's patches. Malarial pigment.

Diagnosis.—Typhoid with perforation.

CASE VI. One positive followed by 2 negative Widal's. Transferred from surgical ward; only symptom, a pain in left lumbar region, later in abdomen. Three months later still in hospital, in gynecological service, with probable tuberculosis of kidney.

CASE VII. Five negative Widal's, 1 positive after normal temperature for four days and well into convalescence. Two negative Widal's were obtained after sharp hemorrhage from bowel. History of four weeks duration before entrance and in bed one week. Typical chart; symptoms: spleen, rose spots, hemorrhage.

Diagnosis.—Typhoid.

CASE VIII. Two negative Widal's. In bed most of time for past four weeks, gave typhoid history, elevated temperature, much enlarged spleen which has diminished progressively, typical typhoid stools, dull, apathetic, gurgling in fosse, temperature declined by lysis.

These dates covered the cases resulting from the Spanish War.

Many cases of "soldiers" having malaria gave positive reactions, but owing to the inability to disprove the occurrence of typhoid while at the South, they are not included.

MEANS OF INFECTION IN TYPHOID FEVER.¹

BY E. N. WHITTIER, M.D., BOSTON.

DR. HARRINGTON'S paper is most acceptable and timely. He backs up his own opinion with a synopsis of the views of other and preceding observers; the joint conclusions carry conviction.

My own experience has made me very apprehensive regarding the course of typhoids occurring in families whose summers have been passed away from the city—rural and not urban in the source of the infection, imported and not native, malarial and not straight. The typhoid of city origin may be atypical and puzzling; care and restrictions may be as prolonged, but it is without the terror, the destructiveness, the lethal drift characteristic of country typhoids.

¹ Read before the Clinical Section of the Suffolk District Medical Society, February 29, 1901.

I doubt very much if we appreciate the great and good work of our brethren in the village and farm districts of our northern New England States, where the high potency of typhoid infection often resembles that of dynamized solutions, and the malignancy of the process is frequently fulminating in its short and deadly course.

Fall fever, a north-country name for typhoid, is more dreaded there than any other infectious or any contagious disease—smallpox alone excepted. The farm well must remain practically as it is; the hill-side spring and piping, the meadow brook and hydraulic ram—I have seen them all—are inoperable, to borrow a surgical term, for several months yearly in a region where the ground freezes post-hole deep on the farm of the milk producer; the vaultless privy and the kitchen cesspool will continue to menace the health of every family within their sphere of influence, until the dairy and its adjuncts receive the same care and supervision as that now given the cattle in the matter of tuberculosis. Milk infection and its results are too widely known to call for other remarks.

A single case of typhoid, high up on a mountain stream, the water supply of Plymouth, Pa., resulted in a thousand cases of typhoid and a fatality of 10%. The Spanish bullets at El Caney and Santiago were not more fateful in their course than the flies from the latrines and cesspools at Chickamunga in the camps of 1898.

Milk infection, water supply pollution and camp food infection by flies—these are widely known; not so, however, until recently, the subject matter of Dr. Harrington's paper.

I suppose the occasion for this discussion is to be found in the outbreak of typhoid in the Boston colony, summer residents at Marion, Cape Cod. Marion has a winter population of 500, that of summer is estimated to be between 1,400 and 1,500. The village is delightfully located on the western shore, the deep water side of Sippican Harbor, an arm of Buzzard's Bay, about two and a half miles long with greatest width of about one mile.

The village water supply is largely from artesian wells, each on the premises of the owners of the house lots. Late in September last, I saw the first of a series of cases originating in the village, on October 9th, the second, and on October 13th, the third; afterwards there were 2 other cases (but not among my people), all residents of Boston in the winter and within easy pistol-shot of Charlesgate East. How many other cases in families or of people from other cities no one knows.

One case originated at the northern end of the village, 3 at the southern, a mile away, and yet another midway between. Neither milk, nor water, nor food supply in any form were common to all. If it was true that the village market-man kept his greens bright and his vegetables fresh by water from a polluted well, it is also true that he did not supply the families of my patients.

There is no sewage system in Marion. Residences erected along the water-front drain down

to the shore, few have cesspools, so that for a mile or more, houses, shops, fish markets, stables, academy and hotel pour their sewage into the incoming and outgoing tide.

Up to last fall the Marion oyster, native to the region, had been the pride and glory of the place; on the deep shell he had no superior; he came next after grace at all the good dinners the place is so famous for; whatever else was absent, he was present at all functions; he was introduced to guests as a desirable acquaintance.

A house party of 6 sat down to oysters on a blazer, 3 of the number had typhoid. A plain or even a fancy roast is mere child's play to a microbe that hibernates in a cake of ice and comes up smiling the next summer.

Blenkinsop's Cove, a mile or more long, on the eastern side of the harbor and about a mile across from Marion Village, had been the chief source of the supply for the summer trade, until in mid-season the demand increased and emergency calls arose; then, for convenience in quick delivery, etc., the clean oysters from across the harbor were kept in storage in places polluted by filth and contaminated by sewage. The State Board of Health reports the bacillus coli communis in oysters taken from various places on the village side, none in oysters from Blenkinsop's Cove.

This Marion outbreak, of small proportions fortunately, nevertheless has had wide influence; but the oyster was not so much at fault after all. A Virginia ham soaking in such waters would afford an example of food infection.

EARLY DIAGNOSIS OF TYPHOID FEVER BY ISOLATION OF BACILLUS TYPHOUSUS FROM STOOLS; CONCLUSIONS OF DR. L. RÉMY BASED ON THE USE OF HIS ASPARAGIN-LACTOSE-CARBOL GELATINE.¹

BY CALVIN G. PAGE, M.D., BOSTON,

Assistant in Bacteriology, Harvard Medical School, Physician to Orthopedic Department, Boston Dispensary.

It is almost impossible to isolate the bacillus of typhoid fever from a mixture containing the common colon bacillus by means of plate culture with the ordinary nutrient gelatine or agaragar. This is not due to any antagonism between the two organisms, but is the fault of the culture medium. Many men have tried to invent a medium that could be used to separate the typhoid from the colon bacillus.

One of the most noted of these, Elsner, in 1895, successfully used a gelatine medium made from the juice of potatoes. Other observers failed to obtain his results on account of the great variations in the chemical composition of potato.

In 1896, a Belgian, named Rémy, devised a gelatine medium made with asparagin and definite amounts of several salts to correspond to a chemical analysis of potato. With this he successfully separated laboratory cultures of typhoid and colon bacilli, and later on cultures derived from stools

¹ Read before the Clinical Section of the Suffolk District Medical Society, February 20, 1901.

of typhoid patients. Just before using he adds to each tube of medium a little milk-sugar, and two drops of a 1-40 carbolic acid solution. The culture or feces is diluted twice, first about 1 to 40, second about 1 to 8,000. One or two loopfuls of this second dilution is mixed with a tube of melted medium and poured onto a glass plate. Colonies appear after two days at room temperature. The smaller and paler colonies are probably typhoid, but the appearance of the colonies is never sufficient for a diagnosis. Little cubes of gelatine containing each one colony are cut out and transferred to several tubes of bouillon. Examination of these tubes after a short incubation will show whether or no the organism is a motile bacillus. Some of it is then transferred to milk-sugar gelatine and incubated to see whether gas bubbles will develop. The bacillus must be tested with known typhoid serum to see if it will clump, and the bouillon culture tested for indol. If the bacillus clumps in the presence of typhoid serum and produces neither gas nor indol it may be said with certainty to be typhoid. If it does not clump and produces neither gas nor indol it may yet be typhoid, for typhoid bacilli when living together with colon bacilli may gradually lose their sensitiveness to typhoid serum. If gas is produced the culture is certainly colon bacillus.

Early in 1889 Rémy began to apply this method to the examination of stools of typhoid patients. During the year he made 31 examinations of stools from 23 cases of typhoid fever, and isolated the typhoid bacilli from every case. One examination was negative because the dilution was not sufficient, another because it was too great. Repetition in these cases, however, gave positive results. One case on the fifty-eighth day gave a negative result, though an earlier trial was positive. The earliest of all the examinations was on the third day of the disease, the latest on the forty-fifth day. Early in the disease the typhoid bacilli are present in relatively small numbers. They increase considerably during the second week, and may sometimes be almost the only bacterium present. During the third and fourth weeks the number diminishes steadily.

In two cases where an unusually large number of typhoid colonies developed on the plates, the patients died soon after the examination. In all the cases the typhoid bacilli had the same characteristics. They did not produce indol, they did not make gas from milk-sugar, and when mixed with typhoid serum they clumped promptly. The bacilli isolated during the second week grew rapidly and abundantly, while those isolated toward the end of the disease showed less vigor. In 3 cases the typhoid bacilli were found in the stools before the serum reaction or any other sign of typhoid fever was present. Consequently the presence of the typhoid bacillus with its specific characteristics is the only sign that, taken by itself, will justify the clinician in making a certain diagnosis. It is also the only sign that cannot fail. Control examinations of the stools from 12 patients with other diseases failed to show the typhoid

bacillus. The constant presence of the typhoid bacillus in the stools of persons sick with typhoid fever and the absence of it in the stools of other patients, Rémy offers as additional proof that the bacillus is the true cause of the disease.

I have made three lots of gelatine after the formula of Rémy, but cannot yet give any conclusion based on personal experience. The time required to make a report is at least three days.

Those who have used a method described by Piorkowski say that it is valuable and worth further trial. McConkey working in the Thompson-Yates Laboratories, in Liverpool, has had very encouraging results by adding bile salts to a medium for separating typhoid and colon bacilli. There is, therefore, good reason to hope that a method will be devised by which a report of examination of feces can be made in less than three days.

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THE FEVERS OF THE PHILIPPINES.¹

A PRELIMINARY REPORT ON THE NATURE OF THE FEVERS PREVALENT IN THE PHILIPPINE ISLANDS, INCLUDING TYPHOID FEVER, MALTA FEVER, THE MALARIAL FEVERS AND UNDETERMINED TROPICAL FEVERS.

BY JOSEPH J. CURRY, M.D.,

Captain and Assistant Surgeon, U. S. A., Philippine Medical Service.

TYPHOID FEVER.

Typhoid fever existed among our troops in the Philippine Islands to a considerable extent. There is hardly a command that has not lost men by it, still typhoid fever never has assumed anything near the epidemic form as occurred in the camps in the United States during the Spanish-American War, and as now prevails in the English Army in South Africa. Some cases of typhoid were undoubtedly brought over in the early expeditions from San Francisco to Manila, but it is more than probable that typhoid fever existed widely in the Philippines at the time of our occupation.

Our troops occupied many of the old Spanish camps. From these camps came a large number of the cases of typhoid fever. The camps at the

¹ Extract of a Report to the Surgeon General of the Army, on the Diseases of the Philippine Islands. (By permission of the Surgeon-General.)

Deposito near Manila, and at Calamba on the Laguna de Bay, especially were the source of many cases. These places had been used by the Spaniards for military camps for years. At Calamba the disease assumed epidemic proportions. Here in March, in 1900, there occurred considerable of an epidemic in the two companies of the Forty-second Infantry stationed there. Out of 16 men of these commands in the First Reserve Hospital (Manila) on March 16, 1900, 14 had typhoid fever. In each case a positive Widal reaction was obtained. Later in May and June, two companies of the Thirty-ninth Infantry were stationed at Calamba, and typhoid occurred to a considerable extent among them.

Malarial fever and dysentery were also prevalent at Calamba. In every command that camped at Calamba, there occurred a number of cases of typhoid fever, of malaria, and of dysentery. These old infected Spanish camps have been the source of a great amount of sickness among our troops. It has been difficult, if not impossible, for military reasons, to avoid occupying such camp sites.

Typhoid fever undoubtedly existed among the Spaniards and natives before our occupation. To what extent it is impossible to state. The Spanish and native records as to the cause of death in Manila are absolutely worthless. Over 70% of the natives never see a doctor. Most diagnoses were made by the Spanish or native doctors after death, on the symptoms as described by the deceased's friends. Post mortems were practically never held save in the medico-legal cases under the Spanish régime. There was no pathological laboratory in Manila before the establishment of the army pathological laboratory at the First Reserve Hospital. In consequence, there is no reliable information to be had from the Spanish records. From information given me by both Spanish and native physicians, typhoid fever has existed for years in Manila. These physicians claim not to any great extent, but it is probable that typhoid fever was widespread before our arrival in Manila.

I performed one post mortem on a Chinaman who died at the San Juan de Dios Hospital in Manila. He died of intestinal hemorrhage. Autopsy showed typical lesions of typhoid fever, the post-mortem blood gave the Widal reaction, and the bacillus typhosus was obtained in cultures from spleen and mesenteric glands. This case had been diagnosed "tuberculosis" by the attendant doctors at the hospital. At Calamba typhoid fever was found existing among the natives in a small barrio not far from the American camp. In one house located near a stream from which the soldiers were accustomed to drink, typhoid fever was found among the inmates, by Assistant Surgeon Lewis, U. S. Army, who was sent by the chief surgeon to investigate the cause of the typhoid epidemic in the two companies of the Forty-second Infantry.

We have abundant evidence that typhoid fever existed in and near Manila before our occupation. Out of the 20,981 medical cases treated at the

First Reserve Hospital, 653 were typhoid fever. Of this number 93 died, a death rate of less than 15%. This is a remarkably low death rate for a tropical country and speaks highly for the Medical Department of the Army. This is less than one-half the death rate reported by the English Army surgeons for tropical countries (Manson). This low death rate is no doubt in part due to the *early recognition of the disease as typhoid*. The laboratory has rendered valuable service in this alone. There were 40 post mortems performed on this disease at the First Reserve Hospital from March, 1899, to June, 1900.

The immediate cause of death in over one-third of these cases was either perforation of the intestine or hemorrhage from the intestine. Among these 40 cases, death was due in 8 to a perforation of a typhoid ulcer of the intestine, and to intestinal hemorrhage in 5. In this series there was 1 case of typhoid fever without intestinal lesions, 1 of typhoid and estivo-autumnal malaria combined, and 2 of typhoid fever and amebic dysentery combined. In one of the latter there was also pulmonary tuberculosis. The study of these post mortems, and their complications, and the combined infections of typhoid fever in Manila, will be the subject of a special report later. It is instructive to compare the death rate among our troops from typhoid fever before and after the Philippine insurrection. From the occupation of Manila on August 13, 1898, to the outbreak of the insurrection early in February, 1899, there occurred 337 cases with 34 deaths, a mortality of practically 10%. From February, 1899, to June, 1900, there were 316 cases treated in the wards of the First Reserve Hospital, with 59 deaths, a mortality of nearly 19%.

One explanation of the higher mortality in this latter series of cases lies in the fact that these men, by prolonged subjection to fatigue of campaigns and the tropical climate, had less power of resistance than the troops fresh from the United States, with only camp routine duty to perform. That typhoid fever has not been more prevalent among our troops in the Philippines is remarkable. The great majority, if not all, of the regiments have had cases of typhoid fever, most of these had one or more fatal cases. With every opportunity for the spread of the disease, it is a great wonder that it has not assumed epidemic proportions before this. It is possible that the breaking up of the regiments into small commands and the frequent changing of camps is responsible for checking the spread of typhoid fever. No doubt some of the deaths reported as due to dysentery and to the malarial fevers were typhoid fever.

In stations distant from Manila it was not possible to have blood examinations performed, and then, too, it must be remembered that dysentery and typhoid fever may occur at the same time and the dysentery mask the typhoid. In the post mortems at the First Reserve Hospital there occurred 2 such cases. These men were admitted for dysentery, and the pronounced clinical symptoms were of dysentery.

The danger of the future is that when camps become more permanent that typhoid may increase among the troops. Typhoid fever is more severe in the tropics naturally than in a temperate zone. The mortality is normally certain to be twice as great. The prevention of typhoid fever among the troops in the Philippines is a serious problem. It was my intention before I left the Islands to request permission to try the prophylactic inoculation method which has been so favorably reported on by Wright and other English Army surgeons. The prophylactic inoculation method is worthy of serious consideration as to its adoption for troops departing for the Philippines and for those already there.

MALTA FEVER.

I had the honor to report to the Surgeon-General on January 2, 1900, 4 cases of Malta fever, which came under my observation at the First Reserve Hospital, and which originated on the Island of Luzon, P. I. In subsequent investigations 12 additional cases were found, in all of which repeated blood examinations were negative for typhoid, and for the malarial parasites, and a positive serum reaction with the micrococcus melitensis was obtained in a dilution of at least 1 to 60. The clinical history of each of these cases was that of a long-continued fever with periods of apyrexia, not influenced by quinine administered in large amounts. Typhoid symptoms were absent. Neuralgic and rheumatic symptoms were generally present and a general glandular hyperplasia existed.

It is to be regretted that more work could not be done on the study of this disease in the Islands. In March I was assigned to duty with the Manila Board of Health, and owing to my connection with the work on plague, I could not carry on my investigation on Malta fever.

The first case was found at autopsy July 26, 1899, by Assistant-Surgeon Strong, Corporal J. T. W., "G" Company, Fifty-first Iowa Volunteers, died after a long-continued fever diagnosed clinically as typhoid fever. At autopsy no lesions of the intestines were found. There was a large acute splenic tumor and a general acute lymphatic hyperplasia. The cultures from this case examined in twenty-four hours were apparently sterile. Fortunately the cultures were saved. They were left in the thermostat for five or six days, and at the end of that time a growth was observed in the plates from the spleen and liver. The growth proved to be the micrococcus melitensis. When I reported for duty at the First Reserve Hospital I found Dr. Strong ill, with an ill-defined irregular fever. Repeated blood examinations were negative for malaria and typhoid fever. Physical examination was negative but for a general glandular enlargement. As Dr. Strong had been experimenting with his culture of the melitensis recently, my suspicions were aroused, and I tried Widal's test with his blood serum and the micrococcus melitensis. On the sixth day of his fever a positive reaction was obtained in 1 to 100.

Dr. Strong's case proved to be a mild one, accompanied by moderately severe headaches and neuralgia. Within a few days of the beginning of Dr. Strong's illness, a case from the Second Reserve Hospital came to the First Reserve Hospital mortuary for autopsy. I performed the autopsy on this case. Clinically the case (a private of the Twelfth Infantry) presented a history of continued fever for six weeks, not controlled by quinine. At autopsy a general lymphatic acute hyperplasia was found and acute splenic tumor. Spleen weighted over 500 grammes. There were no intestinal lesions. Cultures from blood, spleen, liver and gall-bladder and mesenteric glands were negative for the typhoid bacillus. After three days in incubator cultures from spleen: mesenteric glands and blood showed a faint growth, which proved to be micrococcus melitensis.

I then commenced systematic blood examinations, including Widal's test with micrococcus melitensis, on all cases of continued fever in which blood examinations were negative for typhoid and malaria. I was only able to continue this work for six weeks, but during that time were found the 12 cases referred to above. In all 17 cases have been observed in the Philippine Islands, including 2 autopsies, 1 by Dr. Strong and 1 by myself. These cases were distributed through twelve different regiments, occupying stations in different places in the Island of Luzon.

From this I believe that Malta fever is not an uncommon disease in the Philippines. The name Malta fever is an unfortunate one. Recent reports have shown that Malta fever is not only prevalent in Malta, Gibraltar, Corsica and other Mediterranean countries, but cases have been reported by the English Army surgeons, Wright and Smith, from Calcutta and other India stations. One case has been reported by an English Army surgeon which originated in Hong Kong, and several cases have been reported in the United States. One by Assistant-Surgeon Cox, U. S. Army, in an American army officer from Puerto Rico, and 1 case by Musser, of Philadelphia. It would appear that Malta fever is by no means as limited, geographically, as has been thought heretofore. Further investigation of this disease may throw considerable light on a class of continued fevers in the tropics, described by various observers under such names as double fever, relapsing fevers, rheumatic fevers, etc., etc.

THE MALARIAL FEVERS OF THE PHILIPPINES.

In the Philippine Islands, as in all tropical countries, the malarial fevers are widespread. These fevers, as a rule in the Philippines, are not nearly so severe as we were led to expect, after the experience of our troops during the Santiago Campaign in the Spanish-American War. Compared with other tropical countries, the malarial fevers of the Philippines are not severe. While the character of these fevers is generally mild, still there are exceptions to this rule. In some localities malaria assumes a most pernicious character.

In speaking of malarial fevers as comparatively mild, I do not wish to be understood as saying that these fevers are of minor importance in the Philippines. On the contrary, while the malarial fevers here are directly the cause of but relatively few deaths, they are, by reason of the debility and anemia caused by them, a very serious factor in the production of disease in these islands. It is impossible to estimate how much sickness and debility among the troops malarial fever has helped to produce.

These fevers in the tropics are so widespread that the majority of people sooner or later become infected by the malarial parasite. In tropical countries we have every condition favorable for the development of the malarial parasite outside of and in the human body, as well as the constant presence and activity of the common (if not the only) disseminating agent of the parasite, the mosquito. In addition to the constant presence of the malarial parasites, and the malarial-conveying mosquitoes (the anopheles), the depressing influence of the tropical climate lessens the individual's normal resisting powers, and thereby prepares a favorable soil for the invasion by the parasites. One attack of malarial fever predisposes to another. After the primary invasion by the malarial parasites, a considerable length of time may elapse, even after active symptoms of the disease have subsided, before the individual is free the danger of a recurrence. The parasites remain dormant in the viscera, often for a long time, and are called into activity again and again by any cause lessening the individual's power of resistance. This cause may be either the prodromal or the convalescent period of some acute disease, during some chronic disease, or it may be a slight temporary disturbance due to fatigue, or exposure to the sun or rain.

Thus it is that malarial fever very often complicates other diseases in the tropics. In our investigations we found it complicating surgical cases (such as gunshot wounds, fractures, appendicitis, etc.), and also nearly every acute and chronic disease. As a rule, malarial fever, in the course of other acute diseases, occurs during their convalescence. In typhoid fever, for instance, malarial parasites rarely are active save after convalescence has been established, and the temperature normal for some days. Occasionally malarial attacks appear early in some acute disease or in the prodromal period. It is rare to find the parasites when once the acute disease is fairly established, until after the convalescence begins.

Prevalence.—The malarial fevers were responsible for a larger number of admissions to the First Reserve Hospital than any other one disease. Out of a total of little more than 20,000 medical cases, 4,643 or 23% were diagnosed malarial fever.

Geographical distribution.—In consequence of the above-mentioned favorable conditions common to all tropical countries, the malarial fevers occur to a greater or less extent throughout the entire group of the Philippine Islands. Some of

the smaller islands have been reported as being free from malaria and in some of the stations in the southern islands, occupied by our troops, it has been asserted that malarial fevers are absent. On the other hand, scattered through Luzon and the southern islands, severe malaria exists in localities. Often these districts are limited to small areas, a few miles outside of which malaria is mild in character and comparatively infrequent. Severe malaria exists on the Island of Luzon in the Laguna de Bay district and in a number of districts in the north and south. Similar areas also exist in the Island of Cebu. In the city of Manila the type is not severe.

Types of the Philippine malarial fevers.—The types met with were the same as are found in other tropical countries, namely, the estivo-autumnal, the tertian and the quartan. There was this important difference from other tropical countries, however, which explains in part the comparative mildness of the Philippine malarial fevers. The predominating type of malarial fevers reported in other tropical countries is the estivo-autumnal. In fact, the term "tropical malaria" is generally understood as meaning estivo-autumnal fever. While tertian fever has been observed as a common type in the tropics, still it has been reported as usually occurring in connection with the estivo-autumnal variety, and has not been found nearly so frequently as the last named.

In the Philippines a much larger percentage of the malarial fevers appears to be due to the tertian parasites than has been reported by investigation in the other tropical countries. In 223 cases of malarial fever in which the parasites were found in the blood, in cases observed in the First Reserve Hospital, Manila, P. I., there occurred the estivo-autumnal parasites in 166, the tertian in 53, the quartan in 1, and the tertian and estivo-autumnal combined in 3.

Taking the pure infections (220 cases) alone, the tertian parasite occurred in 53 out of 220 or 24%, the quartan in less than one-half of 1%, and the estivo-autumnal in 75%. These figures are only the apparent percentages of the frequency with which these various types occur. The great majority of the soldiers admitted to the military hospitals for malaria came in saturated with quinine. It was the usual custom in such cases, diagnosed malaria on admission (who had fever), to administer quinine immediately. In the face of this it can be readily seen how difficult it would be to find the parasite in the peripheral blood in cases of tertian fever. On the other hand, the crescents and ovoid bodies of the estivo-autumnal fevers are little affected by quinine and are easily found.

Out of the 1,187 examinations of the blood made at the First Reserve Hospital in cases diagnosed as malarial fever in but 223 malarial parasites found, all the rest (964) were negative. Of course many of these 964 were not malarial fever, but it is more than probable that a large number of these cases were infections by the tertian malarial parasites. The clinical history of many of these cases

was that of tertian or double tertian infection. This view of the frequency of the occurrence of the tertian malarial fever seems to be borne out by the results of the post-mortem examinations at the First Reserve Hospital.

Out of the 240 autopsies on medical cases at the First Reserve Hospital, an acute malarial spleen and other evidences of malarial fever occurred in 17. (In each of these 17 cases, the malarial parasites were found, post mortem, in coverslip preparations made from the splenic pulp.) Of these 17 cases, 8 occurred in conjunction with other diseases, and in 9 death was due to malarial fever and the pathological condition resulting from the malarial infection alone. Of the 9 cases of pure infection, 4 were due to the tertian parasites and 5 to the estivo-autumnal parasites. When it is remembered that the estivo-autumnal infections are usually far more fatal than the infection by the tertian parasite it would seem from this that tertian malarial fevers must occur in a large percentage of the cases. In fact we may be justified in supposing from this evidence that tertian malarial fever is fully as common as the estivo-autumnal variety in the Philippines.

Reports from the Army medical officers, received from stations throughout the Islands, of the mild character of the malarial fevers and its ready yielding to quinine, would seem to confirm this opinion as to the relative frequency of the tertian variety. As to the morphological and biological characteristics of the parasites of the Philippine forms, no essential differences were noted as compared with those observed by myself in the United States in soldiers at Fort Myer, Va., Savannah, Ga., and from Cuba.

The parasites were the same as those described by observers all over the world, and the clinical course of these fevers did not differ from the descriptions of the same fevers as given by such writers as Machiavava and Bignami of Italy, by Manson of England, and by Thayer of the United States. The estivo-autumnal malarial fever, while occurring generally, was more prevalent in certain commands. This type was especially common in the troops stationed in the Laguna de Bay District, and at the Deposito (Manila Water Reservoir). Tertian malarial fever occurred generally among the troops. It appeared to be the common type of Manila City.

Quartan malarial fever.—But 1 case was observed in a soldier, a private of "E" company, Forty-seventh Volunteer Infantry. This case was one of single quartan fever, and the typical quartan parasites were found in the blood, including the segmenting organisms. The fever was not severe, and was controlled quickly by quinine.

Concurrent or combined infections.—As mentioned before, malarial fever occurs very frequently in the course of other diseases, generally during the convalescent period of those diseases, occasionally in the prodromal stage or in the early stage of some acute disease.

Malarial fever and dysentery.—Out of the 157 cases of chronic and subacute dysentery in

which blood examinations were made, the malarial parasites were found in 36, or in nearly 23%. The malarial parasites were found once in the course of an acute dysentery.

Malarial fevers and typhoid fever.—Out of the 125 cases of typhoid fever in which diagnosis of typhoid fever was confirmed by Widal's test, in 5 (or 4%) malarial parasites were found, in each case during convalescent period of typhoid fever.

Malarial fevers and other diseases.—Other diseases, in the course of which malarial fever also commonly occurred, were pulmonary tuberculosis and otitis media. The malarial fevers also frequently occurred in surgical cases and in venereal cases.

The mosquito in its relation to malaria.—Unfortunately, before this subject could be studied, I was obliged to return to the United States. But little of my time could be devoted to this most important work. Practically all of it was taken with my duties at the First Reserve Hospital and on the Board of Health. Mosquitoes are very thick and extremely active in the Philippines. It is essential, for a night's rest, to sleep under the cover of a fine-meshed netting. In certain districts, as about the Laguna de Bay in Luzon, mosquitoes are very abundant. I have observed the anopheles in Manila, and at Multinlupa and Pasig on the Laguna de Bay in Luzon. They are extremely plentiful in these latter districts where the malarial fevers are also very common.

UNDETERMINED TROPICAL FEVERS.

There are many fevers occurring in the tropics which are obscure as to their origin. Attempt has been made by several investigators to classify them from a clinical basis, but this is far from satisfactory. This classification on symptoms is not scientific and does not assist to the rational application of hygienic and therapeutic measures. Very little has been done in the tropics in the line of systematic scientific examinations, and the recording of the same in connection with the clinical phenomena. Until systematic laboratory examinations have been conducted for some time, and careful clinical observations made, this class of fevers will remain obscure.

A beginning has already been made by the U. S. Army medical officers, constituting the board to investigate the diseases of the Philippines, and it is hoped that the same work will soon be extended all over the Islands. Every general hospital is equipped with a microscope and other necessary apparatus for the making of blood and other laboratory examinations. When the conditions in the Islands assume a peace basis, valuable work can be done toward the identification of many of these fevers. Some of these obscure fevers are of short duration, while others are of long duration, and the fever is more or less of the continued type. Some assume the relapsing type. The possibility of many of the fevers of long duration being Malta fever, has been noted above. This fever (Malta) appears to be spread widely in

tropical, sub-tropical and temperate zones. The fever described by Munson as "double continued fever," occurring in China, corresponds very closely with Malta fever.

"*Hepatic*" fever.—Many of the short fevers have been described as due to climate, to exposure, sun, etc., etc. There is a class of fevers distinct from this latter class which is accompanied, usually, by marked jaundice and acute enlargement of the liver. In these fevers there is pain over liver, and considerable gastroduodenal disturbance. This type of "hepatic fever" occurs most frequently in Europeans and Americans, generally in the first year of their stay in the tropics. These fevers vary in duration and intensity. They last from a few days, to weeks. In fatal cases the autopsy shows marked acute hyperplasia and hyperemia of liver. In 1 case (an American clerk in the quartermaster's department) there were multiple abscesses of the liver without any previous dysentery. This man had been in the Islands about a year. He had had several attacks of jaundice and "indigestion" before the fatal attack. He had a fever of a continued character, not influenced by quinine, for several weeks before death. Blood examinations were repeated frequently, and were always negative for the malarial parasites and for typhoid fever, and there was a persistent marked leucocytosis. Clinically there were marked jaundice, greatly enlarged painful liver, considerable gastroduodenal disturbances and no diarrhea. Autopsy showed greatly enlarged liver, weight 4,470 grammes, filled with many large and small abscesses. Examinations of abscess contents, which were bile stained, were negative for amebæ, and the large intestine showed no evidence of either recent or old dysentery. This case appeared to be one of acute hepatitis, which had gone on to abscess formation and apparently not dependant on a previous dysentery. There was an acute duodenitis, and the liver infection may have come through the bile ducts.

Medical Progress.

REPORT ON PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

(Continued from No. 18, p. 431.)

TETANUS.

Moschcowitz,⁵ in a paper which he read at the meeting of the New York County Medical Society, April 23, 1900, summarizes his views as follows:

(1) All forms of tetanus are caused by the bacillus of Nicolaier; hence the diagnosis of rheumatic or idiopathic should have no room in our nosology.

(2) The tetanus toxins appear to have a distinct affinity for the anterior horns of the spinal cord, which may be distinctly recognized by Nissl's method of staining.

⁵ *Annals of Surgery*, October, 1900, p. 575.

(3) The cerebrospinal fluid of tetanus patients is more toxic than the blood.

(4) The antitoxin therapy appears to have a distinct beneficial influence upon the course of tetanus.

(5) With the antitoxin treatment the mortality percentage has been reduced from about 90% to 40%.

(6) Although the use of the serum is a most important factor in the treatment of tetanus, the other recognized therapeutic measures should not be neglected.

TECHNIQUE AND RESULTS OF SUBARACHNOID; COCAINE ANESTHESIA.

Tuffier⁶ has performed 63 operations on the perineum, rectum, abdomen, urogenital organs and inferior members, including vaginal hysterectomy, nephrectomy, excision of the rectum, etc., with anesthesia that was induced, exclusively, by a fresh, sterile, 2% solution of cocaine injected into the subarachnoid space at the fifth lumbar vertebra, on a line level with the margin of the iliac crests. In four to ten minutes the patient feels a prickling, tingling and numbness in the feet and legs, and then the operation can be commenced at once, as sensibility to pain and heat is abolished, although sensibility to contact is retained. The analgesia is complete, absolute, and may extend to the axillæ. In one case the patient lifted the stump after amputation of the thigh, to facilitate ligating the vessels. Another listened to the sawing of his femur, but remarked that he could not tell whether it was his leg or the leg of the table that was being sawed. Another, after her kidney had been removed, inquired when the operation was going to begin. Very few consent to be blindfolded. This analgesia lasts from sixty to ninety minutes. The position does not affect the sensibility. No serious accidents have occurred; there was merely a sensation of oppression in the epigastrium, a little nausea and vomiting, sometimes at the time of the injection, but usually not until after a few hours, then it is slight, and yields at once to the ingestion of ice. These accidents were noted 50 times in the 63 operations. Cephalgia was more frequent, but was merely a slight heaviness in the head in two-thirds of the cases. In a few it was more severe and kept the patient awake all night, lasting for forty-eight hours. Sweat, dilation of the pupils, tremor of the limbs and acceleration of the pulse were also occasionally noted; but all without the slightest gravity, vanishing within an hour. The temperature also rose in 15 cases, without operative complications; in 1° to 40° C., but returned to normal by the next day, and in 4 a chill for a few minutes was also noted. The patients were between twelve and sixty-nine years of age, and 39 were men. Tuffier uses a special platinum needle, straight, 9 centimetres long, the external diameter 11 millimetres, and the lumen 8 millimetres. It is strong, so that it will not break if it comes in contact

⁶ *Semaine Medical*, May 10, 1900; *Journal of the American Medical Association*, June 9, 1900, p. 1483.

with the bone, and the tip is very short. The dose should not exceed .015 mg. of cocaine. The technique is much the same as for lumbar puncture. The needle is inserted about 1 centimetre from the median line of the spine, with the left forefinger on the apophysis as a guide. There is scarcely any resistance to the passage of the needle, and the issue of a few drops of cerebro-spinal fluid is the sign that the needle is in the right place. The patient should be warned that he is about to feel a prick and not to stir. Children and hysterics are liable to be afraid, and Tuffier rejects the method for them on this account. In case the anesthesia fails for any reason, the injection does not counter-indicate resorting to general anesthesia at once. He changed to ether several times in his early experience, noting merely in such cases that the usual period of agitation was diminished.

EUCALCIN IN SPINAL ANESTHESIA.

Englemann,⁷ of Bonn, reports his experience with eucalcin bacilli. He states that after the injection of .01 through a lumbar puncture very unpleasant after-effects were observed, without more than a slight paraesthesia resulting. That one-half hour after the injection, sacral pain appeared, which gradually became quite severe. Also nausea, vomiting, chill, fever to almost 39° C., headache, diminution and irregularity of the pulse, dyspnoea, and precordial distress. After a dose of morphia the symptoms disappeared with an attack of sweating, except the violent sacral and head pain, which lasted for several days and forced him to remain in bed. The injection was a personal experiment, and the writer advises against further experiments with eucalcin bacilli.

SPINAL ANESTHESIA.

A. Bier⁸ has contributed some observations of this method, including some personal ones. He has noted that unpleasant symptoms (vomiting, headache, weakness, vertigo) of even day's duration after the injection of very small doses of cocaine into the subdural space. He states that collapse, sensations of oppression, chills, fever and even 1 death, have occurred in the experience of other surgeons, especially the French. He advises against the method as at present used, and especially against the use of doses exceeding 15 mgs.

MEDIAN OSTEOTOMY OF THE HYOID BONE AS A METHOD OF PERFORMING PHARYNGOTOMY.

Valls⁹ proposes this new operation in order to overcome some of the dangers and difficulties that surround the removal of malignant or benign growths from the pharynx or the base of the tongue, and that are met with in the complete removal of the tongue.

The method of operating is as follows: An incision in the median line is carried from the men-

tal symphysis to the thyroid cartilage. The skin and subcutaneous tissue can be incised at one cut. The bleeding is insignificant. The next step is the denudation of the hyoid bone in the median line. The superficial cervical aponeurosis is incised, the myohyoid muscle is raised in the median line by using the grooved director, so that its upper border can be severed from the hyoid bone in the median line. Here an arteriole or two may be met. The hyoid bone is then resected in the median line with the bone forceps; the two parts of the myohyoid can then be gradually separated with it, thus providing an opening about an inch and a half wide.

Two ways are open to the surgeon: Below is the thyrohyoid membrane; above the mucous membrane alone separates him from the pharynx. The closure of this wound is very simple after the operation has been completed. It is not necessary to attempt an osseous suture. The result is functionally as good if the muscle and fibrous tissues are sutured. The result in fibrous union is just as efficient from the functional standpoint.

A preliminary tracheotomy has not been found essential to successful operating when this incision is employed, except where the operation involves the larynx directly.

The superior route is to be employed in total removal of the tongue or removal of tumors from its base, while the other route is best for attacking tumors of the pharynx, especially of the epiglottis, and foreign bodies.

The author formulates the following conclusions:

(1) The median osteotomy of the hyoid bone is a simple, easy operation and essentially benign.

(2) It permits the penetration into the pharynx and gives a better view and operative field than does Malgaigne's superhyoid operation. Foreign bodies, enucleable tumors, cancers limited to the epiglottis, and especially grave syphilitic lesions, are its indications.

(3) It facilitates the removal of intramuscular tumors at the base of the tongue, lipomas and hyoid cysts which are difficult to remove by the lateral route.

(4) It facilitates the total amputation of the tongue in cases where the cancer is situated in the base. The amputation is complete, and is less dangerous by this method.

(5) There are no remote sequelae from the osteotomy. It leaves no deformity behind it or functional disability.

RADICAL OPERATION FOR DIVERTICULA OF THE ESOPHAGUS.

Dr. F. Veiel¹⁰ (Tübingen) reports and analyzes 22 cases of radical cure of this unusual lesion. The symptoms, as illustrated by a case, were a smacking noise during deglutition, progressive interference with deglutition. A bulging at the anterior border of the sterno mastoid muscle during rapid drinking. Eructation of food or liquids after violent coughing or on bending forward. The but-

⁷ Münch. med. Woch., 1900, No. 41.

⁸ Münch. med. Woch., 1900, No. 36.

⁹ Rev. de Chir., May 10, 1900; American Journal of the Medical Sciences, September, 1900.

¹⁰ Beitr. zur klin. Chir., Bd. xxvii Schluss, H. 2.

ton of an esophageal sound passed into the pouch can be felt in the neck.

The diverticulum is exposed by an incision as for esophagotomy at the site of the swelling. It is isolated, ligated and excised. The wound is generally drained, sometimes not. Food by mouth on the fifth day.

Kocher advocates a transverse incision, but the vertical one is generally used. Failure appears to be due to lack of care in suturing the esophagus wound and in feeding by mouth too early. There were 5 deaths in 22 cases.

Invagination of the sac has been done with good results.

THE SURGICAL TREATMENT OF PULMONARY GANGRENE.

Em. Herczel, of Budapest, in an interesting article gives a good résumé of the technique of pneumotomie. He avoids exploratory puncture, which he considers liable to infect the pleural cavity in case the parietal and visceral pleurae have not become adherent, liable to infect healthy lung tissue when the needle is withdrawn, and liable to cause severe hemorrhage from puncture of large vessels. He does not practise it unless to be followed by pneumotomie, in which case the needle is used as a guide to the cavity to be opened.

The resection of the ribs should be free. He claims that the more extensively the lung is exposed the easier does the examination in manipulation of the lung become, and the more rapid will the cavity close and heal. One to two ribs are removed in the usual manner. Should three to four ribs be resected a flap incision of the superjacent soft parts is the most satisfactory method.

After the resection, if the pleural surfaces are adherent, the operation becomes easier and safer. The retraction of the intercostal space on deep inspiration, and the slight descent of the lower lung border noted before the operation, the writer thinks, would indicate this. Sometimes after the resection of the ribs, the lung can be seen to slide up and down during respiration, as the intestine is seen through the unopened peritoneum. When adherent, the parietal pleura appears, grayish yellow spotted with fat, thickened and dense to touch. Finally, a fine needle pushed into the lung remains stationary if the lung is adherent, and consequently fixed to the chest wall. A free lung would cause it to oscillate. The "Shapicko" and "Tuftier" methods are also here mentioned.

The attempts to produce this adhesion of the pleural surfaces by ignipuncture, electrolysis, cauterization, chloride of zinc and other methods have now been abandoned in favor of immediate union by suture. This, it is claimed, can be easily done by experienced operators, especially when the surface of the lung is exposed, and if it is forced into the wound by inspiration or coughing. The lung once fastened to the edges of the wound, its collapse or pneumothorax is avoided. The operation can now also be quickly finished.

As regards the pneumotomie in indurated infiltrated, anemic tissues, when the blood circulation is impeded, the lung can be satisfactorily opened with the scalpel, but since eventually the operator meets soft, healthy tissue and is dealing with foul gangrenous tissue in order to limit infection, the use of the Paquelin cautery is to be preferred.

The writer considers that an anesthetic is hardly necessary. He would not use ether. In an operation recorded, chloroform was used.

In regard to the results of operative treatment, Herczel claims to show that in 91 cases there was recovery in 60 or 61%.

RESECTION OF GASTRIC CARCINOMA.

An improvement in the technique of this operation has been devised by W. G. MacDonald,¹¹ by which the time required for the operation is shortened, and the difficulties of pyloric resection diminished. For full details a perusal of the original article is recommended. The procedure, in brief, consists of a resection of the stomach proximally, and below the pylorus to the extent indicated by the disease. The resected stomach is sutured. The resected duodenum is sutured. A lateral anastomosis is made between the duodenum low down and the jejunum to allow the bile to flow into the latter. A lateral anastomosis is also made between the stomach and the loop of the jejunum formed by the duodeno-jejunal anastomosis. This avoids a discharge of bile into the stomach.

PERFORATING DUODENAL ULCERS.

Weir,¹² says of this affection that it is much more rare than the ulcer of the stomach; is much more difficult to diagnose properly, and is more apt to be confounded with other more distant surgical lesions, such as appendicitis, etc.

The following contrasting symptoms have been grouped as an aid to this differential diagnosis:

Gastric ulcer.—(1) More frequent in women—twenty-fifth to fiftieth year; (2) pain promptly after eating; (3) pains relieved by vomiting; (4) frequent biliary, mucous and food vomiting; (5) marked dyspeptic symptoms; (6) frequent bloody vomiting; (7) more seldom bloody stools.

Duodenal ulcer.—(1) Occurs more frequently in males; (2) pain in right hypochondrium or to the right of the parasternal line; (3) comes on one or two hours after meals; (4) no relief by vomiting, latter not frequent; (5) bloody stools (melena or bright blood) more common than bloody vomiting; (6) jaundice, if present, would contribute to the diagnosis.

The usual symptoms of perforation are the following: Great pain is usually felt at the epigastrium or to the right of this region, as was noted 26 times in the author's 47 cases. It has a few times been observed at the umbilicus and in the left side; but in 23 others of the 47 instances it was simply recorded as abdominal pain. Vomiting often follows the attack of pain. It occurred

¹¹ *Annals of Surgery*, vol. xxxiii, p. 157, 1901.

¹² *Medical Record*, May 5, 1900; *American Journal of the Medical Sciences*, August, 1900.

in 28 out of the 34 instances. Shock is not often met with, but may be severe and fatal. Peritoneal symptoms rapidly develop, with a tendency in some cases to be localized in the upper part of the abdominal cavity and in the right side; when these signs show themselves mostly to the right and at or below the level of the umbilicus, an appendicitis is necessarily simulated. When the liver dulness has disappeared nearly up to the mammary line, air extravasation may be suspected, and when it is present it will aid in establishing a diagnosis. This symptom of loss of liver resonance, unless marked, is so often found to be due to a distended colon, that it should not be much relied on.

In considering the diagnosis of perforated duodenal ulcer as just given, the author feels that more weight and attention should be given, (1) to the previous history, which shows, contrary to the opinions of many anterior observers, that in the 51 collected cases of operation for the relief of such conditions, there was a history of gastric or dyspeptic symptoms given in 25 out of the 34 instances in which this point was noted; (2) the fact that the initial or early pain was developed in 26 instances out of 47 in the epigastrium is also important; and in the right hypochondrium 13 times. The third factor of value in the diagnosis as well as the treatment of the symptoms of perforation peritonitis, whether from stomach, duodenum, gall bladder, appendix or any other part of the intestinal tract, is the prompt resort to an exploratory incision. This need of an early determination of the site of the perforation has been shown frequently. The mortality in these cases clearly depended on whether the patient underwent surgical intervention within twenty-four hours from the inception of the perforation.

The results in the 51 cases reported bear out this conclusion. There were 25 cases in which the lesion was recognized and closed at the time of operation; of these 13 underwent operation after thirty hours' delay, and all resulted fatally; 12 other patients were operated on within that time, and 8 survived, giving thus only 33 1/3% of mortality. The mortality was formerly 60%. Thus there has been great improvement in the past five years. Before that time, in 70% of the cases operated on for duodenal ulcer, it was not found; it was found and sutured in 25%. In only 2 cases, or 10% was the possibility of a duodenal perforation considered. Contrast this with the 31 cases operated on since 1895, when the analogous surgery of gastric ulcer began to develop. Of these 31 cases the perforation was not found in only 11%. It was found and sutured in 26 cases, or 65%. Its presence was considered in diagnosis in 11 cases, or 35%.

(To be continued.)

A DIMISIVIVE MOTHER.—Mrs. John Petty, who recently died at Yaphank, Long Island, N. Y., at the age of thirty-seven, was the mother of twelve children, although only two and one-half feet in height.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting Wednesday, February 20, 1901, Dr. V. Y. BOWDITCH in the chair.

Dr. C. F. WITHINGTON read a paper entitled

EXPERIENCE WITH THE WIDAL REACTION IN TYPHOID FEVER.¹

Dr. GEO. B. SHATTUCK presented a paper on

THE WIDAL REACTION IN TYPHOID FEVER.²

Dr. MASON: I am impressed every week with the value of this test, certainly in hospital practice. I have here two charts which Dr. Thayer has prepared, showing the same fact that Dr. Withington and Dr. Shattuck have dwelt upon, that in exceptional cases a great number of tests fail to show the reaction. In one recent case many tests were made with no positive result, and the symptoms, which are marked on the chart, correspond with those of typhoid, as did the appearance of the patient and the course of the disease. I think one of these cases was mentioned by Dr. Withington, a patient who had venous thrombosis, but the other one is quite recent and not included in his series. Absence of rose spots, I see, is noted in both these cases, but rose spots may escape notice, as in a good many cases they are few in number, and such a negative statement is of no great importance in regard to the diagnosis. In one instance I remember a patient who went through a long typhoid and had no Widal reaction during the primary attack, but during a relapse the reaction was present. Perhaps that may be not uncommon, but I did not observe whether Dr. Withington mentioned it, whether the Widal test may be positive during relapse in any considerable number of cases in which it has not appeared in the primary attack.

Dr. J. L. MORSE: A few months ago I had to look up the serum reaction in infancy, and at that time found out a few points which to me, at any rate, were rather new. In the first place, the serum reaction evidently occurs in infantile as in adult typhoid and under the same conditions. There seems to be no data with regard to the serum reaction in fetal typhoid, because if the child is born without the reaction it is not certain that it has not had typhoid; on the other hand, if the child is born dead with the reaction it is impossible to tell whether the reaction is the result of typhoid in the fetus or has been transmitted from the mother. In children born alive and well of women with typhoid or convalescent from typhoid the serum reaction may or may not be present. If the serum reaction is present it is probably due to transmission from the mother through the placenta and not to fetal typhoid, because as far as

¹ See page 442 of the Journal.

² See page 443 of the Journal.

we know typhoid in fetal life is always fatal. The strength of the serum reaction in the infant is always less than that in the mother. This weakness is probably due to its transmission through the placenta, the placenta acting as a filter. The transmission of the agglutinating power apparently depends on two factors: the strength of the agglutinating power in the maternal blood and the length of exposure. This has been determined by experiments on animals. Nursing mothers with typhoid at times present the serum reaction in the milk, at other times they do not. The strength of the serum reaction in the milk is always less than that in the maternal blood, and that in the child's blood is always less than that in the milk. It has been found that this serum reaction may appear within twenty-four hours after beginning to take the milk, and never lasted more than a week after ceasing to take the milk. If the child takes the milk again it reappears in twenty-four hours or so. The reason that the strength of the reaction in the milk is less than that in the mother's blood is due, (1) to the resistance met in traversing the mammary gland and (2) to some unknown condition of the child's digestive tract.

DR. MASON: In the absence of this test sometimes the diazo urinary reaction is of value. Although not a positive test of typhoid, it is confirmatory.

DR. WITHINGTON: In some of the cases of jaundice without apparent typhoid, it is possible that the patient has had typhoid fever and an infection of the gall bladder with the typhoid bacillus which is a recognized fact in typhoid fever, and, unless there was positive evidence from the autopsy that the patient did not have typhoid fever, it would be certainly a possible supposition to make that the individual might have had typhoid fever with gall bladder infection which produced the jaundice, and, so far as the clinical history was concerned, produced nothing else but the jaundice.

DR. CHARLES HARRINGTON read a paper entitled:

SOME REPORTED CASES OF TYPHOID FEVER ATTRIBUTED TO CONTAMINATED OYSTERS, WITH CERTAIN FACTS CONCERNING THIS MEANS OF INFECTION.³

DR. BARNES: I was very glad to listen to the paper of Dr. Harrington, because last year or the year before, a paper was read before the American Public Health Association by a gentleman from Baltimore, rather discrediting the possibility of contaminating oysters by sewage of that city, and after I read the paper, I received a report of the sewage commission of Baltimore, recommending the discharge of Baltimore sewage into the Chesapeake. The question was debated as to the possibility of contaminating the oyster beds, the contention being that the proposed point of sewage discharge was too remote to cause any injury to the beds. As a matter of precaution, how-

ever, a law prohibiting the taking of oysters within a radius of 4 miles of the out-fall was suggested. With an enormous volume of sewage and a very slight tidal flow, it seems to me doubtful if the proposed law would insure the safety of the plan proposed, and that the largest source of oyster supply of the United States may be very seriously injured from suspicion merely of the origin of a case of typhoid. It is therefore to be hoped Dr. Harrington's paper may be brought to the notice of citizens of Baltimore. In the report there was an alternate plan for the soil treatment of the sewage of the city, which, from European experience and the success which has attended this method of disposal in sixteen cities and towns of Massachusetts, ample assurance is given of freedom from objectionable features when this treatment is employed.

DR. MASON: I have been very much interested in Dr. Harrington's paper, and am somewhat familiar with the literature of the subject through the Connecticut Board of Health and the Local Government Reports. This has become a practical question, both to the oyster dealer and to the general public. I must confess that I have not yet reached the point where I can advise persons who ask me with regard to it to abstain from the use of raw oysters. I do not believe there is so much danger as the public may infer from a few isolated epidemics; therefore, in my opinion physicians should be somewhat cautious in adding to any nervousness that may already exist. The raw oyster has almost disappeared from the dinner table. A lady said to me the other day that she had eaten oysters three weeks before, and wanted to know if she was out of danger. I told her I thought the time was up.

DR. E. N. WHITTIER read a paper entitled

MEANS OF INFECTION IN TYPHOID FEVER.⁴

DR. RICHARDSON: It might be interesting for me to say a few words about the possibilities of the Marion contamination. The beach where the suspected oysters lay is on the western side of a small area of water partly enclosed by two wharves, one of which is my own. The tide has free access to this little bay, which is not more than a hundred yards in diameter. On the other side of my wharf is a sandy beach where I kept oysters all through the month of September. My family used these oysters at nearly every meal during the month of September, and no one suffered in consequence. I have little doubt, however, that all the water in that part of Marion was sufficiently contaminated with sewage to make the oysters dangerous as an article of food.

DR. CALVIN G. PAGE read a paper on

EARLY DIAGNOSIS OF TYPHOID FEVER BY ISOLATION OF BACILLUS TYPHOID FROM STOOLS; CONCLUSIONS OF DR. L. REMY, BASED ON THE USE OF HIS ASPARAGIN-LACTOSE-CARBOL GELATINE.⁵

³ See page 444 of the Journal.

⁵ See page 445 of the Journal.

² See page 439 of the Journal.

Recent Literature.

Physical Diagnosis in Obstetrics. A Guide in Ante-partum, Partum and Postpartum Examination for the Use of Physicians and Undergraduates. By EDWARD A. AYERS, M.D., Professor of Obstetrics in the New York Polyclinic; Attending Physician to the Mothers' and Babies' Hospital. Pages 283, and 67 illustrations. New York: E. B. Treat & Co., 1901.

The author of this book is the editor of the monthly journal *Obstetrics*, and the volume is a reprint of a series of continued essays published in *Obstetrics*. The writer has constructed a book which will be of much use in the careful study of clinical obstetrics, especially on the subjects of diagnosis, to the advanced student desirous of further knowledge in the subject, to the practitioner anxious to keep abreast of the subject and also to the teacher of clinical obstetrics as a guide in his own work. For the average undergraduate with a limited amount of time and clinical material at his disposal, we believe the book will be of little value, while the man, who at graduation knows the whole subject of obstetrics, will have no use for such a book as this.

The author discusses with considerable detail the various points in diagnosis of the maternal and fetal conditions before, during and after labor, taking up practically every point in the maternal history, the various methods of examination and the conditions in the different stages of labor which may in the case have a bearing upon diagnosis, prophylaxis or labor management. As a basis for the text an elaborate history chart of several pages has been inserted, and the text following is largely an elaboration of the various points in the chart. Almost nothing in the way of treatment is attempted in the book except in a suggestive way. Charts of this nature are undoubtedly too elaborate for the busy general practitioner but if given to the student in perhaps a modified form would be of great value in training his observing powers and in calling his attention to points which are often overlooked.

The book is a contribution of value to obstetrical literature, more from a teaching than a practical standpoint.

A Manual of Practical Hygiene for Students, Physicians and Medical Officers. By CHAS. HARRINGTON, M.D., Assistant Professor of Hygiene in the Medical School of Harvard University. Twelve plates and 105 engravings. Philadelphia and New York: Lea Brothers & Co., 1901.

The author, in his preface, states his object "to provide a students' textbook, which should cover the most important topics included in the wide domain of hygiene, and be useful in the laboratory and as a reference book for practitioners and health officers."

In the first half of the work the author follows quite closely the method of the earlier English writers upon the same subject, treating of food, air, soil and water.

In the opening chapter upon food, the author treats of the subject from the standpoint of many years of experience as a food chemist, both for the State Board of Health and for the city of Boston. His clear and positive manner makes this chapter one of special value to the student and practitioner. It is well illustrated with cuts, and a series of plates showing the starches most commonly employed in food adulteration.

The topics presented in the latter portion of the work are habitations and schools. The portion relating to plumbing is especially full and clearly illustrated. Disposal of sewage and garbage, disinfectants, quarantine, military hygiene, naval and marine hygiene, tropical hygiene, hygiene of occupations, vital statistics, personal hygiene, vaccination and disposal of the dead are also discussed. The author has presented the latest and most modern information upon each subject treated.

We would suggest, however, that in a second edition, the author may present a chapter upon the all-important, in fact, to the practical hygienist, the most important of all questions, the management and control of infectious diseases. The subject is of sufficient value to warrant separate treatment in a chapter by itself, since it comprises fully half of the duties of all officials who have to do with sanitary questions.

Studies in Human and Comparative Pathology.

By WOODS HATCHINSON, A.M., M.D., Professor of Comparative Pathology and Embryology in the University of Buffalo; formerly Professor of Anatomy in the State University of Iowa, U. S. A., and Lecturer on Diseases of Animals in the Medical Graduates' College and Polyclinic, London. Edited by DR. EDWARD BLAKE. London: Henry J. Glaiser, 1901.

This book is essentially a collection of short essays on a great variety of topics connected with the subject of the "Nature of Disease," on which the author brings to bear a good knowledge of zoology, embryology and comparative pathology. It contains much information that will be of interest to medical men. It is written in a most pleasing and attractive style, and it shows the author to be a careful thinker and observer. The work deserves a wide circle of readers.

Medico-Surgical Aspect of the Spanish-American War. By LIEUT. COLONEL DR. NICHOLAS SEHN, Chief Surgeon U. S. Volunteers, etc. Chicago: American Medical Association Press, 1900.

This book is a combination of the "magazine" article of today, and a report of the author's observations and experiences in the late Spanish-American War.

It is like a nut with some "meat," but with an awful thick shell.

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THE PREVENTIVE TREATMENT OF RABIES.

STATISTICS are gradually accumulating in sufficient numbers to be of decided value in the final determination of the important question of the possibility of preventing hydrophobia. The disease is not a great menace to man, and no doubt continually increasing vigilance will more and more prevent the inoculation of human beings by rabid animals. The possibility, however, will always remain of the sporadic appearance of the disease, and continued studies as to its prevention and pathology are very much to be desired. A publication from the recently organized department for the Preventive Treatment of Rabies, at the College of Physicians and Surgeons of Baltimore is of very considerable interest in this connection. Judging from the experience at this institution there is small cause for pessimism regarding the result of the Pasteur treatment if properly applied at a sufficiently early period after the original inoculation:

The report before us gives the outcome of the treatment of 209 cases, ranging in age from two to eighty-two years: The wounds were inflicted by dogs in 188 cases, in 13 cases by cats, in 1 by a calf, in 1 by a pet pig. In 6 cases the wounds were not the results of bites. One hundred and forty-seven persons came to receive the treatment during the first week after having been bitten, 27 the second week, 11 the third week, 7 the fourth week, 11 the fifth week, 4 the sixth week and 2 the eighth week. In 3 cases the treatment was discontinued, because the animal, held under observation, was evidently not rabid. Four persons abandoned treatment. One patient six months pregnant was treated without untoward result. There were 5 abscesses in 6,270 injections. There has been but 1 death from any cause. This death was caused by rabies. The history of this case, in brief, was as follows: A lad eight years old, bitten February 2, 1900, was admitted

February 4th. He received only one treatment, consisting of two hypodermic injections. He was removed from the institution and treatment discontinued on February 5th against the advice of the physicians. After the inoculated rabbits and a cow bitten by the same dog developed rabies, the child was brought back on February 25th. He developed rabies March 14th and died March 17th. As the report says, a case of this character cannot be attributed to failure of the treatment, but to delay in resorting to treatment.

These are certainly most strikingly favorable results, and seem to point the lesson too often ignored, that promptness in submitting to treatment and faithfulness in carrying it out are of the utmost importance. It is altogether probable that the various failures from time to time reported are due rather to the negligence of the patients than to the suggested inefficiency of the treatment.

An added scientific interest has been given the whole subject of rabies both in man and animals by recent pathological investigations at the hands of Babes, Nélis, Ravenel, McCarthy and others, who have shown, with certain variations in detail, that constant changes occur in the central nervous system of animals in which hydrophobia has run its course. These changes are particularly observable in the dorsal root ganglia of the cord, consisting essentially in a proliferation of fixed cells and a coincident destruction of the nerve cells. Whether this alteration is absolutely peculiar to hydrophobia may, perhaps, be questioned; nevertheless, the finding is so constant that it may very materially aid in the more rapid determination of the diagnosis, than is possible by the inoculation method, and thereby permit an earlier rational treatment of the disease in persons secondarily affected.

In general the work, both on the side of pathological anatomy and of prophylaxis, is progressing most favorably. It is not too much to hope that this much dreaded, if somewhat infrequent disease, may finally be brought under complete control.

THE PREVALENCE OF SMALLPOX.

THE past winter has seen an unusual prevalence of smallpox throughout the United States, often occurring sporadically, but at times reaching mild epidemic form. Various reasons may be sought for this state of affairs. No doubt one of the most conspicuous is the general carelessness of the public regarding vaccination. Unless people are frightened by the actual presence of the disease in virulent form, they are exceedingly likely to evade the regulations of boards of health, particularly in those regions where the anti-vaccination fanaticism is rife. Another very great menace to this country is the importation of the disease

from foreign countries. For example, at the port of New York the resources of the quarantine department are at the present time being taxed to the utmost, owing to the unusually large immigration from Italy. Almost every steamer arriving from Naples has brought one or more cases of the disease, and the quarantine station on Hoffman Island has many hundred detained passengers, awaiting the examination of physicians. This constant menace to a city like New York, and secondarily to the country at large, is naturally very great, and it is little to be wondered at that cases occasionally escape the vigilance of the authorities.

In the South, again, the negroes are a prolific cause of the spread of the disease, owing to their avoidance of vaccination and their disregard for the disease itself. It is said that most of the cases which have occurred in Washington have come from the South.

An interesting report comes from Tennessee, quoted from a Nashville paper, showing how much may be done by vigorous measures on the part of the appointed authorities:

From February 13, 1899 to October 1, 1899, there was a total of 1,014 cases of smallpox in Tennessee, of which only 11 proved fatal. From October 1, 1899, to March 5, 1900, there occurred 3,004 cases, with only 46 deaths. From March 5, 1900, to October 1, 1900, 1,389 cases occurred, with 18 deaths. From October 1, 1900, to April 1, 1901, there were 4,207 cases, with 98 deaths. On April 1, 1901, there were 491 cases in the State, 49 counties being infected. At present the disease is to be found in only 28 counties—which shows that 21 counties have been freed from the disease during the past eighteen days. According to these figures, which are official, there have been 10,105 cases of smallpox in Tennessee during the past two years and two months, and 173 deaths as a result of the disease. This is a death rate of only about 1.7 per hundred. It shows the disease to be of the mildest type.

The fact that many cases have been of the mild type has naturally conducted to a certain sense of security, and hence, no doubt, to greater carelessness in guarding against the disease. This is unfortunate, in so far as it leads to laxness in the enforcement of vaccination, and is, no doubt, one cause of the unusually wide dissemination of the disease. Although sporadic cases may always occur, smallpox, like typhoid fever, must be regarded as a preventable disease, and vigilance should never, for a moment, be relaxed. It is a reasonable expectation that smallpox may, in time, be eradicated, but such a consummation clearly cannot be reached until the people work in complete accord with the health officers, and cease to evade and antagonize the regulations provided for their good.

A CENTENARIAN.—It is reported that Mrs. Rebecca Packard, one hundred and five years old, has died in Covington, Pa.

MEDICAL NOTES.

WESTERN OPHTHALMOLOGIC AND OTO-LARYNGOLOGIC ASSOCIATION.—The following officers were elected at the sixth annual meeting of the Western Ophthalmologic and Oto-Laryngologic Association held in Cincinnati, April 11th and 12th: Dr. C. R. Holmes, Cincinnati, O., President; Dr. W. L. Dayton, Lincoln, Neb., First Vice President; Dr. O. J. Stein, 100 State Street, Chicago, Treasurer; Dr. William L. Ballenger, 100 State Street, Chicago, Secretary. The next meeting will be held in Chicago, April 10, 11 and 12, 1902.

OFFICERS OF ASSOCIATION OF AMERICAN PHYSICIANS.—The following officers of the association were elected May 2, 1901, for the ensuing year: President, James C. Wilson; Vice President, James Stewart; Recorder, S. Solis Cohen; Secretary, Henry Hun; Treasurer, J. Crozier Griffiths; Councillors, Frank Billings, Francis P. Kinnicutt; Representative on Executive Committee of Congress, William Osler; Alternate Representative, Francis H. Williams.

PLAGUE NEAR CONSTANTINOPLE.—A case, officially pronounced to be plague, has occurred in one of the suburbs of Constantinople.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ended at noon, May 8, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 74, scarlatina 23, measles 107, typhoid fever 4.

OPPOSITION TO VACCINATION AT HAMPTON, N. H.—A recent order from the State Board of Health, directing the school board to have all children vaccinated, who had not been vaccinated, or who had not had smallpox, has met with considerable opposition. The order is regarded as arbitrary and unnecessary.

TYPHOID FEVER AT NEW HAVEN, CONN.—During the month of April, 37 deaths from typhoid fever occurred in New Haven. Many patients are still critically ill.

NEW YORK.

OPENING OF NEW YORK HOSPITAL FOR THE CARE OF CRIPPLED AND DEFORMED CHILDREN.—The New York State Hospital for the Care of Crippled and Deformed Children, at Tarrytown, will be formally opened Friday, May 17, 1901. The Right Reverend Henry C. Potter, D.D., president of the hospital, will preside. Short addresses will be made by Professor Robert F. Weir, M.D., of Columbia University, Professor A. Alexander Smith, M.D., of the University of the City of New York, and Professor William M. Polk, M.D., of Cornell University. Tickets for a special train

from New York to Tarrytown may be had upon application to Dr. Newton M. Shaffer, 28 East 38th Street, New York.

CLOSING OF PATHOLOGICAL INSTITUTE OF THE NEW YORK STATE HOSPITALS.—The work of the Pathological Institute of the New York State Hospitals has come to an untimely end. As a result of action by the legislature, removing Director Ira Van Gieson and depriving the Institute of quarters and funds for maintenance, the entire medical staff has resigned. Dr. Van Gieson, it is stated, has applied to the Supreme Court for an injunction restraining the State Commission in Lunacy from interfering with specimens and other property of the Institute.

EDWARD N. GIBBS MEMORIAL PRIZE FUND.—The trustees of the New York Academy of Medicine announce the receipt of \$10,000 from Mrs. Sarah Barker Gibbs and Miss George Barker Gibbs, for the establishment of the Edward N. Gibbs Memorial Prize Fund, the income to be awarded, triennially, to the physician, of regular standing in the medical profession of the United States of America, who shall present the best original essay upon the etiology pathology and treatment of the diseases of the kidney.

A FAMILY OF SIMULATORS.—The champion family of frauds has been discovered. A boy of thirteen, who feigned blindness, was found on the streets appealing for charity, and when a detective visited the home of his parents, which was a very comfortable one, the mother was seized with such a terrible fit of conghing (got up for the occasion) that she could not answer any questions, while his step-father showed a frightful-looking "cancer" of the leg which proved to be ingeniously constructed of painted putty.

BEQUESTS TO HOSPITALS.—By the will of Joel Goldenberg, a wealthy merchant, the greater part of his estate, believed to exceed \$1,000,000, is left to the Mount Sinai Hospital. There are specific bequests of from \$1,000 to \$5,000 to fourteen charitable institutions, among which is included the Montefiore Hospital for Chronic Diseases, and, in addition, the Training School for Nurses of Mount Sinai Hospital receives \$5,000.

Miscellany.

RECEPTION HOSPITALS FOR THE INSANE.

In the eighth annual report of the State Charities Aid Association to the State Commission in Lunacy, just issued, the recommendation is made that small reception hospitals be established in New York and other cities. There are now more than 22,000 dependent insane patients in the State,

and statistics show that the yearly increase of the insane is out of proportion to the increase in population. It is believed that many of the now hopeless cases might be saved if the patients could have the benefit of the best medical skill, such as is now given gratuitously by the most distinguished members of the profession to those suffering from other forms of disease in the general hospitals of every city in the State. It is suggested that the proposed psychopathic hospitals should be made branches of the existing State institutions and be governed by the same managing boards. "Into the Reception Hospitals for New York City," the report goes on to say, "a branch of the Manhattan State Hospital and taking the place of the wards for the insane at Bellevue, would be gathered all recent cases of the committed insane; and here they should be examined and classified by the attending physicians before being treated either within the wards of the hospital or elsewhere. Cases possibly curable would doubtless be kept for a limited period in the reception hospital under the daily care and constant advice of the most eminent members of the profession, until it was thought best to send them on to the main hospital. The hospital should receive not only the destitute, but those able to pay for themselves, that all may receive the benefit of the best neurological and alienist skill that New York City can provide. It is also desirable that the reception hospital should open its doors for clinical teaching. It is under the roof of the New York reception hospital that the already established pathological institute would naturally find its home."

Obituary.

ROBERT WILLARD GREENLEAF, M.D.

DR. ROBERT WILLARD GREENLEAF, of Boston, died suddenly April 28, 1901, at the age of forty-six. He was born in Charlestown and had always lived within sight of the State House. He graduated from Harvard in 1877 and became an assistant in botany under Prof. G. L. Coode. He entered the Harvard Medical School in the fall of 1881, receiving the degree of doctor of medicine in 1885. He joined the Massachusetts Medical Society in 1884, while serving a term as house officer at the Boston City Hospital. He was an assistant in the office of the superintendent of the hospital for a short time after his term of service as house officer ended, and then entered upon the practice of medicine, with an office at 561 Boylston St., Boston, where he lived the rest of his life. Soon after he became an instructor in histology at the Harvard Medical School. He taught botany in many of the private schools and lectured upon that subject to the graduates of the Boston Normal School. He was also professor of materia medica and botany at the Massachusetts College of Pharmacy, a position he held at the time of his death. He was an examiner of the Penn Mutual Life Insurance Company.

He was appointed a district physician of the Boston Dispensary and served for several years, resigning to accept a position as physician. In 1900 he was elected president of the staff. He was the author of the Centennial Report of the Dispensary, a valuable and interesting paper. He had a large private practice, but was not prevented, thereby, from giving freely of his time and experience to the poor and needy.

Dr. Greenleaf was an energetic, conscientious, able physician, generous to every one except himself, affable, tactful, sympathetic. By his death the medical profession, and, indeed, the whole community, has suffered a great loss.

RESOLUTIONS ON THE DEATH OF ROBERT WILLARD GREENLEAF, M.D.

At a special meeting of the staff of the Boston Dispensary, held April 30, 1901, the following resolutions were adopted, and it was voted to send a copy of them to the *Boston Medical and Surgical Journal*.

Dr. Robert Willard Greenleaf, our friend and co-worker, died suddenly, Sunday, April 28th.

We, the members of the staff of the Boston Dispensary, desire to place on record our appreciation of him as a man and physician.

We testify to his loyalty to his friends, his devotion to his profession, and the loving tenderness and watchful care for his patients.

His earnest endeavors in behalf of this institution will be an incentive for more active work on our part.

Our profession has lost an able member, and we a loyal and true friend.

We extend to his mother and sisters our deepest sympathy.

WARREN F. GRAY,

Secretary of the Staff.

At a special meeting of the executive committee of the Boston Polyclinic the following action was taken:

It is with deep regret that the executive committee of the Boston Polyclinic meets to express its sorrow over the loss of our fellow-worker, Dr. Robert W. Greenleaf.

No young man has worked harder to broaden the field of education or shown more marked devotion to every duty—always willing to give his time and skill for the alleviation of poverty and suffering wherever found.

We wish to express to his family our appreciation of him as a man—respected by associates and most beloved by patients.

It was voted that a copy of the above be sent to his family and printed in the *Boston Medical and Surgical Journal*.

Correspondence.

THE CHARLES RIVER BASIN.

Boston, April 27, 1901.

MR. EDITOR:—The insanitary condition of the Charles River basin, below the Watertown dam, must be admitted. Extensive areas of foul-looking and vile-smelling flats, rapidly increasing, are uncovered at low tide in the river, and, although it would be difficult to prove this condition to be a cause of sickness or of any specific disease, it may be affirmed, without fear of contradiction, it constitutes a nuisance at times, under favorable conditions of wind, tide and temperature, which demands early abatement.

The minor causes contributing to the offences are three:

(1) The common practice of dumping into the river, during the winter and spring, street detritus, including horse dung, under the permit annually granted by the Harbor and Land Commissioners for this disposition of snow and ice. During the past five years the writer has observed, time and time again, load after load of this material containing scarcely a vestige of either snow or ice, thus disposed of by the Street Department of the city of Boston.

(2) The dumping of ashes close to the sea wall back of Beacon Street. For about two years this has been a common practice, resulting in washing into the river with every flood tide a quantity of this material.

(3) The houses on the north side of Beacon Street, for about a mile, have no other means for the disposal

of sewage than to discharge it into the river. The total volume for ten months of the year, assuming there are 200 houses, 7 persons to a house, and 75 gallons of sewage per capita per day, would be 31,500,000 gallons. For these three minor causes of present condition the remedy is obvious, and should be applied irrespective of the question of damming the Charles.

The major cause of the offence, amounting to many times all others combined, is the storm overflow of the South Metropolitan Sewerage System, which now occurs practically with every thaw or fall of rain. The magnitude of this source of pollution may to some degree be appreciated by briefly outlining the plan of the intercepting system of Boston, built for and by the city.

It was assumed there would be 20 square miles tributary to the system before a high-level sewer would be required. Twelve below Grade Forty, and 8 above, in which the prospective population was estimated to ultimately reach 800,000, producing 75 gallons of sewage per day per capita, or 60,000,000 gallons in the aggregate. Provision was made for rainwater, equivalent to one-fourth of an inch in twenty-four hours per acre, on tributary area, by increasing the capacity of the system 100% above the maximum dry weather flow. A rainfall or thaw exceeding one-fourth of an inch in twenty-four hours was provided for by regulating gates at the junction of the common sewers with the intercepting, which operate to discharge their contents along the water front. The gates are opened by a rise of sewage in the intercepting system above a certain level.

The first year (1884) the system was in full operation, when but a part of the common sewers were connected, these gates were opened 24 times. Since then no record has been kept, either by the Metropolitan or Boston sewerage authorities, of the number of times the discharge takes place. The dry weather flow of the sewage in 1884 was about 24,000,000 gallons per day. The dry weather flow at the present time varies from 55,000,000 to 75,000,000 gallons, influenced in measurement to some degree by defective action of the pumps at the calf pasture.

To this system Boston has added, since 1888, not less than 132 miles of common sewers, and, through the action of the legislature in creating the South Metropolitan Sewerage District, a drainage area of 51 square miles was added to the original 58, in which the mileage of sewers now connected is 307, making a total of 439 miles increase since 1888.

What proportion of the total miles of sewers are built on the separate system, and what proportion on the combined, is immaterial for the purpose of this communication, as the evidence is conclusive the system has for many years been overburdened. Recognizing this fact, in 1898, the Metropolitan Commissioners asked the legislature for authority to construct a high-level sewer, to tap the intercepting system at the corner of Ruggles Street and Huntington Avenue, and, through a force main, from a pumping station on Ward Street, deliver the sewage into a high-level sewer, 34 feet above mean low water, on Alphonse Street. From this point the sewage is to flow by gravitation through Jamaica Plain, Hyde Park, Milton and Quincy, to about a mile beyond Nut Island, and discharge in the harbor, 15 miles from the starting point. A part of this sewer is under contract and now in process of construction, and is estimated to cost \$4,500,000. To what extent, if any, this will relieve the present storm overflow in the Charles River is uncertain, as no study has been made of the question. One excellent authority says it will accomplish something in this regard. Another, equally as good, says, "By the time it is put in operation, the enormous excess of storm flow above the capacity of both systems, and the addition of tributary sewers under construction or projected, will prevent any appreciable diminution of the present volume or frequency of discharge into the river."

In 1894 the Harbor and Land Commissioners in the investigation of the then proposed Charles River dam, endeavored to ascertain the volume of this discharge and what influence it would have on the proposed basin.

No reliable data was obtainable as to volume. Mr. Stearns thought it amounted to .80 of 1%, and would equal the constant discharge of 3,000 persons if the total number in the district drained was 300,000, and that of 6,000, with a population of 600,000. Mr. Mattice, basing his estimate on maximum pumping capacity at the calf pasture, and the number of days in the year 1893, when the rainfall exceeded one-fourth of an inch, concluded an overflow would take place 37 times, and the total volume amount to the entire sewage of Boston for two and three-quarter days. The fact of the pumps being badly out of repair, and therefore incapable of doing anything like their presumed maximum work, seriously impaired the value of this estimate.

Professor Porter estimated the yearly volume discharged to be equivalent to twelve days' flow of the sewers connecting with the river. I testified to the fact of having kept a record of overflow of the Herford Street sewer for ten months of 1893, and that it took place 46 times, and having personally observed many times the overflow at St. Mary Street, and in the Fens where Stony Brook enters; a flow of 20,000,000 gallons in twenty-four hours was not uncommon and, had I known what I have since learned of the backward flow in the trunk sewer above Gainsborough Street, I should have guessed considerably higher; for this means the entire flow of the system above, estimated at 20,000,000 gallons per day in dry weather, goes into river at St. Mary Street, and there are 15 other places where sewers overflow into the river between Craigie's bridge and Brighton, not including those on Stony Brook.

It will be remembered the city of Boston borrowed \$25,000 to dredge the Fens basin two years ago. The work was done by a hydraulic dredge, which discharged the material at the Beacon Street sluiceway. The basin was presumed to be made 7 feet deep. Since that work, Stony Brook has flowed enough sewage and silt to form a bar just below the bridge, covered now only by from 3 to 6 inches of water at Grade Eight. To prevent further accumulation, a survey has been made for a sewer, beginning at what is now the end of Stony Brook and finally discharging into the river through an opening in the structure erected on the sea wall west of Charles Gate.

Relative to the effect of the storm flow of sewage on Charles River basin if the dam were built, there was a wide divergence of opinion expressed at the hearing, the weight of which I am disqualified to measure, having expressed an opinion, a dam such as proposed would nullify the plan for flushing the Fens basin with every available tide in warm weather, and without this the region would be rendered uninhabitable by the large amount of sewage discharged there. Mr. Stearns, when questioned on this matter, said, "Stony Brook might be diverted to the Charles, and if necessary a propeller might be employed to create a current in the Fens water. Regardless of what may be the best remedy for existing conditions, it must be apparent that storm water is the primal cause of the difficulties.

In this journal of March 12, 1891, will be found the following, relative to the admission of storm water to Boston's system: "With the rapidly increasing population the city, and the extensions now under construction designed to accommodate the inhabitants of Waltham, Newton, Watertown, Brookline and Brighton, large volumes of sewage must in time of storm be discharged into the Charles River basin or be conducted to the outfall. . . . In the interest of economy, and the sanitation of the river and upper harbor, it is high time we ceased to construct what is known as the combined system and adopt what Colonel Waring introduced at Memphis, and known as the 'separate system.' For it seems the height of folly to conduct the rainwater falling on the roof of my house to the pumping plant at the calf pasture, where it must be elevated 32 feet before it can be disposed of, when it might be discharged by gravitation in a natural water course within 200 feet."

It does not seem to be strong language to add, in light of our experience, that what appeared to be folly ten years ago is now madness.

HENRY J. BARNES, M.D.

METEOROLOGICAL RECORD.

For the week ending April 27th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Barometer	Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches
		Daily mean	Daily maximum	Minimum	8.00 A.M.	8.00 P.M.	Daily mean	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S..21	29.96	43	45	41	100	100	N.E.	E.	15	21	G. R.	.24
M..22	30.05	46	49	42	96	98	97	N.E.	5	8	O. R.	.04
T..23	30.18	42	42	41	100	98	99	N.E.	11	12	O. R.	.07
W..24	29.96	42	43	41	92	96	94	N.E.	12	7	O. R.	.169
T..25	29.88	44	45	42	100	95	98	N.E.	14	18	O. R.	.210
F..26	30.21	45	50	40	64	70	67	N.	24	18	O. C.	.08
S..27	30.48	43	48	38	64	43	54	N.E.	32	9	F. C.	.46
Mean	30.10						87					

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 27, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Whooping cough.	Diphtheria and croup.	
New York.	3,437,292	1,437	436	21.25	13.57	3.03	.41	4.90	
Chicago.	1,698,575	1,263	485	21.24	16.08	1.65	.62	1.44	
Philadelphia.	1,282,697	—	—	—	—	—	—	—	
St. Louis.	575,258	—	—	—	—	—	—	—	
Baltimore.	508,957	162	47	22.82	12.96	—	.61	3.70	
Cleveland.	351,768	—	—	—	—	—	—	—	
Buffalo.	352,987	—	—	—	—	—	—	—	
Cincinnati.	325,402	—	—	—	—	—	—	—	
Pittsburg.	321,616	151	36	23.14	15.70	.83	3.30	3.30	
Washington.	278,718	—	—	—	—	—	—	—	
Milwaukee.	282,315	—	—	—	—	—	—	—	
Providence.	175,597	52	15	19.20	23.04	1.92	—	—	
Boston.	560,892	246	76	25.20	19.92	2.84	1.62	6.50	
Worcester.	118,423	37	11	21.60	10.50	—	—	—	
Fall River.	104,863	23	7	43.50	17.40	—	—	—	
Lowell.	94,968	34	12	14.70	20.58	2.94	5.88	—	
Cambridge.	91,886	25	6	16.00	12.00	—	—	4.00	
Lynn.	68,513	17	2	17.65	23.52	—	—	5.88	
Lawrence.	62,890	15	2	20.00	—	—	—	6.66	
New Bedford.	62,442	21	7	4.76	4.76	—	—	—	
Springfield.	62,059	15	5	6.67	—	—	—	—	
Somerville.	61,643	19	13	15.78	15.78	—	—	—	
Holyoke.	45,712	14	1	21.42	7.14	—	7.14	—	
Brockton.	40,003	11	1	27.27	27.27	—	—	—	
Haverhill.	37,175	15	1	26.66	20.00	6.67	—	23.07	
Salem.	35,556	13	6	61.52	—	—	—	—	
Chelsea.	34,672	12	1	16.66	—	—	8.33	—	
Malden.	33,664	10	3	10.00	20.00	—	—	—	
Newton.	33,587	11	1	—	—	—	—	—	
Pittsburg.	31,531	11	3	14.30	14.30	—	—	—	
Taunton.	31,036	4	1	75.00	—	—	—	—	
Gloucester.	26,121	9	1	22.22	—	—	—	11.11	
Everett.	24,336	8	5	20.00	12.50	—	—	12.50	
North Adams.	24,290	8	1	25.00	—	—	—	—	
Quincy.	23,672	7	1	16.66	—	—	—	—	
Waltham.	23,481	9	2	—	33.33	—	—	—	
Pittsfield.	21,766	10	1	10.00	20.00	—	—	—	
Brookline.	19,335	—	—	—	—	—	—	—	
Chelsea.	19,167	6	2	16.67	16.67	—	—	—	
Medford.	18,244	4	1	25.00	75.00	—	—	—	
Newburyport.	14,478	—	—	—	—	—	—	—	
Melrose.	12,962	—	—	—	—	—	—	—	

Deaths reported 2,892; under five years of age 837; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 701, acute lung diseases 430, consumption 376, diphtheria and croup 399, diarrheal diseases 44, scarlet fever 63, influenza 10, typhoid fever 29, whooping cough 22, measles 14, cerebro-spinal meningitis 22, smallpox 9, erysipelas 19.

From whooping cough, New York 6, Philadelphia 3, Baltimore 1, Pittsburg 4, Boston 4, Lowell 2, Holyoke 1,

Chelsea 1. From cerebro-spinal meningitis. New York 6, Baltimore 1, Providence 1, Boston 3, Worcester 3, Lynn 1, Salem 2, Pittsfield 1, Beverly 1, Framingham 1. From scarlet fever, New York 4, Philadelphia 8, Pittsburg 1, Providence 1, Boston 7, Lowell 1, Haverhill 1. From typhoid fever, New York 7, Philadelphia 7, Baltimore 2, Pittsburg 6, Boston 4, Fall River 2, Clinton 1. From measles, New York 9, Pittsburg 2, Boston 3. From erysipelas, New York 9, Philadelphia 4, Baltimore 3, Pittsburg 1, Boston 2. From smallpox, New York 8, Philadelphia 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,789,000, for the week ending April 13th, the death rate was 19.2. Deaths reported, 4,339; acute diseases of the respiratory organs (London), 345; whooping cough 130, diphtheria 68, measles 112, fever 19, scarlet fever 31.

The death rate ranged from 11.2, in Croyden, to 25.9, in Liverpool. Birkenhead 15.7, Birmingham 21.8, Blackburn 21.7, Bolton 17.6, Bradford 18.9, Brighton 19.2, Bristol 20.3, Burnley 20.3, Cardiff 16.3, Derby 18.1, Gateshead 19.5, Halifax 18.5, Huddersfield 16.3, Hull 16.9, Leeds 19.0, Leicester 21.4, London 18.3, Manchester 21.2, Newcastle-on-Tyne 23.7, Norwich 19.3, Nottingham 17.4, Oldham 21.4, Plymouth 18.1, Portsmouth 16.2, Preston 23.9, Salford 20.8, Sheffield 20.4, Sunderland 22.0, Swansea 16.5, West Ham 12.3, Wolverhampton, 17.9.

RECENT DEATHS.

DR. SAMUEL G. DORR, postmaster of Buffalo, N. Y., died on April 28th. He was born in Dansville, N. Y., in 1840, and had practised in Buffalo since 1875. He was appointed postmaster in 1899.

DR. ABRAHAM DEYO, a prominent physician of Ulster County, N. Y., died at Gardiner, N. Y., on May 4th at the age of seventy-one. He was a graduate of the University of the City of New York and of the College of Physicians and Surgeons, New York.

DR. SAMUEL K. LYON, a highly esteemed practitioner of New York and for thirty years a surgeon of the Police Department, died suddenly from pulmonary hemorrhage on May 4th. He was a native of New York and sixty-three years of age. After graduation from Columbia College he studied medicine with Dr. Willard Parker, and received the degree of M.D. from the College of Physicians and Surgeons, New York, in 1895.

SOCIETY NOTICES.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The fifty-seventh annual meeting of the American Medico-Psychological Association will be held at Milwaukee, Wis., June 11 to 14, 1901.

AMERICAN CONGRESS OF TUBERCULOSIS.—The American Congress of Tuberculosis will be held at the Grand Central Palace in the city of New York, May 15th and 16th, and perhaps May 17th, 1901. In joint session with the Medical-Legal Society of New York.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—A regular meeting of the Society will be held at 3 Park Street, Boston, Mass., on Thursday, May 15, 1901, at 7:30 P.M. Papers: Dr. Emily Cushman, "A Peculiar Case of Malaria"; Dr. Harriet C. Lothrop, "The Pathology of Malaria; Diagnosis by Blood Examination."

Discussion: Dr. Mary F. Hobart, "Malaria as Met in General Practice in and Around Boston." Dr. Elizabeth T. Gray, "Malaria as a Complication in Surgical Work."

DR. AGNES C. VICTOR, Secretary,
Trinity Court, Boston.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U.S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED MAY 2, 1901.

D. A. CALMICHAEL, surgeon, to assume temporary command of the San Francisco quarantine station, April 27, 1901.

C. P. WERTENBAKER, passed assistant surgeon, to proceed to Prescott, Ark., for special temporary duty, April 27, 1901.

J. E. GREENE, passed assistant surgeon, detailed for temporary duty in the Bureau, April 29, 1901.

V. G. HEISER, assistant surgeon, to proceed to Norfolk, Va., for special temporary duty, April 27, 1901. To proceed to Quebec, Canada, and report to the United States Commission of Immigration for duty, May 1, 1901.

W. F. SCHLAAR, hospital steward. Granted leave of absence for twenty-six days, March 29, 1901.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, WEEK ENDED MAY 4, 1901.

B. L. WRIGHT, assistant surgeon, ordered to the Massachusetts, May 1st.

S. S. RODMAN, assistant surgeon, detached from the Adams, May 11th, and ordered to the Alert.

H. L. LAW, surgeon, retired, detached from the Recruiting Rendezvous, Buffalo, N. Y., and ordered home.

BOOKS AND PAMPHLETS RECEIVED.

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Original Articles.

THE TREATMENT OF PSOAS ABSCESS BY INCISION.

BY ROBERT W. LOVETT, M.D., BOSTON.

THE treatment of psoas abscess has been extensively discussed, and rather widely-differing views are held by men of experience. It was thought that, possibly, the investigation of a group of cases occurring at the Children's Hospital might be of value in contributing to the question of the value of treatment by incision. The group of cases taken for investigation were those occurring on the second surgical service at the hospital, between July 1, 1890, and July 1, 1900, making a period of ten years, and all cases admitted to the service with psoas abscess during that time were considered.

The cases were all treated under the same conditions by the same surgical staff, and any value that they may have consists in the fact that all cases were included, and that in the majority of them the end result can be reported. The writer is indebted to his colleagues for their permission to publish their cases.

The questions arising are, of course, these: (1) What is the result of incising psoas abscesses so far as life and function of the limb are concerned, and (2) if incision is advisable, what is the best method of operation?

In the period just mentioned, 54 cases of psoas abscess were admitted to the wards. Five were not operated upon; 49 were operated upon. Of the 54 cases, it is possible to report on the present condition of 47; that is to say, to report on their condition some time in the late fall of 1900 or winter of 1900-1901.

Of the 5 cases not operated upon, 2 were treated expectantly and recovered permanently; the third was in such poor general condition that operation was not deemed advisable and the child died five months later without operation. The fourth died of intercurrent appendicitis while waiting for operation. It was, apparently, in no way connected with the abscess. The fifth case was treated expectantly, the present condition is not known.

Sex.—Of the 54 cases, 32 were boys, 21 were girls, and in 1 the sex was not stated. In Young's¹ group of 78 cases of Pott's disease complicated with abscess, there were 52 males and 26 females. This predominance of males over females is not characteristic of Pott's disease in general. In 4,670 cases from Gibney, Fisher, Taylor, Vulpius and the Children's Hospital, there were 2,405 males and 2,265 females.

Age.—The age of the children ranged from two and one-half to fourteen. Twenty-two cases were under six, and 6 cases were over ten. There seemed to be no especial predisposition toward any one age.

The duration of the disease at the onset of the abscess showed very little. Accuracy could not be expected from that class of patients, and it is well enough known that psoas abscess is a late

rather than an early complication of Pott's disease. In 24 cases the duration was given as of periods varying from two to five years, and in the remaining cases the period was either stated as being shorter or was not known. As in many cases, the abscess was one of the first symptoms to call attention to the disease, such figures, when dealing with short periods, are unreliable.

Location of disease.—The location of the vertebral disease was as follows: Dorsal, 11; dorso-lumbar, 17; lumbar, 23; not stated, 3; making 54. Young's cases were as follows: In 74, dorsal, 43; lumbar, 31. Dollinger,² in 138 cases, found 44 in the dorsal region and 94 in the lumbar. It is interesting, in this connection, to note that Dollinger places the percentage of abscesses in the different regions of the spine as follows: Among cervical cases, 20.6 developed abscess; in dorsal cases, 11.6; and of lumbar cases, 40.1. Rushton Parker, collecting statistics of the occurrence of abscesses, estimated that 8% of dorsal cases developed abscess, 30% of dorsolumbar, and 70% of lumbar cases. These latter statistics are from a much smaller number of cases than those of Dollinger, as Parker generalized from 140 cases instead of from 700, as Dollinger did. The statistics, however, are of only relative value in either case.

Site of abscess.—The abscess occurred on the right side 21 times; on the left side 24 times; 4 times on both sides; and in 5 cases its location was not definitely stated.

The abscess presented in the iliac region 27 times; in the lumbar region (in the back) 15 times; in both lumbar and iliac regions 5 times and in the gluteal region 6 times.

The number of lumbar abscesses in this group is surprising and differs from other statistics, yet there is no reason to question the accuracy of the statement that the abscess appeared as a swelling on the back. Young reports 63 psoas and 21 lumbar abscesses, and Dollinger 123 psoas, 9 lumbar and 6 gluteal.

Temperature.—The temperature before operation was high in 12 cases and practically normal in 37. Its character was not stated in 5. This statement is based on an examination of the charts in each case, as they were incorporated in the records. It, therefore, justifies the statement that the majority of cases show no rise of temperature in connection with the abscess. An attempt was made to see if cases in which the temperature was high before the operation showed a higher mortality than in cases which were not high, with the following result:

Of the 12 cases where the temperature was high 7 were dead, 3 were alive and 2 were not heard from, making a percentage of 70 mortality where the result was known. Of the 34 cases where the temperature was practically normal, 10 were dead, 23 alive and 4 not heard from, making a mortality percentage of 33 where the result was known.

Although it is hardly justifiable to draw any definite conclusions from such a small group of cases, it is suggestive that in these 2 groups the mortal-

¹ E. B. Young, Boston Medical and Surgical Journal, cxliii, 19, 470.² Die Behandlung, der Tub. Wirbel. Stuttgart, 1896.

ity was 70% where the temperature was high before operation, and only 33% where it was normal. Yet the cases where the temperature is high are probably the ones most urgently requiring operation.

The record of the bacteriological examination of the pus was unfortunately not kept in most of the cases. In only 6 was there a record, and in all those reported on it was sterile. The blood count, also, was only reported on in 10 cases, and in only 2 out of the 10 was the leucocyte count over 12,000.

Mode of operation.—The cases were next examined to see if any one mode of operation appeared to be better than the others.

The modes of operation were practically 3: Either a simple incision in the iliac region, a simple incision in the lumbar region, or an incision in both iliac and lumbar regions.

In practically all of the cases, drainage was obtained by a tube or by gauze, and the abscess was not allowed to close immediately after operation.

As a rule, no extensive attempts were made to remove the pyogenic membrane, but the abscess was opened, wiped out by gauze or possibly washed out, or, in many cases, simply emptied and dressed.

If one may draw any conclusion from so small a group of cases, the evidence was strongly in favor of a single incision in either the iliac or lumbar region, and was against the double incision in both iliac and lumbar region. It is only fair to add that the cases operated on by the double incision were probably the worst cases in the series.

	Dead.	Alive.	Not known.
Of 13 cases opened by incision in iliac region	3	8	2
Of 14 cases opened by incision in lumbar region	4	9	1
Of 15 cases opened by incision in both lumbar and iliac regions	9	4	2
Of 6 cases opened by incision in gluteal region	1	4	1

This coincided exactly with my own experience in the matter, and I had for a year or two abandoned the double incision except when necessary. Dollinger had come to the same conclusion, and found that the less the abscess cavity was stirred up after incision the better. He opens by an incision in the iliac region 5 or 6 centimetres long, wipes the pyogenic membrane with dry tampons, does not irrigate the cavity, and drains with a thin tube, which is removed on the second or third day. I have pursued for the last year a somewhat similar method with the most satisfactory results that I have obtained in pyoabscess. The abscess is opened by a small incision inside of and near the anterior superior spine of the ilium. Its contents are emptied, the wound is sometimes irrigated and sometimes not, and it is drained by a tube. The second or third day after the operation, a plaster jacket is applied to the child, and in a day or two more he is placed in a sitting position. At the end of a week or two more, if he is in good condition, he is allowed to walk in moderation. It would, I think, be advisable if the affected leg were fixed in a plaster of Paris spica bandage in a position of extension, as suggested

to me by Dr. Dane, to prevent flexion of the leg and consequent irritation of the muscle. By a large hole cut in the jacket, antiseptic dressings can be applied when necessary. My own experience has not been favorable to the early removal of the drainage tube, but Dollinger's reports seem convincing. A tube seems more satisfactory than gauze, which may merely plug a small opening.

A consideration of the figures to follow will show that recumbency of weeks or of months followed the operation in most cases. Also that death came long after operation as a result of general wearing out. It would seem natural, therefore, to try to discount these results by making the period of recumbency the shortest possible one, and by making the drainage efficient and free from the start. The iliac incision followed by the upright position, thereby making it the dependent point in the abscess cavity, seems best to fulfil these conditions, and it would seem as if the conditions for recovery were better.

After treatment.—With regard to recumbency after operation, in 45 cases where the notes were definite in that regard, the period was as follows: Two to four days, 4 cases; two weeks, 3 cases; two to four weeks, 8 cases; one to two months, 19 cases; two to seven months, 11 cases.

A hectic temperature developed after operation in 22 of the cases; there was no temperature that could be spoken of as hectic in 24; and it was not stated in 8.

Fecal fistula was noted in 4 cases. In all the cases, it was associated with those cases operated upon by the double incision (that is, one in the iliac and one in the lumbar region) and in 3 of the cases where the termination was known it proved fatal; in the fourth case the termination was not known.

Time of death.—In 11 cases where the time of death was known, the period showed very little, except that the majority occurred more than one year after operation. One case died six weeks after operation; 2 cases, six months; 3 cases, one year; 8 cases, one and a half to eight years.

Cause of death.—Nephritis caused death in 5 cases; tuberculosis meningitis in 2 cases, and 1 case died suddenly, without warning, six months after operation, in the Convalescent Home of the hospital. No autopsy was allowed, but it was thought that death was probably caused by a thrombus. In the other cases the cause of death could not be definitely stated.

Mortality.—Of the 19 operative cases, 17 (35%) are known to have died; 26 were alive in the early winter of 1900-1901, and the results were not known in 6 cases. It was thought that the mortality would probably be highest in those cases operated upon prior to 1896, because in these unfavorable results would have had time to develop. Of 20 cases operated upon prior to 1896, 10 died (50%), 6 lived, and in 4 the termination was not known. Of 34 cases operated upon from 1896 to 1900, 9 died (26%), 22 lived and 3 not known. In the group of cases operated upon prior to 1896, the mortality was 50%. These cases would seem to have the right to be considered as late results, as

in no case had less than five years elapsed since operation, whereas, if recent cases only are considered (that is, cases within five years), the mortality per cent. falls to 27.

Functional results.—It is possible to speak of the present condition of 26 of the cases. The sinuses are open in 9 cases and closed in 17. With regard to the general condition of these patients, of the 26 cases, 12 are well; that is to say, the sinuses are closed; they no longer require apparatus; they attend school or are at work, and they suffer practically no disability as the result of the psoas abscess. The general condition may be classed as good in 10 of the other cases. In these cases treatment is going on; they are making good progress; the sinuses are closed in some of them and open in others. The general condition was classed as fair in 3 and as bad in 1.

Other operative methods than incision have not been considered because they have not been used in this particular group of cases.

In children, the aspiration of the contents of the abscess is, of course, not practised as much as is necessary in adults. The aspiration of the abscess contents and filling with iodoform has not found a place in the hospital routine, and although extraordinary results are published by Bruns, Fränkel and others, the operation by incision, after expectant treatment has failed, has been the one regularly done at the hospital. The results, so far as mortality and functional results are concerned, seem to make it appear a justifiable operation not attended with an unreasonably high mortality per cent. in a disease whose mortality per cent. is high without operation.

The practical conclusions of this paper, so far as one can generalize from so small a number of cases, are: That fever is not necessarily an accompaniment of psoas abscess formation; that where it does occur, the prognosis is not so good as where it is absent; that the best method of operation is by a lumbar or an iliac incision, one or the other, and preferably the latter. It seems, on general principles, desirable to avoid recumbency for long periods, which, of course, makes drainage by an iliac incision almost impossible. It seems, therefore, best to put on a plaster jacket almost immediately after operation to enable the patient to sit erect and to enable the abscess to drain almost from the first. In this way the writer has obtained better results than by any other method.

INFANTILE SCORBUTUS.¹

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON,

*Instructor in Diseases of Children, Harvard Medical School;
Assistant Visiting Physician at the City Hospital and at
the Infants' Hospital, Boston.*

DEFINITION.

SCORBUTUS is a constitutional disease associated with imperfect nutrition and due to some prolonged error in diet. It is characterized by anemia and a tendency to hemorrhage.

¹ Read at the Annual Meeting of the Bristol North District Society, April 18, 1901.

Infantile scorbutus has been but comparatively recently recognized. It was first described by English writers, notably by Barlow in 1883. It was brought to the attention of the profession in this country by the admirable paper of Northrup and Crandell in 1894. Since then many cases have been reported. The committee of the American Pediatric Society in 1898 collected 379 cases. Many have been reported since then. It is probable that many cases have not been reported in the last few years, as the interest in the disease has been less active since its more general recognition. While the more marked cases are now usually recognized, the milder cases are still often overlooked and misunderstood. It is uncommon under six months, and rare after two years. About two-thirds of the cases collected by the American Pediatric Society occurred in the last six months of the first year.

ILLUSTRATIVE CASES.

THE following cases illustrate the symptomatology of the disease better, I think, than any detailed description of symptoms, although it may possibly be well to briefly sum up the symptoms later:

CASE I. Eva McK., was born March 8, 1898. When about a week old she had hemorrhages from the gums, genitals and gastro-enteric tract, which were, undoubtedly, due to hemorrhagic disease of the newborn. She recovered and then did well until about the middle of August. She was fed on Horlick's Malted Milk mixed with water. About the middle of August, when six months old, she became "sore all over." Any motion or handling seemed to cause pain. Four or five days later swelling was noticed about the knees and, soon after, about the ankles. Still later, swelling appeared about the wrists and then about the shoulders. For several days before she was seen she had passed a little blood from the bowels. Her mouth began to bleed the day before. She passed but little urine, which was not red.

Physical examination.—She was small and poorly nourished. Pallor was marked. Her expression was that of great fear. There were no teeth. The gums were not swollen or discolored. The hemorrhage came from a slight ulceration in the frenum of the tongue. There was swelling near the sternal ends of both clavicles. There was no depression of the sternum. The heart and lungs were normal. She lay on her back with a slight general kyphosis of the spine. The back was apparently tender. The shoulders were arched, the arms flexed at the elbows and the hands clenched. There was swelling over the upper ends of both humeri and about the shoulder joints. There was also marked swelling over the lower part of the diaphysis of both bones of both forearms. There was no redness or heat. The abdomen showed nothing abnormal. The liver and spleen were normal. The thighs were held flexed at a right angle and the knees at an acute angle. There was no swelling about the upper portions of the femora, but extension at the hips was sharply limited at a right angle. Only a few degrees of motion was possible at the knees. There was marked swelling about the lower ends of both femora, not involving the knee joints. The swellings were not red or hot. There was also marked swelling of the lower portion of the diaphysis of both bones of the right leg, and beginning swelling in the left leg. These swellings were not red or hot. All the swellings were tender. There were no subcutaneous hemorrhages. She was admitted to the Infants' Hospital and promptly recovered under treatment.

CASE II. Helen M., was born December 3d. She never nursed, but was fed on Nestlé's Food for the first

three months. This was changed to Horlick's Malted Milk because of gastro-intestinal disturbance. She continued to take this until she was ten months old, when I first saw her. On this food the dejections were normal and she did not vomit. Early in July, when seven months old, it was noticed that she did not use her legs and that her feet were tender. A few weeks later she began to draw up both knees and soon held them completely flexed. The mouth began to be sore about the first of August. The tenderness in the legs increased steadily, and about the middle of September swelling was noticed in both knees, both ankles and both wrists. I first saw her October 8th, when she was ten months old. She had then been kept on a pillow for several weeks because of the excessive pain which any movement caused. Even bathing had been omitted for the last fortnight. She had been seen by many physicians, most of whom had considered the case "rheumatism," and some of whom had considered it "Pott's disease." All had given an unfavorable prognosis.

Physical examination.—She was fairly developed and somewhat emaciated. The skin was pale and dry. There were a few purpuric spots here and there on the body and extremities. Only the lower edges of the two upper middle incisors were visible, the body of the teeth being covered by the dark-purple, swollen gum. The same condition, but to a less marked degree, was present about the four lower incisors. The heart, lungs and abdomen were normal. She was unable to sit alone, but when supported, the spine showed a marked general kyphosis, greatest in the lower dorsal region. There were no signs of rickets beyond a slight rosary. Both wrists were swollen, the swelling being most marked about the lower epiphysis and diaphysis on each side. They were not tender or painful, and all the motions of the arms were normal. She lay on her back with the thighs flexed on the body and the knees flexed to a right angle on the thighs. There was a marked swelling about the lower epiphysis and diaphysis of the left femur, which was very tender but not hot or red. The same condition was present on the right, but to a less degree. No motion was allowed at the knees. The motions at the hips and ankles were normal. The child cried out in terror when approached, so great was her fear of being touched. She was given a carefully modified, pasteurized milk, and ordered to take the juice of a lemon daily.

In a week she could be moved a good deal without pain. The swelling at both wrists and knees was diminished, the knees were held almost extended, and could be flexed about three-quarters of the normal amount, while the mouth was much improved. In another week she had shed her pillow, was being bathed regularly, held her legs almost extended, and had begun to use them. Motion was completely normal in the right knee and almost normal in the left. The swelling at the knees was almost gone, and that at the wrists entirely so. The mouth was well and she had another tooth. She continued to improve rapidly.

CASE III. Marion S., was nursed about three months. She was then fed on Eskay's Food. As this did not agree, she was put on Mellin's Food with milk. She seemed to do fairly well until about twenty-one months old when she was beginning to walk alone. About that time she fell on the floor, and after this did not use the right side as well as formerly. She soon began to complain when her legs were touched. The tenderness in the legs steadily increased. She soon stopped walking, and later could not sit without support. Then she began to lose the use of the arms and legs. She soon kept the thighs and knees flexed and never extended them. Swelling of the arms and legs developed gradually. About five weeks from the time of the fall the gums began to swell a little, but did not swell much until a few days before she was seen. She had no hemorrhages. She lost much weight. She was first seen when twenty-three months old. At that time she was taking uncooked milk and water, Mellin's Food, Bovine and eggs.

Physical examination.—She was fairly developed and nourished. Her color was fair. The fontanelle not quite closed. She had fourteen teeth. The gums were swollen and purple, especially about the back teeth. She moved her head freely. She was able to sit up without support, but her back was tender. She moved her shoulders and elbows freely. There was marked swelling of the lower part of the diaphysis of both ulnæ and both radii. These swellings were very tender, but not red or hot. She moved the wrists but little. She held the thighs and knees flexed. Extension caused pain but flexion did not. There was no swelling of the joints, but possibly a little about the lower portions of the tibiae. There was slight edema of the feet and lower legs. There were no subcutaneous hemorrhages.

The diet was continued unchanged, but beef juice and orange juice were added to it. A letter was received a week later from the mother, from which the following are extracts: "She does not suffer, but is far from well yet. Her wrists are still swollen, but she can move them any way she wants to. Her gums are better. I can see a little improvement every day. She tries to stand up occasionally, but cannot bear much weight yet. She is happy and plays as she used to. We all think it is wonderful how she started to improve before she had taken the juice of a whole orange."

It would have been difficult for anyone having a knowledge of the disease to have mistaken the diagnosis in these cases. It was less evident, however, in the following one:

CASE IV. John C., was the eight months' old son of a physician, a specialist in diseases of the nervous system. He had always been fed regularly with proper amounts of a modified milk which had been vigorously sterilized, sometimes for several hours. He had always been well, but had taken less food for a month or two and had lost some weight. Two weeks before I saw him he had tumbled over on the bed and was thought to have doubled his legs under him. He cried a good deal for the next twenty-four hours and disliked to have his legs, especially the right, moved. He continued to have more or less pain and tenderness in his legs, and cried vigorously whenever moved. His father had made a probable diagnosis of infantile paralysis.

Physical examination.—He was fairly developed and nourished. The head was large and slightly rachitic in shape. There was a slight rosary and slight enlargement of the epiphyses at the wrists. He had no teeth and the gums were normal. He preferred to lie on his back with his right knee flexed, and cried out when the back or legs were moved, the right leg being the more tender. Passive movements were all normal, however, and the physical examination was otherwise negative. The temperature was, and had been, normal. The case was considered to be one of scurvy and the fall merely a coincidence. He was put on an uncooked, modified milk and given small doses of lemon juice. On account of the tenderness he was put on a Bradford frame, and the right leg put up in a light plaster. As he did not improve much in the course of a week the lemon juice was omitted, and he was given the juice of half an orange daily. The plaster was kicked off nine days later; the next day he was taken off the frame apparently perfectly well.

The delay in the improvement in this case was undoubtedly due to the insufficient size of the doses of lemon juice.

The next case might well have been overlooked, but was undoubtedly scurvy:

CASE V. Robert M., was born about May 1st. From the time he was a month old his digestion was extremely feeble. He was fed on a modified milk, which was both peptonized and pasteurized. He was doing well up to November 1st. He then began to cry out a little when moved. About November 15th his right leg

became very tender and he ceased to use it. Examination showed a little thickening about the lower end of the diaphysis of the right femur. The rest of the physical examination was entirely negative. The peptonization and pasteurization were both stopped, and at the end of a week motions were perfectly free, and there was no tenderness. There was still a little thickening. Orange juice was not given until this time. It was then begun in small doses as a precautionary measure, and continued for several weeks.

The following case is an example of the mildest type of the disease, a form which, I believe, is very common, and which is very often unrecognized:

CASE VI. Catherine L. was born March 12th, several weeks premature. She was fed on a modified, pasteurized milk, but always had a very delicate digestion. In the latter part of November, when about eight months old, she began to cry if any attempt was made to let her sit up unsupported. Her mouth began to be a little sore, and in the course of a week the gums were swollen and purplish about the two lower teeth. She was ordered two teaspoonfuls of orange juice twice a day. The month was entirely well in a week and she could sit up without pain or discomfort.

Various symptoms which were not present in these cases may occur in the severer forms of the disease. Hemorrhages into the skin are not uncommon. They may occur from the gastro-intestinal tract or into the brain. Hemorrhages behind the eye may cause proptosis. Renal hemorrhage occurs occasionally.

SYMPTOMS.

Anemia and malnutrition.—Anemia and malnutrition are probably the earliest symptoms. There is nothing characteristic about them and they alone are not sufficient to warrant the diagnosis of scurvy. Their presence should, however, put one on one's guard.

Pain.—Pain is almost always the first symptom noted. It occurs on motion or on handling and usually not when the baby is quiet. It is not only the first symptom but the most persistent and the most constant. It increases steadily in severity. On account of the pain on motion the children are fearful of being touched. Their expression of abject terror when anyone approaches them is most characteristic. The pain is most often in the legs, next in the back, and next in the arms. As the result of the pain on motion they are unwilling to use their legs and arms. Hence paralysis is often suspected. The extremities are often held rigidly; the legs are usually held flexed at the thighs and at the knees.

Swelling.—As the disease progresses swellings of the limbs appear. These are more common in the lower than in the upper extremities, and more common in the thighs than in the legs. They are usually situated at the ends of the diaphyses and are pyriformal and symmetrical in shape. They are usually tender, sometimes reddened, but never hot. They are due to subperiosteal hemorrhage. If the hemorrhage is extreme, separation of the epiphyses may result. Swellings very rarely occur over other bones than those of the extremities.

Gums.—Swelling, sponginess and ulceration of the gums are very common symptoms, but are

almost always preceded for some time by pains and often by swelling of the extremities. The gums are purple and often hemorrhagic. The picture is that of stomatitis ulcerosa. It was formerly supposed that the gums were not involved unless there were teeth. In about one-half of the cases collected by the American Pediatric Society in which there were no teeth, the gums were, however, involved. In some cases redness and swelling of the gums precede the other symptoms and sometimes are the only manifestation of the disease. The prompt relief of these symptoms when the diet is changed or when orange juice is administered is proof of their scorbutic nature.

Hemorrhages.—Cutaneous hemorrhages are common in the severe cases. Hemorrhages from the nose, stomach and bowels are not very infrequent in the worst cases. Hemorrhage into the orbit may push the eyes forward, causing proptosis. Hemorrhages may also occur in the muscles or in any of the internal organs.

Urine.—Hematuria is a rare symptom, and albuminuria rather infrequent. Nephritis, however, sometimes develops.

Blood.—As already noted, anemia is one of the earliest and most constant symptoms. There is but little data as to the nature of this anemia. What little there is, however, shows that the characteristics are those of secondary anemia or of the anemia of hemorrhage.

Fever.—Fever is not a prominent symptom and is usually absent. When present it is probably due to accidental causes.

PATHOLOGY.

The pathologic lesions have already been mentioned in speaking of the symptomatology. They are briefly: Anemia, hemorrhage and stomatitis ulcerosa. As already detailed, hemorrhage may occur into the skin and mucous membranes and into any of the tissues or internal organs. The most characteristic form of hemorrhage is subperiosteal of the long bones. The femora are most commonly affected. Separation of the epiphyses may occur. Nephritis is an uncommon complication.

DIAGNOSIS.

In general the only thing necessary for the diagnosis of all but the mildest cases is a knowledge of the disease and of its symptomatology. If these are kept in mind it will seldom pass unrecognized. The diseases for which it is most commonly mistaken are rheumatism, purpura, rickets, syphilis, Pott's disease, infantile paralysis and injury.

Rheumatism.—Rheumatism is almost unknown at the age at which scurvy occurs most frequently. It is more commonly accompanied by fever, seldom by hemorrhage and almost never by stomatitis. Swellings are unusual in rheumatism at this age. If present they are in the joints instead of in the diaphyses, are hot and usually red. In case of doubt the quick response to treatment would soon settle the diagnosis.

Purpura.—In very severe cases of purpura the symptoms may be the same as in scorbutus.

In purpura, however, the swelling of the extremities are among the latest symptoms; in scorbutus, among the earliest. In purpura, stomatitis and hemorrhage into the skin and mucous membrane are the earliest symptoms; in scorbutus, among the latest. Mild cases of purpura, on account of sequence of symptoms, could hardly be mistaken for scurvy. The therapeutic test would here also settle the diagnosis conclusively.

Rickets.—The diagnosis between scurvy and rickets is an easy one. If there is any question between the two the condition is almost certainly scurvy. Confusion could hardly arise except on account of swellings of the extremities. Swellings in rickets large enough to cause confusion would certainly be accompanied by a rosary and probably by deformity of the thorax and head. Moreover, they are at the junction of the epiphysis and the diaphysis instead of at the lower end of the diaphysis. They are not accompanied by stomatitis and hemorrhage and seldom by pain.

The diagnosis of scurvy complicating rickets is hardly more difficult. As a rule, pain and tenderness in rickets are due to a complicated scorbutus. The presence of stomatitis ulcerosa, hemorrhages and swellings about the diaphyses makes the diagnosis plain.

Syphilis.—Scorbutus could hardly be mistaken for syphilis. The swellings of syphilis are more chronic, less tender, and at the junction of the diaphysis and epiphyseal line. They are seldom associated with hemorrhage and never with stomatitis ulcerosa. In syphilis, moreover, there may be the history of the disease in the parent or in the past, and other characteristic symptoms are always present.

Pott's disease.—Pott's disease is rare in the first two years of life. The onset is very slow and the pain and tenderness not as extreme as in scurvy. It is not associated with swellings in the extremities, hemorrhage or stomatitis. There is usually a sharper deformity in the spine and often physical signs of tuberculosis elsewhere.

Acute anterior poliomyelitis.—The onset of infantile paralysis is acute and usually febrile. Pain and tenderness are unusual. If present they occur early and continue but a few days. There is no swelling. There is flaccidity instead of spasm. It is never accompanied by hemorrhage or by stomatitis. Muscular atrophy, loss of knee jerks and limitation of the paralysis soon develop.

Injury.—Injury might be suspected if the development of the scurvy was by chance associated with a fall or blow. The presence of other characteristic signs of scurvy should, however, prevent confusion.

Finally, an unaccountable stomatitis, general hyperesthesia and pain on being moved or taken up, especially if they occur in bottle-fed babies, should always arouse the suspicion of scurvy. If these earliest symptoms are recognized many miraculous cures later will be prevented, but the babies will be saved a good deal of unnecessary suffering.

ETIOLOGY.

Race and sex are unimportant. Age is an important factor, the majority of cases occurring in the second six months of life. It is probable that inherited feebleness, previous ill health and improper hygienic surroundings may predispose to the disease. The importance of improper hygienic surroundings cannot be great, however, as the vast majority of cases occur in well-to-do families. There has been much discussion as to the relation between rickets and scurvy. It is probable, however, that there is no real relation between them, although rickets may possibly act as a predisposing cause of scurvy by weakening the general resistance. The tenderness met with in rickets is probably almost always due to a complicating scorbutic condition. Acute rickets is scurvy and not rickets at all.

The chief, if not the sole, cause of infantile scurvy is to be found in the diet. It is difficult to say, however, to what error in diet scurvy is due. The majority of cases arise in babies fed on proprietary foods. On account of the great number of cases in infants fed on proprietary foods prepared without milk, and on account of the rapid recovery in many cases when uncooked milk is given, as well as the rapid response to beef, juice and orange juice, it was supposed that scurvy was due to the lack of "freshness" in the food. As the disease has in several instances arisen in infants fed exclusively on breast milk or on raw milk, and recovery has taken place when the food has been changed from breast milk to sterilized milk and from raw milk to starchy foods, it is evident that lack of "freshness" cannot be the sole causative factor, although it may be an important one. In fact, it seems at present impossible to draw any definite conclusions as to what the element or elements in the food are whose presence or absence causes scurvy, for scurvy has developed on all sorts of foods, seemingly suitable or unsuitable as the case may be, and change of food sometimes from one apparently suitable to one apparently less so has been followed by recovery. It is probable, however, that the faults are either the lack of certain elements in the food necessary for nutrition or their presence in some non-assimilable form. The following conclusions of the Committee of the American Pediatric Society certainly seem within our knowledge. It is doubtful if any more specific ones are justifiable: (1) "The development of the disease follows in each case the prolonged employment of some diet unsuitable to the individual child . . . (2) in general, . . . the farther a food is removed in character from the natural food of the child the more likely its use is to be followed by the development of scurvy."

PROGNOSIS.

Death is not infrequent in unrecognized and untreated cases. Recovery is almost certain with proper treatment if the child is not too much reduced. Improvement is almost immediate, and recovery complete within two or three weeks.

TREATMENT.

The treatment is simple. It consists of regulation of the diet and the administration of orange or lemon juice. Many cases will recover on either method alone, but the combination is far preferable. The diet should be that suitable for the infant of the given age—breast milk, modified cows' milk, beef juice. Modified milk should, unless contra-indicated by complicating conditions, be given uncooked. The juice of a half or of a whole lemon or orange should be given daily. Scorbutic infants almost always take it with avidity. If they do not, they must be made to take it. It almost never disturbs the digestion.

No drug is of the slightest utility in the treatment of this disease. During convalescence iron may be indicated for the anemia. Complicating gastro-enteric disturbance should be treated symptomatically, if necessary.

The tenderness of the back and limbs demands that the infant be kept quiet. In the severer cases recumbency on a Bradford frame or light splints to the affected limbs will afford much relief during the first few days; they are rarely needed longer.

NEURITIS RECURRING AFTER ATROPHY OF BOTH OPTIC NERVES IN A CASE OF BRAIN TUMOR.

BY EDWARD R. WILLIAMS, M.D., BOSTON.

THE patient, a woman twenty-two years old, began to have attacks of headache and vomiting in the autumn of 1897. During the following winter she was compelled to stop work on account of failing sight which was not improved by glasses. In the summer of 1898 she complained of vertigo and numbness of the right side. This dizziness caused her to stagger more or less when she started to walk, but after a few seconds this would disappear. She then sought relief at the eye-clinic of the Boston City Hospital. The hospital records read: "Double optic neuritis. Much swelling of each disc; arteries obscured, veins large and tortuous; typical, macular changes of albuminuric retinitis. Says urine has been examined and pronounced healthy." Since then her memory has failed somewhat.

In August, 1899, she consulted me at the Boston Dispensary. In addition to her rapidly failing vision she presented only obscure anemic symptoms. The heart and kidneys were healthy. Upon examining her eyes the pupils were found equal and responsive to light. Vision in each eye was only sufficient to count fingers at three metres' distance. In the right fundus there was a pronounced atrophy of the papilla, and old hemorrhagic spots in the macula. In the left eye there was a similar degree of optic atrophy, with old hemorrhages about the macula. She said her sight had grown rapidly worse since the beginning of the year. After a period of quiescence, the vomiting and headache recommenced, so that on October 24, 1899, she was admitted to

the City Hospital with a diagnosis of probable brain tumor. At that time an examination of the eyes showed: The pupils equal, regular and responding slightly to light, muscular movements apparently normal. The patient states that she sees nothing with the left eye and with the right only objects held to the extreme temporal side. Heart and kidneys normal. There is no tenderness of extremities, no loss of force in arms and legs and no impairment of sensation.

I examined her eyes two days after admission to the hospital, and found that the atrophy of both discs had increased very materially since my last examination. The veins and arteries had both begun to appear threadlike. The left eye had no perception of light, while the right eye could still discern the movements of the hand only on the temporal side.

The day before her discharge on November 6th I made a second examination. The discs in each eye then showed a still further progress of the atrophy, the color was greenish-white, and both the arteries as well as the veins were reduced to fine, threadlike lines. There was some nystagmus and no perception of light in either eye when tested with the mirror.

During the month spent in the hospital all active symptoms again subsided, and did not reappear till after her return home.

Twelve days after her discharge from the City Hospital her condition was so serious that she was admitted to the Carney Hospital on November 19, 1899. Examination then showed: "Left pupil was much dilated; neither responded to light. No perception of light in either eye. Right neck jerk was absent; sensation was apparently diminished over both legs and body up to waist line; muscular sense impaired; delayed sensation in both arms; mental apathy, which probably accounted for the sensory disturbances." On the following day "the pupils were somewhat contracted but equal, and responded well to the light."

From that time on the woman remained in a semicomatous condition. When questioned it was very difficult to get replies, yet, after a few minutes, she would answer intelligently.

Dr. Kilburn examined her eyes two days before death and reported: "Double optic neuritis; more pronounced in the left eye. The veins were large and tortuous and the swollen discs gave a typical picture of neuritis. The coma increased, and the patient died on November 23, 1899."

The result of the post-mortem examination, performed by Dr. George B. McGrath, follows: "The base presents in the interpeduncular space and impinging upon the optic chiasm, a soft, friable, greyish-pink mass of about the size of a horse chestnut; this mass presses upon but does not invade the second and third cranial nerves. Incision into the lateral ventricles, made through the mesial surfaces of the hemispheres, reveals on the left side anterior portion of the ventricle, a mass, 4 x 3 x 2 centimetres projecting freely into the cavity of the ventricle, apparently originating from the region of the lamina terminalis, on the

anterior part of the corpus callosum; grayish-pink and friable. On the right side a mass of somewhat greater proportions which is continuous with the outer wall of the ventricle and extends backward into the central portion of the ventricle. There is some increase in the intraventricular fluid. Sections 2 centimetres thick, made at a point 15 centimetres posterior to the tip of the frontal lobes reveal a mass of irregular outline measuring 12 centimetres from before backward, 6 centimetres from side to side, and 5 centimetres from top to bottom; occupies the region of the third ventricle, extending slightly into the left lateral ventricle, into the right lateral ventricle, and backwards along the cavity of the latter to a point corresponding with the anterior border of the right pedunculus cerebri. At the level of the optic chiasm the mass, which has a somewhat pyramidal shape, with the base uppermost, extends downward through the interpeduncular space; this extension corresponds with the mass (above noted) seen upon the base of the brain. The mass on the right side anteriorly is continuous with the outer wall of the lateral ventricle, and with the corpus callosum, which latter in this region it seems to replace at about the middle of the brain, and from there backwards, the corpus callosum lies freely above the mass. The cavity of the left lateral ventricle is distended by the mass which compresses surrounding structures; the corpus callosum is pushed towards the left, the corpus striatum and optic thalamus downwards and outwards. The pressure exerted by the growth is still further evidenced in this region by the flattening of the second and third cranial nerves. The mass lies freely in the mid and posterior portions of the right lateral ventricle, and at no point, except in the anterior part of the ventricle, invades surrounding structures."

Among the symptoms in this case there are three points which are especially worthy of consideration: (1) The recurring neuritis following the atrophy of each disc; (2) the similarity in appearance between neuroretinitis caused by brain tumor and a chronic nephritis; (3) the mildness and indefiniteness of all the symptoms, both ocular and general, as compared with the amount of change in the brain.

The double optic neuritis was first discovered about fifteen months before the death of the patient, and when seen, about one year later at the dispensary, the disease had terminated in a moderately well developed optic nerve atrophy in each eye. Finally, this condition changed, again to an active inflammation, so that when the eyes were examined, two days before death, a pronounced neuritis was found, more developed in the left than in the right, but still in an early stage. Recurrence of a neuritis in an atrophied nerve is an extremely rare phenomenon, and I have only been able to find 2 cases reported in the literature. Gowers¹ says that "if a disc has become completely atrophied it is very rarely again the seat of inflammation. In 1 case, how-

ever, of a boy, age twelve (under the care of Dr. Hughlings-Jackson), who had double optic atrophy and absolute blindness due to intracranial disease some years previously, distinct double papillitis occurred in the atrophied discs, associated with symptoms of intracranial tumor. When, however, atrophy is partial or absent, in rare cases 2 attacks of neuritis may occur. In 1 case, for instance, a patient suffered without doubt from a cerebral tubercle, and died from an attack of tubercular meningitis. The former had probably become quiescent, and the neuritis which it caused subsided, leaving partial atrophy. The discs again became swollen and obscured with the symptoms of meningitis." It is interesting to note that in his earlier 1879 edition, Gowers says at the beginning of the corresponding paragraph, "if a disc has become completely atrophied it is *never* again the seat of inflammation, etc."

The only other case of this kind that I have found reported is by de Schweinitz and Thomson.² The patient, a man, first sought relief from attacks of epilepsy which had begun two years before. A cerebral tumor was suspected. At first there were no abnormal ocular symptoms except passive hyperemia of the retinal vessels and infiltration of the lymph sheaths. One year later there was a distinct congestion of both optic discs. When he was examined again, after still another year had elapsed, a well developed optic neuritis was noted. The vision in each eye was normal, as were also the fields for form and color. An attempt was made to relieve the constant headache by trephining the skull, but this gave only temporary relief. Soon after this operation, a progressive optic nerve atrophy commenced, which developed more rapidly in the left than in the right eye. In each macula there was a degeneration which resembled very closely albuminuric retinitis, but the urine was negative. About one year after the operation, the vision in the right eye was still normal, but in the left $\frac{20}{60}$. At that time a very temporary improvement in the circulation of each papilla was noted. The visual fields and color perception remained normal. Soon afterwards the patient began to have a return of the epileptic attacks as well as headaches, after which his sight began to gradually grow dimmer. The last examination of his eyes was made about three months following the final outbreak of active symptoms. The pupils were dilated, did not react to light or accommodation and there was absolute blindness. The papillae were enormously swollen ($+6$ dioptres each eye) and both eyes presented a typical picture of optic neuritis. The central degenerative spots in both maculae were still visible. It is interesting to note that although the papillae were swollen to $+6$ dioptres, the sight did not begin to fail till the subsequent atrophy had commenced.

This case resembles mine in having a neuritis recur after atrophy of both discs, and in the resemblance of the fundus change to retinitis albuminurica.

¹ Medical Ophthalmoscopy, 1896, p. 57.

² Arch. Ophthal., 1895, vol. xxiv, No. 2.

These 3 cases of recurring neuritis must not be confused with another kind which is rather more frequently seen. A second attack of neuritis may occur very rarely in cases of albuminuric retinitis, as noted by Uththaff.³ Gowers⁴ describes a cerebral tumor case in which, after the papillitis subsided, the disc had a normal appearance till shortly before the death of the man, at which time a recurrence of the neuritis was noted. Marked improvement in the patient's general condition accompanied the subsidence of the neuritis.

It is important to note that when this case was first seen at the City Hospital, the changes in the fundi, especially the maculae, were noted as typical of retinitis albuminurica. It is a fact that the same appearance of neuro-retinitis or neuritis may be caused either by brain tumor or chronic interstitial nephritis. Burr⁵ in a recent article, draws attention to the possibility of mistaking the cause of either fundus appearance. He cites a few cases of chronic nephritis, causing simple neuritis, which were considered by the oenologist to be due to brain tumor. Graefe and Semisek⁶ say that a papillitis with or without brain tumor may occur and therefore may exactly resemble a neuritis as seen in brain tumor. Wadsworth⁷ maintains that the same or very similar fundus changes may be seen in cases of leucocythemia, (probable) meningitis, or diabetes. It seems, therefore, that neither is the stellate figure about the macula typical alone of chronic nephritis, nor is the simple neuritis indicative only of brain tumor. A few cases have been reported by Schmidt and Wegner, Bruns, and von Graefe,⁸ in which it was conclusively shown that the ophthalmoscopic picture (although practically identical with that seen in retinitis albuminurica) was caused by a cerebral tumor. There was no renal disease in any one of these cases.

The first one, by Schmidt and Wegner, was a woman of twenty-three years who first complained of headache, vomiting, dizziness and gradually failing sight. The fundus of the left eye showed the papilla swollen and red with indistinct edges. A light gray infiltration lying close to the edge of the papilla and also encroaching on it, covered the vessels in part of their course. There were also white spots characteristically arranged and hemorrhages about the macula. In the right eye the papilla had a clearer edge than in the left, but was of a grayish-red color. The veins were tortuous. Diagnosis: Retinitis albuminurica. No cardiac or renal symptoms present. The swelling from the exudates in each papilla increased and the diagnosis was changed to neuroretinitis in each eye. The vision decreased somewhat during this time. Nasal scotomata were found with the perimeter. No albumin was found in the urine at this time, and the physician under whose charge she had been at first, stated that the repeated tests

for albumin had always been negative. The post-mortem examination showed a gliosarcoma situated in the left lateral ventricle.

The second one, cited by Bruns,⁹ was a man thirty-six years old. There was a neuritis with swollen veins and white spots with hemorrhages distributed all over the retina. It was a typical picture of albuminuric retinitis. No albumin was found in the urine. At the autopsy a tumor of the frontal lobes was found; the kidneys were normal.

The third case was reported by von Graefe.¹⁰ The boy, sixteen years old, was examined by a reliable physician, who made a diagnosis of albuminuric retinitis. A later and more careful examination by von Graefe showed that (1) the white spots were thicker and more confluent about the papilla than in typical Bright's disease; (2) the general swelling of the retinal tissues about the papilla was greater; (3) the papilla showed a steep-sided swelling (although the disc may be involved in Bright's disease, yet it hardly shows, with the ophthalmoscope, a marked swelling); (4) the veins were greatly dilated, tortuous, and the papilla thereby was enormously reddened. There was no albumin and no renal symptoms. The tumor symptoms, in addition to the cardinal ones, included epileptic attacks, noises in the head, finally contractures of the neck muscles and sleepiness. Vischow found at the autopsy a medium-sized myxoma on the posterior border of the convexity of the right hemisphere.

It is surprising to note, in the present case, how indefinite and mild the clinical symptoms were, when one considers the great size of the tumor. A large part of the corpus callosum was totally destroyed, and the apex of the new growth appeared in the interpeduncular space, where it compressed the second and third cranial nerves. The only effect on the third nerve was to irritate it sufficiently to cause a temporary dilatation of the left pupil. There was no paralysis of the eye muscles.

Clinical Department.

A CASE OF ACCIDENTAL INOCULATION OF CANCER IN A FRESH WOUND.

BY A. T. CABOT, M.D., BOSTON,

Surgeon to the Massachusetts General Hospital.

At this time, when the investigation of cancerous disease is being pushed so earnestly, it is important to publish all facts which may throw light upon the etiology of the disease. The following case is presented as an instance of auto-inoculation of cancer. The case has been already published and a description of the operation has been given in a former article. Of this, only so much will be repeated here as is necessary to make plain the evidence proving this to be really a case of auto-inoculation.

³ Uththaff in Norris and Oliver's System, p. 505.

⁴ Med. Ophthal., 1879, p. 267, case 15.

⁵ Philadelphia Medical Journal, 1898, No. 6, p. 254.

⁶ Handbuch, p. 578.

⁷ Boston City Hospital, medical and surgical reports 1877, series II, p. 92.

⁸ Archiv., Bd. xv, 2, S. 253.

⁹ Deutsch. med. Woch., 1892, No. 7.

¹⁰ Archiv., Bd. xii, 2, S. 120.

The patient was a man of fifty-nine, with a cancer high up on the anterior wall of the rectum. An opening was made through a Kraske incision into the rectum posteriorly. The cancer was dragged down into this opening, and removed through it. During this manipulation the cauliflower-like juicy growth was rubbed about in close contact with the wound made by the Kraske operation.

All this occurred in March, 1897. The tumor removed was hardened and subjected to a careful microscopical examination by Dr. J. H. Wright, and was shown to be an adenocarcinoma.

I will at once state that up to this time (January, 1901,) there has been no sign of recurrence of the growth at its original site in the anterior rectal wall. The scar left by its removal is soft and covered by smooth mucous membrane.

Two months after the first operation a second operation was done for the closure of the posterior opening in the rectum. This was effected by refreshing the edges of the opening, and then closing it by layers of buried catgut stitches. The first row approximated the rectal wall, the second drew together the muscles and connective tissue posterior to the rectum, and a final row of silk-worm gut stitches closed the skin. Healing occurred by first intention, and the patient remained well until the summer of 1899.

At this time his physician, Dr. E. H. Stevens, noticed a hardening of the tissues behind the rectum, and I was called and concurred in his belief that a recurrence of the disease had occurred in that situation. On July 14, 1899, I operated for the removal of the mass which was about as large as a hen's egg, flattened in the anteroposterior diameter and extended from the mucous membrane of the rectum, backward, along the sacrum to which it was firmly attached. This mass was cut out with a liberal margin of, seemingly, healthy tissue about it, including so much of the rectal wall as seemed to be attached to it. The mucosa, thus removed, looked healthy. The mass which was removed was sent to Dr. J. H. Wright for examination and his report was as follows:

The specimen consists of a mass of tissue of about the size of a mandarin orange. It is made up of muscle, fat, some bone and an irregular tumor, about the size of a pigeon's egg, to which at one point a small patch of rectal mucous membrane, about 1 cm. in diameter, is adherent. On section, the tumor presents a fibrous, trabecular structure supporting a gelatinous, translucent material. Microscopical examination of a section of the tumor, about 23 mm. in greatest diameter, shows the following:

The main mass of the section is composed of a connective tissue stroma supporting tubules formed of columnar epithelium and small cystic structures lined, in many instances, with a single layer of columnar epithelium. In some instances the epithelium is absent. The cystic structures are regarded as dilated tubules. The largest of them is about 3 mm. in greatest diameter. Most of them, as well as some of the tubular structures, contain a reticulated coagulum which is evidently mucoid in character.

The tubular structures often appear to branch. The usual goblet cells, so characteristic of the mucous membrane of the rectum, are absent from the cells lining these tubules.

The small patch of rectal mucous membrane mentioned above is continuous with the atypical tissue just described, but no transition is apparent between the characteristic tubules of the rectal mucous membrane and the atypical tubules of the new growth, for at one point there is an abrupt change in the character of the tubules.

Diagnosis.—Adenocarcinoma with colloid degeneration.

Since this operation Dr. Stevens has, on two occasions, cut out little bits of hardened tissue in the scar. Microscopical examination in each case showed the bit removed to be only a mass of fibrous tissue. (Keloid.) The scar in which the recurrence took place was separated by an interval of 5 or 6 inches from the original seat of the growth, and the tissues between have remained wholly healthy. This is plainly, therefore, not a case of direct extension of the disease. The lymphatic vessels from the seat of the original disease run upward to the lumbar glands, not downward toward the point of recurrence. This anatomical relation, together with the absence of any lymphatic structure in the recurrent nodule remove any suspicion of this having been a secondary growth in a gland. We are then obliged to believe that this was, indeed, a case of transplantation of cancer. Certainly, the conditions were favorable for this happening as the cancer, torn and squeezed by forceps, was rubbed for several minutes into the fresh wound.

This experience emphasizes the importance of taking great care during the removal of a cancerous growth to go wide of the disease so as to avoid the possibility of inoculation. This is a precaution long observed by many surgeons, but, perhaps, not sufficiently dwelt upon in surgical teaching. It is interesting, also, to note in this case that the antiseptics used to cleanse this wound, which by its contiguity to the rectum was consciously infected, did not suffice to prevent the survival and growth of the cancer elements.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

REGULAR meeting, February 8, 1901, Dr. C. B. PORTER in the chair.

DR. JAMES C. WHITE showed

A CASE OF ICHTHYOSIS IN A BOY FOUR YEARS OLD.

This is a very well developed case indeed, and it is interesting, by contrast with the other series of cases I shall show, as an affection of the epidermis and the papillary layers of the skin which begins in the first year or two of life, and remains permanently through life like those, becoming aggravated as years go on, but never undergoing any secondary changes. The other affection, xeroderma pigmentosum, begins at the same time in life, consists also of epidermal and pigmentary changes, and goes on to most disastrous results, as you know. You will please note the rough, harsh,

shagreen condition of the skin in the ichthyotic patient with the great formation of colored epidermis, an unusual feature in a child at this stage of development of the disease; also that the skin in flexures of the limbs remains normal.

CASES OF XERODERMA PIGMENTOSUM.

This first child is one of the two little sisters whom you have seen before. They have red hair and light eyes. The disease began with them, as is usual, within the first two years of life. This case has been operated upon many times for the removal of keratotic new growths and epitheliomatous transformations upon the face and hands. It is interesting now because she has had eight or ten exposures to Röntgen rays upon the central portion of the face, thus far without apparent effect. The other sister died last summer at Deer Island of the same affection, with tremendous carcinomatous destruction of the face. The hyperpigmentation extends all over the body, but the keratoses and the epitheliomatous transformations are confined to the face and hands in the survivor.

These other two cases of the affection I saw first fifteen years ago. They are dark brunettes of Northern Russia. When I saw this younger boy (now eighteen) he was two years old. The disease had begun with him a few months previously, consisting of very slight freckling. The elder brother, now thirty-two years old, was at that time a well marked example of the three primary changes, namely, the freckling, that is, the pigmentary hypertrophy, the telangiectatic new growth, and the atrophic condition of the skin. They were the only changes that this case had exhibited up to within a year, in which respect this is almost an unparalleled case. Now for the first time, within the last six months, there begins to develop the inevitable change of an epitheliomatous character in the form of a large fungating outgrowth on his side chest.

The younger brother has on his face here and there slight keratoses, but there has been as yet no epitheliomatous transformation, nor does he exhibit to so generalized a degree as his older brother the primary changes. For instance, the pigmentation does not extend below the nipple, whereas it is continuous over the other with much greater development of the telangiectatic new growths and of the atrophic condition which you see, especially on the face and ears.

I have asked these three cases to come in this evening because they illustrate, in the first place, an extraordinarily early development on the part of the little girls, the red-haired children, of the later destructive transformations with a fatal termination in one of them, and a rapid degeneration of tissue in the other, on the one hand, and in the case of the black ones how long they have resisted any tendency to the formation of keratoses and any secondary transformations. In the young man thirty-two years old it is almost unprecedented that the disease has gone so long without any such secondary tissue changes, for the disease does undergo this transformation in all cases,

and a lethal termination is always present; in other words, the prognosis is inevitable.

Now, it seems to me that the progressive process in this affection is wholly militant against the opinion that carcinoma or epithelioma is a parasitic affection. If it be parasitic it is of extraneous origin, because these are not congenital cases, nor do we assume that any such forms of parasitic disease are ever congenital, born with the child that is, and yet we can predict absolutely that eventually these cases are going to develop epithelioma. Now, it is not according to the doctrine of chances that, if this be a parasitic affection, in every one of the hundred cases on record these germs from without are going to be present and strike them. On the other hand, we can predict absolutely that in the child with ichthyosis, which is a very common disease, comparatively speaking, with keratotic tissue changes of the skin there will never be any carcinomatous transformation.

MYXEDEMA.

DR. R. H. FITZ showed a patient whose symptoms and signs were best explained by the diagnosis of myxedema, although in certain respects the course of the disease differs from the generally recognized characteristic features of this malady.

The patient is a shoemaker, forty-one years of age and unmarried. There is no venereal history, but he admits the frequent use of beer, sometimes in large quantities. Before the age of twelve, he had suffered from measles, variola and typhoid fever. Several ribs had been broken and abscesses had been formed in the right side of the neck. He is of powerful build, and has weighed 212 pounds. When twenty years old he could run 220 yards in twenty-five seconds without preparatory training.

Four years ago he noticed that he could no longer work at his trade as rapidly as before, and two years ago gave up his place on account of increasing sluggishness of action. His feet and hands were numb and his legs felt heavy. At this time his friends noticed that his face appeared swollen and his skin was rough. Although his movements were slow and his muscles were easily fatigued, his mind became excitable. He was sensitive to slight draughts of air and sweated easily. During the past eighteen months he has suffered a considerable loss of hair. His weight has diminished about 40 pounds during the past three years.

At present the face appears moderately swollen and its lineaments are largely obliterated. It is pale except over the cheek bones, where are persistent red patches, due to capillary and venous dilatation. The hair is thin and dry and the scalp is partly bald. The eyebrows are unaffected, but the axillary hairs are few. There are no supraclavicular swellings but there are enlarged lymph-glands, some fluctuant in the right side of the neck. There is no appreciable alteration of the thyroid gland. The skin of the arms and legs is cool, dry and scaly, but the sweat gland in the

axillae secrete freely. The nails of both fingers and toes are normal in appearance. The edge of the tongue is indented by the teeth, several of which, especially of the upper jaw, are lacking. The mind seems alert, but speech is slow and deliberate. The pulse is between 50 and 60 beats per minute and the temperature is subnormal. The urine contains a trace of albumin, and the examination of the blood shows a slight degree of anemia. The knee jerks are feeble, cutaneous sensibility is but little disturbed, and the difference between heat and cold is readily recognized.

Two days after his admission to the hospital he became so suspicious of his surroundings, that he left the ward at night and was found by the police wandering about in his night shirt. His delirium resembled that caused by alcohol.

Although the physiognomy of this patient, the sluggishness of speech and action, the loss of hair, the condition of the skin, the slow pulse and subnormal temperature, are indicative of myxedema, the condition of the mind, especially the active delusion and the sweating, is unusual. Despite these deviations from the type of the disease, the diagnosis is strengthened by the rapid improvement that is following the use of thyroid extract.

DR. ARTHUR T. CABOT showed the

PHOTOGRAPH OF AN ARTIFICIAL ANUS FOLLOWING
A KRASKE'S OPERATION FOR CANCER OF THE
RECTUM.

The patient, a middle-aged woman, had been operated upon a year ago for an extensive malignant tumor of the rectum. Five or six inches of the lower part of the bowel was removed, and the end was brought out at the side of the sacrum where the coccyx had been cut away. The patient now has almost perfect control of the bowels. The opening is small, just admitting the forefinger, and the finger introduced into this opening as it reaches the back of the uterus passes through a narrow place in the bowel and is grasped as by a sphincter. This narrow point is easily passed by the finger, but it seems as if some of the circular fibres of the bowel had taken on more or less sphincter action.

The case was introduced to show how satisfactory the final results accomplished by this operation may be. It might be expected, and is usually supposed, that an artificial opening of this sort would be extremely troublesome, but that it is not necessarily so, this case attests.

DR. ARTHUR T. CABOT reported an observation on the

INOCULATION OF CANCER IN A FRESH WOUND.¹

DR. H. F. VICKERY showed a

CASE OF ELEPHANTIASIS.

The first case is one of elephantiasis of moderate degree in a mulatto woman who was born in South Carolina, and was seventeen years old when she entered the wards last September. She came in on account of symptoms which were eas-

ily explained by a marked chlorosis which she had, the hemoglobin being only 50% of normal; but the object of interest to us was her right leg, below the knee and including part of the foot. The leg was symmetrically enlarged; the hair follicles somewhat farther apart than on the normal leg, and the hairs rather more luxuriant. The enlargement was apparently due to hypertrophy of the skin and the subjacent connective tissue. The x-ray showed no difference in the bones. The case was seen by Dr. Bowen for the department of the skin, and Drs. Walton and Lord representing the nervous room. Dr. Bowen thought that it was a sort of elephantiasis. The nervous specialists did not think that it belonged in their department.

True elephantiasis of tropical origin is due to the presence of the filaria sanguinis nocturna, although the filaria cannot, as a rule, be found in the general circulation in these cases, being confined by the choking up of the lymph glands of the diseased part with the eggs of the filaria. Repeatedly the blood of this patient was examined day and night, both from the leg and from other parts, but no filaria was discovered. Different from ordinary elephantiasis, again, is the fact that she never had any erysipelatos attacks in the leg. This leg measured the same size as both her thighs, nearly 41 centimetres.

TRICHINOSIS.

I should like to speak briefly of 2 cases of trichinosis: 1 that occurred in my own service, and another later in that of Dr. Shattuck, which I report by his permission. The interest of my own case was the degree of fever, which reached 104° F., associated with a slow pulse and an enlarged spleen just as in typhoid. The pulse ranged from 100 to 105. This patient came in in typhoid fever times, the 6th of September. A man, twenty-two, born in Boston and fond of eating pork. The story was that two weeks before entrance he began to notice soreness in the muscles of the arm and leg so that it pained him to bend them; the joints were not affected. Soon he began to feel tired; sleep did him no good. Contrary to what might have been expected in trichinosis, there had been no vomiting or diarrhea. His face was somewhat puffy when he entered. The diagnosis was not made until the blood was examined, when the presence of an immense number of eosinophiles at once put us on the right track. A piece of the gastrocnemius being removed displayed the trichinae, not calcified, lying in a somewhat inflamed tissue. The number of white cells at one count was 25,000, and of these 29% were eosinophiles compared with perhaps 2% to 4% as the normal maximum.

Dr. Shattuck's case of trichinosis was in a young woman from Ireland, twenty-three years old, who had only been in this country two and a half months. A week before entrance the muscles of the arms and legs became sore; there was no swelling or redness of joints; she felt weak; the bowels were constipated; she vomited every day.

¹ See page 471 of the Journal.

She had a moderate fever of about 102° F. and the same characteristic blood count. Trichinae were found in the muscle. One thing was noticed in her case which is said to be characteristic of the disease, a marked variation in the number of eosinophiles. On the 17th of November there were 23%; on the 19th only 7%; on the 22d there were 37%. At the time when they were reduced to 7% the white corpuscles were also reduced in total number down to 10,000; so that if we are unfortunate enough to hit just a certain time, even with trichinosis present, there may be a very moderate eosinophilia. This case presented no enlargement of the spleen.

DR. WHITE: It seems to me, Mr. Chairman, that the first case is one rather of false than true elephantiasis due to the presence of filaria. The occurrence in the early stages of the latter of attacks of erysipelas-like dermatitis is almost constant, and I was not aware until the reader so stated that this filaria is found as far north as South Carolina. These sporadic cases which occur in northern regions are looked upon rather as non-parasitic, and are called false elephantiasis on that account, due to some condition of the lymph vessels, not a mechanical stoppage by the filaria, but to other processes which lead to precisely the same results.

DR. J. W. ELLIOT demonstrated a

CASE OF STONE IN THE URETER LOCATED BY THE X-RAY.

The patient is a woman, married, thirty years old; had been operated on in 1898 by Dr. Harrington for gallstones; again in 1899 for stricture of the pylorus; and again for adhesions about the stomach. Sixteen days before entrance she had a severe attack of pain in the right kidney region extending down in the leg, requiring a grain of morphia. The next day she passed bright red blood in the urine. Since then several similar attacks of pain; with each attack bright red blood came in the urine. The urine showed a slight amount of albumin, was brownish in color; the sediment contained pus and blood. The attack she had here was very severe. She was evidently losing ground rapidly, and the operation was done at once in spite of her poor condition, on account of the collapse which was evidently due to some disturbance of the kidneys.

The x-ray showed a stone in the right ureter just above the crest of the ilium. It was a very useful shadow for the patient, in that, although I knew the stone must be in the ureter because the blood was so bright, yet I could not have located it at all; should have been obliged to strip up the ureter to find the stone, in fact, I could not have been sure it was not in the kidney. I found the stone exactly as it appeared in the skiagraph. I exposed the kidney and ureter by a curved incision in the loin, retracted the peritonium and the abdominal contents toward the median line. The ureter was seen much enlarged for a distance of two inches below the kidney. At the lower extremity of this enlargement I felt the

stone and easily removed it, closing the ureter with several fine silk stitches. The stitches have held well, and there has been no leakage of urine through the wound.

According to Leonard, 6 cases of stone have been located in the ureter by the x-ray. He states that it is very valuable and very accurate when the proper technique is used, and that a negative shadow is also of great value, and, certainly, when I felt this stone, it was so exactly where the x-ray showed it, that I made very little further search, trusting to the x-ray, as it had been so plain and so accurate I did not put a sound down the ureter as I should otherwise have done. That saved getting urine into the wound. I did, however, feel of the kidney and pelvis of the kidney very carefully, because one naturally expects to find other stones in the kidney, but nothing was felt.

PROSTATECTOMY BY THE COMBINED METHOD.
(ALEXANDER.)

These are fragments of a prostate from the prostatic urethra removed by a comparatively new method, the combined method, as described by Dr. Alexander, of New York. This was a chronic prostatic patient who was sixty-eight years old. He had had to pass his water four or five times at night for three or four years and came in with retention. Since his retention, has passed his water every half hour. On examination by rectum the enlarged prostate appeared to be rather low down, the disease seemed to be principally in the region of the prostatic urethra, there being no large lateral lobes extending up beside the bladder, so that I thought it was a case particularly adapted to this method. The method is that you open the bladder by a suprapubic opening, put one or two fingers in, push the prostate down, then you make a perineal opening, by an external urethrotomy, opening up to the prostate, lower end; then, by bearing one hand down from above, pass the other hand in through the perineal opening and begin to shell it out.

The urethral opening in the bladder was surrounded by a very thick, round, hard, raised ring, so that there was a deep "bas fond" of the bladder. Putting my hand inside to push that down I felt that the prostate was wholly in the prostatic urethra, and I shelled out first one side and then the other, and tore it away from the prostatic urethra without opening the bladder at all and without opening the prostatic urethra at all. At the end of the operation I felt satisfied that I had removed all of the prostate and that there could be no further obstruction to the flow of the urine.

DR. ELLIOT, in answer to a question by Dr. Harrington in regard to his impression of the ease or difficulty of the Alexander operation, said: "I got a favorable impression of the operation itself." Every one who has done the operation likes the mechanical part of it. The question is, whether the mortality will be high. Dr. Alexander has reported 32 cases with 3 deaths, I think. In one year I did 8 cases of suprapubic prosta-

tectomy with 1 death. But the Alexander operation seems to me a much better operation, much more complete. I felt I got all of the prostate out. In all those other operations done by the suprapubic method I could not get down into the prostatic urethra far enough so that I felt that I had cleaned out all the prostatic enlargement. In this case there was not a bit of the obstruction left anywhere. Dr. Alexander does the operation very quickly. It seems to me wise to take plenty of time as it is not a long operation. There was not much hemorrhage, no more than in the ordinary perineal section. What surprised me was, that I got out the entire prostate without opening the bladder. The prostatic urethra was not injured.

Dr. ARTHUR T. CABOT said that in the only case of stone in the middle portion of the ureter for which he had operated, long before the x-rays were used for the detection of these calculi, the location of the stone was easily and exactly made out by the point of greatest tenderness. The patient in his case had suffered extremely from pain, having been kept under ether for twenty-four hours before Dr. Cabot saw him, with but short intervals of consciousness. He said that in that case he did not sew up the ureter and yet the wound healed quickly without trouble. He expressed a fear that in sewing up the ureter, especially when silk was used for that purpose, there was a danger, in case the slightest leakage of the urine occurred, that the stitches would act as a nucleus for stone formation, and considering the fact that longitudinal incisions in ducts of this sort heal readily without suturing, it seemed to him perhaps better not to apply stitches.

Dr. ELLIOT: I did not intend to put any of my stitches into the mucous membrane of the ureter. The ureter was pretty thick and very easy to sew. I might have got some in, but did not intend to put them in.

One interesting thing in this plate was that when it was fresh you could see the shadow of the ureter for about an inch and a half above the stone and you could not see any other part of the ureter. I thought there might be a deposit of lime, but found none. I do not know now why there was a shadow of the ureter just above that.

Dr. JACKSON exhibited some x-ray plates of multiple calculi of the right kidney. The patient, a man of twenty-five, had been operated on five years ago by Mr. Bennet, of London, and a large calculus removed from the right kidney, the nature of which is not known. Two years ago symptoms of calculus returned and an x-ray plate showed four stones very distinctly. From Professor Wood's analysis of the urine it was evident that a marked pyelitis was present, and it was decided that the calculi were in all probability made up of urates which would correspond with the results obtained by the x-ray. The case is interesting also on account of the good results obtained by medication. For a year the patient had diuretics of various kinds without any effect either on his symptoms or the calculi. He then took lyceol

(Bayer), 5 grains 3 times a day for six months. Within three months the symptoms and pain had disappeared and the pyelitis had nearly cleared up. At the end of six months the x-ray showed that two stones had disappeared. The dose of lyceol was then diminished to 5 grains once a day, which was continued for about six months longer. The last x-ray plate showed a very faint shadow where one of the stones had been. The patient feels perfectly well and the urine is now practically normal.

(To be continued.)

Medical Progress.

REPORT ON PROGRESS OF SURGERY.

BY HERBERT L. BURFELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

(Continued from No. 19, p. 454.)

THE ILEOCECAL ORIFICE AND ITS BEARING ON CHRONIC CONSTIPATION, WITH REPORT OF TWO CASES RELIEVED BY OPERATION.

WILLIAM J. MAYO¹⁸ has operated upon 2 cases, excising a portion of the cecum, after the Heineke-Mikulicz pyloroplasty, making a considerable increase in the size of the aperture between the ileum and cecum. The literature bearing on this subject as to the function of the ileocecal valve is not large, and Mayo believes that one of the many functions of the ileocecal opening is to prevent the too rapid emptying of the small bowel and to maintain some pressure against peristalsis until the process of small bowel digestion is properly completed. His operation is a suggestive one, and it is possible that it might be practicable in selected cases.

RESULTS OF RADICAL OPERATION FOR CANCER OF THE RECTUM.

Kröschlein¹⁴ has investigated a series of 881 cases of excision of the rectum in order to ascertain: (1) The rate of mortality; (2) the recurrence facts; (3) the functional result, incontinence. Eighty per cent. are reported curative. In 14% it is stated to be permanent. The best functional results are obtained when the resected gut is fixed at its normal site and the sphincter and anus are preserved. The perineal method is suitable in some cases. The sacral is best suited for high seated cancer.

Kraske states that he has obtained satisfactory results in 120 cases by the sacral method. Also that the combined abdominal sacral method is a more radical one. The abdomen is opened, the superior hemorrhoidal artery is tied in order to permit a bloodless section of the peritoneal cavity of the bowel. The mesocolon and mesorectum with their glands are removed. The usual sacral operation is then done.

Hoehenegg emphasized the necessity of preservation of the sphincter if incontinence is to be avoided. He recommends denuding the retained

¹⁸ *Annals of Surgery*, September, 1900, p. 264.

¹⁴ *Verhandl. d. Deutsch. Gesellsch. f. Chir.*, cxix, Congress.

anal segment of its mucous membrane and anchoring the proximal segment of the bowel in its grasp.

Wölfler attributes the failure to avoid incontinence to the disturbed innervation of the tissues involved in the operation.

OMENTAL FIXATION FOR RELIEF OF ASCITES FROM HEPATIC CIRRHOSIS.

M. M. Kusnetzow has attempted to ascertain how far the blood circulation in the region of the portal vessels is improved by newly formed adhesion in the abdominal cavity and by omental fixation, and in what manner the portal vessels anastomose with the inferior vena cava. In dogs he found by injection the following anastomoses: (1) Numerous anastomoses between the veins of the stomach wall which empty into the superior gastric vein and those which empty into the large vein along the greater curvature; (2) a direct connection between the vena gastro duodenalis and duodeno-jejunalis. Also an anastomosis between these two and the portal vein trunk through the pancreatic veins; (3) anastomoses between the neighboring veins which on one side open into the large, on the other into the small mesenteric veins.

These anastomoses permit the passage of the blood in case of ligation of the portal vein from the portion below to that above a ligation of the portal vein.

In his experiments Kusnetzow fully ligated the peripheral branches of the portal vein: (1) The superior mesenteric vein; (2) the inferior mesenteric vein; (3) the different branches of the same simultaneously. Also he ligated the trunk of the portal vein either fully or so that its lumen was diminished one-half to one-third. Each dog was operated upon two to three times. At the first operation the abdomen was opened and the omental fixation made. At the second a mesenteric vein or the peripheral portion of the portal vein was ligated. At the third the main trunk of the portal vein near the liver was ligated. Of fifteen dogs one died. Some were killed and examined one to three months after the operation, and the injected veins examined. The conclusions formed from the conditions found have convinced Kusnetzow that the treatment of ascites due to impeded portal circulation by omental fixation can give good results: (1) That Talma's operation is preferable to De la gérnière's since it gives better conditions for the collateral circulation; (2) that without previous omental fixation complete ligation of the portal vein rapidly causes death; (3) that omental fixation enables animals to bear a double ligation of the portal vein; namely, a complete one in its middle part (above the entrance of the gastrolienalis) and an incomplete one near its entrance to the liver; (4) complete ligation below the vena gastrolienalis caused death in a few hours even after previous omental fixation; (5) the incomplete ligation of the portal vein in its middle portion caused stasis ascites and bloody diarrhea which was transitory

as in 3; (6) the superficial epigastric veins dilate markedly after omental fixation resembling the "caput medusæ" seen with hepatic cirrhosis.

Also the veins of the great omentum soon communicate with the veins of the abdominal wall and the superficial epigastric vessels. Then the blood flows from the portal vein through the gastrolienalis into the omental veins, then into the epigastrics, the femorals, intercostals and mammary vessels. Also a direct anastomosis between the portal system and the inferior vena cava is formed by the dilatation of previously existing very small vessels showing that there is normally a slight communication between the portal system and the vena cava as Sappé has stated. This is best shown by injecting the vena cava and the portal vein with different colored injection. Adhesions and connective tissue bands formed in the abdomen after laparotomies contain many small vessels which can serve to form anastomoses between the vena cava and the portal vein. In case of ligation of the portal vein one should consider the normal anastomoses between the different branches of the portal vein which facilitate the formation of new blood channels. The details of the experiments are not given in the report at hand,¹⁵ which is a preliminary one.

It is unfortunately not stated if the above conclusions are based on the venous anatomy of dogs or in the human venous system. Further reports on this subject will be awaited with interest.

WHEN SHALL WE OPERATE IN CHOLELITHIASIS?

Kocher,¹⁶ in answering this question, says: The indication is given by the recurrence of gallstone colic attacks, which show the presence of multiple calculi or of one that is so large that it cannot pass through the bile ducts, or can do so only with great injury to them, or, finally, where a newly-formed calculus is passed. When any of these indications are present we should not wait until secondary changes have occurred, and inflammation, with its sequelæ and even perforation, may have taken place, or malignant degeneration has occurred; then recovery is seldom seen.

Is intervention indicated in cases where recovery from the attack is probable and there are no complications? He believes that operation gives the best chance, and is indicated. Simple cholecystotomy is rapidly recovered from, and with perfect technique there is no great danger, and not nearly as much as from the complications that arise from a further development of the disease or the presence of infection. The early operation may remove a great number of calculi, and the ten days required for operation and recovery are well spared when compared with the consequences of repeated attacks.

The ideal cholecystotomy consists in exposing the gall bladder, opening it, and removing all calculi. It should then be immediately sutured and returned to the abdomen. Such an operation requires absolute asepsis and a perfect suture. The

¹⁵ *Contrib. f. Chir.*, 1901, Bd. xxviii, S. 105.

¹⁶ *Correspondenzbl. f. Schweiz. Aerzte*, April 1, 1900; *American Journal of the Medical Sciences*, August, 1900.

best suture this author believes to be silk. It is inserted only in the wall of the bladder and does not enter the cavity, so the danger of its forming nuclei for other calculi is entirely avoided.

Kocher has performed this operation six times during the winter semester. All the patients recovered, without rise of temperature, in eight days, and were sent home in two weeks' time. This illustrates the simplicity of operation at this early period as soon as the diagnosis is established and before complications have rendered the intervention more hazardous.

He does not believe that any form of medical treatment can remove these calculi or prevent the patient from having recurrent attacks until the calculi are removed. Recurrence is not probable after all the calculi are removed, but the patient should be put upon a regulated diet, with the end in view of preventing the formation of other calculi.

OPERATIVE TREATMENT OF ACUTE HEMORRHAGIC PANCREATITIS.

Hahn¹⁷ rejects in all cases where this lesion is the probable diagnosis the present commonly employed "symptomatic" and "expectant" treatment. Also all radical, extensive or severe operative treatment. He recommends only a small incision below the navel in the median line to remove the exudation and for drainage.

He gives as characteristic symptoms the sudden, unusually severe epigastric pain, violent eructations, biliary vomiting, constipation, distension, especially epigastric, tenderness, severe collapse, (cool extremities, face, etc.), subnormal temperature, pulse increased even to 160. Death in four or five days. In all his cases these symptoms were more or less pronounced.

PANCREATIC SURGERY.

Ceccherelli¹⁸ summarizes his views on pancreatic surgery under the following headings:

(1) Surgical operations on the pancreas are involved directly in all the questions regarding the functions of this gland.

(2) The loss of flesh, the presence of fat in the feces, sugar in the urine, bronze discoloration of the skin, icterus and pains, are the symptoms which accompany the majority of pancreatic disorders.

(3) Considerable difficulty is encountered in performing complete extirpation. The anatomical conditions are unfavorable; the organ is deeply situated and intimately connected to other viscera. It is very rich in blood vessels and nerves, and secretes an important digestive ferment.

(4) The surgery of the pancreas has not kept pace with the advance in other fields of abdominal surgery. The diagnosis of these conditions is difficult, and is generally arrived at too late for successful operation. It has been shown, however, that operations on the extremity of the pancreas are more often indicated than upon the head.

(5) Although experimentation has shown that

animals live after complete extirpation, clinical experience has not as yet confirmed this result. Cases are usually malignant and die from the disease before the effect of the operation in removing the pancreas can be noted. In other conditions partial operations are indicated, and should leave behind one of the canals if its outlet can be preserved.

(6) The tumors most frequently found in the pancreas are cystic, hematic due to traumatism or apoplexy, or retention or hydatid cysts. In these cases intervention is justifiable, but removal of the sac is all that is necessary. In operating, if possible, the wall of the sac should be sutured into the abdominal wound, or, if impossible, the suturing of the cavity should preclude infection of the peritoneum.

(7) Calculi of the pancreas can be readily extracted.

(8) In necrosis the necrosed portion should be removed.

(9) In suppurative or gangrenous pancreatitis the acute period should be left alone. In case of abscess of the pancreas the entrance can be either lumbar, extraperitoneal, or transpleural, or through the median line above the umbilicus. It is sometimes necessary to remove a portion of the necrosed pancreas.

(10) Chronic pancreatitis may constrict the ductus choledochus or the pylorus. The operation is then not on the pancreas, but to relieve the constrictions.

(11) Hernia and wounds are treated on general principles. A displaced pancreas may be sutured in position. Injuries of the ducts or their occlusion may require the formation of a new duct or a pancreatic fistula.

(12) Sutures through the substance of the pancreas do not interfere with its function. In suturing the canals the sutures should be close together and should not enter its lumen.

(13) In removing the pancreas the ligatures should be applied before the incisions are made, to prevent hemorrhage.

(To be continued.)

Recent Literature.

Tuberculosis as a Disease of the Masses and How to Combat It. By S. A. Knorr, M.D. New York: M. Firestack. 1901.

In presenting to the public the translation of his prize essay upon "Tuberculosis as a Disease of the Masses and How to Combat It," written for the Berlin International Congress in May, 1899, Doctor Knorr has added another valuable work to the literature upon the subject.

With a full knowledge of the subject, especially of the sanatorium treatment of phthisis, he has succeeded in making a concise, yet thorough work, which is instructive not only to the practising physician but to the laity as well.

¹⁷ Wien, med. Presse, 1900, lxxi, 8, 2, 391.

¹⁸ Thirtieth International Medical Congress Resume, Paris, August, 1900.

The fact that the essay was awarded the prize among eighty-one competitors, after three trials, the judgment being given finally by Doctors Fränkel, Gerhardt, Harms, Köhler and Pannwitz, would in itself speak for the value of the work. The reader will, we believe, think this decision justified.

In his "Preface to the English Translation," the author speaks of certain necessary changes which have to be made in his suggestions to suit the different social conditions existing in Germany and America. He cites the fact that while in Germany every laboring man and woman must be insured against old age, accident and disease, including tuberculosis, and the employer is held responsible for compliance with this law, no such law exists in America, where no insurance company will insure a tuberculous person.

In America, moreover, each State has its own sanitary laws, while in Germany there is one homogeneous law for the whole country, a national institution, which is a consummation devoutly to be wished for in the United States.

It would be impossible here to review in detail the different chapters. Suffice it to say that the author, while believing thoroughly in the communicability of the disease, yet holds a conservative and rational view of the dangers of infection where certain simple, but rigid precautions are taken.

There are excellent words of advice in the matter of hygiene, methods of dress, gymnastics, etc.

The author touches but lightly in this work upon the subject of sanatorium treatment, having gone exhaustively into these matters in previous works, but gives a few short, well-illustrated chapters of the steady growth of this modern method of treatment, and also of the comparatively simple methods of fresh air treatment in the homes of the poor when removal to a sanatorium is impossible.

Doctor Knopf has on many occasions strongly emphasized the necessity of model tenement houses for poor people and of the importance of legislation preventing the erection of any unsanitary buildings for this purpose. In this work he also emphasizes these ideas in connection with the suggestions for the establishment of various kinds of institutions for the reception of tuberculous patients.

In his closing chapter the author speaks of these suggestions as follows: (1) Centrally located reception hospitals and dispensaries for the treatment of ambulant tuberculous patients whose admission to a sanatorium is impracticable for any cause; (2) one or several city sanatoria located in the outskirts where purer air can be obtained as a temporary sojourn for patients before being sent to a mountain sanatorium and where advanced cases could be retained; (3) one or more mountain sanatoria for the incipient cases; (4) seaside sanatoria for children with scrofulous or tuberculous tendencies; (5) maternity sanatoria where tuberculous mothers could be instructed in matters of hygiene for themselves and their children.

The essay has several excellent illustrations and will make a valuable addition to any physician's library.

Chronic Urethritis of Gonococcic Origin. By J. DE KEERSMAECKER, Chief of Service, Diseases of the Urinary Organs at the Centraalkliniek, of Antwerp, and J. VERHOOGEN, Agrégé at the University of Brussels; Chief of Service, Diseases of the Urinary Organs at the Polyclinique Libre. Translated and edited, with notes, by LUDWIG WEISS, M.D., Attending Physician to the Genito-Urinary and Skin Service, German Poliklinik; Dermatologist to the Hebrew Orphan Asylum, New York, etc. New York: William Wood & Co. 1901.

This is a book of 251 pages and a sufficient index. The pages contain a good many conventional illustrations, chiefly of the instruments used in the treatment of chronic urethritis, and they also contain 15 colored figures illustrating normal and pathological conditions of the male urethra as seen through the endoscopic tube. Oberlander's preface to the original edition of the book (1897) as well as the translator's short preface to the present volume precedes the text proper, which is divided into three parts. The first of these is devoted to the anatomy and pathology of the male urethra, the second to diagnosis, and the third to the treatment of the disease to which the book is for the most part devoted.

The volume is a very complete résumé of our present-day knowledge of the diagnosis and treatment of chronic gonorrheal urethritis in the male. It is very clearly and carefully written, and the completeness with which each little detail of treatment is considered, makes the book of real practical value to any one who wishes to embark upon a study of this disease. With the editor's motive in translating the book we cannot, however, feel in sympathy. He says in his preface that "he feels that his attempt to make urethroscopy available to the general practitioner, and acquaint his American confrères with so useful a department of our science, may not be in vain." If our experience counts for anything, a little knowledge of urethroscopy is indeed a dangerous thing. A proper skill in the use of the urethroscope is to be obtained only by those who have constant and exceptional opportunities for acquainting themselves with it and with the disease in the diagnosis and treatment of which it can be so useful. Such opportunities, and the leisure to take advantage of them, must rarely present themselves to the general practitioner of medicine, and the wisdom of encouraging him to acquire an inadequate knowledge of and skill in the use of the urethroscope, may very properly be questioned.

Towards the end of the volume the editor has added a chapter entitled Chronic Gonorrhea and Marriage, in which he takes sides with those who believe that the gonococcus is the sole responsible cause of the disease. He concludes the chapter as follows: "We take the stand that we will give permission to marry to those having had gonor-

rhea, when, after repeated and careful microscopic examinations of slide specimens and exhaustive bacteriologic and microscopic investigation of the threads and the secretions of the prostate and seminal vesicles, done under the strictest rules and with the aid of Gram's method, the presence of gonococci cannot be demonstrated."

The History of Medicine in the United States. A collection of facts and documents relating to the history of medical science in this country, from the earliest English colonization to the year 1800; with a supplemental chapter on the discovery of anesthesia. By FRANCIS RANDOLPH PACKARD, M.D. Octavo, 526 pp. Philadelphia and London: J. B. Lippincott Company, 1901.

This is a timely and acceptable book. The author, as he states in the preface, has produced a work which has occupied many years in preparation, and has "truly been a labor of love." The interest it will arouse may not be general, but it will, most certainly, appeal to that growing body of physicians who are interested in the history of the development of their profession. At this period of the somewhat endless multiplication of medical books on so-called practical branches of medicine, it is a pleasure to take up a book which apparently has been written for no ulterior end.

The author has traced the history of medicine in America from the earliest days of English colonization down to the year 1800, with a supplementary chapter on the discovery of anesthesia. The task has, no doubt, been a difficult one, and the author has done well to draw liberally in the way of quotations on various original sources, supplying himself an explanatory commentary. This method gives a certain quaintness to the text, and detracts nothing from the clearness of the exposition. An added interest is given by numerous illustrations, chiefly of physicians of distinction who made the history of medicine in the eighteenth century.

Although the author makes no mention of his intentions for the future, we trust he will see fit to supplement this admirable volume by another which will cover the vast development of medical science in the nineteenth century. The historical retrospect should not be lacking, now that a new century is fairly started on its way.

The book is appropriately bound and excellently printed, and contains a list of the chief authorities consulted and a good index. The volume is most creditable, both to author and publisher.

BIRTHS AND DEATHS IN PHILADELPHIA.—It is stated that a recent report to the Philadelphia Board of Health showed that in the preceding week and in the last year there were more deaths than births in the city. During the week it is reported that there were 413 births and 565 deaths, and during the last year 10,013 births and 10,510 deaths.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, MAY 16, 1901.

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ANOTHER ALLEGED CAUSE OF CANCER.

The recent announcement, widely heralded in the newspapers, that the cause of cancer has been discovered to be a protozoon, as the result of work done in the New York State Pathological Laboratory, has attracted the attention of medical men on account of the high character of that institution.

The official statement concerning this work, published by the Director of the Laboratory as a leading article in the May number of the *American Journal of Medical Sciences*, offers us an opportunity of estimating the merits of this alleged discovery.

We have read and reread this article with painstaking care and attention. We find the matter illogically and disconnectedly arranged, and the text abounding in paragraphs in which observation, inference and unjustified assumption are confused to such an extent as to render a scientific analysis difficult. The article shows a lack of that objectiveness which we look for in a scientific paper and a tendency to make facts harmonize with theory.

The author states that he has found large numbers of parasites which he calls protozoa in "all the organs, including the blood taken from all regions of all cases dying of cancer, including sarcoma and epithelioma," and also in the peritoneal fluid, in the organs and the blood of animals injected with carcinomatous material. He claims that he has seen this organism project pseudo-podia, and he has satisfied himself that it goes through a life cycle which ends with the formation of a sac-like body containing granules which he regards as spores. He also claims that he has found what he regards as the younger forms of these organisms in the peripheral blood in all cases of carcinoma and sarcoma examined by him in which cachexia was well marked.

We have carefully searched through this publication for some refutation of the obvious objection that the objects seen by the author and regarded by him as parasites are not simply more or less degenerated cells and products of cell degeneration, but we have found nothing that is satisfactory. The only objective evidence offered upon this point is the statement made in several places that the bodies are not fat, because they fail to give the reaction to fat. Another objection to the correctness of these results is the lack of proof by cultures.

Although the fact of cultivation of these hypothetical organisms is of the greatest importance for the justification of the author's belief that he has to deal with a parasite, he withholds, apparently, for a later publication, the description of the results of his culture experiments, merely offering the statements that he has succeeded in cultivating them "with comparative regularity, directly from cancer, from fluids which were in contact with cancer and from experimental animals," and that "the medium which has thus far given us the best results is that recommended by Celli for the cultivation of *amœbæ*, *fœcus crispus bouillon*." Until some objective description of the results of these culture experiments is at hand we decline to assign any value to these statements in their bearing upon the question of parasites in carcinoma.

In brief, we cannot accept the conclusions and views of the author as above outlined; indeed, unsupported as they are by anything else than subjective evidence, they seem to us to be unworthy of serious consideration.

The reported results of the injection of a number of animals in various ways "with peritoneal fluid from cases of abdominal carcinosis, fluid from the interior of malignant ovarian cysts, sterile cancer, and dried sterile cancer and lymph-nodes rubbed up with salt solution," as also with what the author calls *pure cultures* of the organism, challenge attention.

That the author means by the term "culture" in this connection a growth of his assumed organism on a medium outside of the animal body is open to doubt, as will be apparent from the following quotation: "It will be shown from these experiments that animals are readily infected when inoculated with carcinomatous material, as well as *pure cultures* of the organism. The peritoneal fluid used in all of these inoculations was bacteriologically sterile and consisted essentially of a *pure culture*¹ of the organism." This statement clearly means that cultures in the usual sense of the term were not used for the inoculation of any of the animals.

It appears that of the experimental animals, of which there were a considerable number, all, with the exception of one or two which were killed purposely, died after a variable length of time, often weeks and months, with emaciation, enlargement of the peritoneal lymphatic glands and of the spleen, and a small amount of fluid in the peritoneal cavity. Among these animals were three guinea pigs and two rabbits, which had been injected in the jugular with carcinomatous peritoneal fluid, and in whose lungs were minute disseminated tumors which the author found on microscopical examination to be multiple beginning foci of adeno-carcinoma. Also a dog, similarly treated, was found to present a lipoma of the spleen the size of a hazel nut, while one guinea pig, in the author's words, "presents a condition of the lungs and liver which I wish to interpret as primary carcinoma of those organs." Whether this last-mentioned guinea pig is one of the three guinea pigs previously mentioned, the author does not make clear.

These observations of a tumor formation in five or six of the experimental animals are important, if true. In only one of the animals are the microscopical appearances of the tumors objectively described. In this animal, from the author's description and from the photographs, we are convinced that true adenomatous neoplasms were present in the lungs. As to the nature of the conditions in the other four or five animals, we have only the author's interpretation and judgment. Because the contents of the paper as a whole do not inspire us with confidence in the author's interpretation of histological facts, we cannot accept his judgment on these cases of tumor formations as true without further objective statements.

If we believe that the author is not mistaken in his diagnosis of the conditions in these four or five animals, we must consider these tumor formations to be the result of the injection of the carcinomatous material, for the number of instances is then too large for their presence to be explained as the result of coincidence or spontaneous development. We thus arrive at a result which is altogether at variance with the results of trustworthy workers who have experimented upon animals with material derived from malignant disease in man.

The effects reported of the other experimental animals are of interest as indicating the poisonous character of the material injected into them, but they do not show that they are due to a parasite in this material, for, as before stated, we cannot accept the author's conclusions that he has seen parasites in the tissues and body fluids of these animals.

In our opinion, the publication of this article is to be regretted, not only because it will tend to spread through the profession and the community

¹ The italics are ours.

ideas concerning the nature of cancer which are not supported by facts, but also because the palpable technical defects of the article will tend to bring scientific medicine in America into disrepute.

A MUNICIPAL HOSPITAL FOR PULMONARY TUBERCULOSIS.

A public hearing before the Joint Committee upon Finance of the Boston Board of Aldermen and the Common Council upon the question of the construction of a Municipal Hospital for Consumptives, held at the aldermanic chamber last Tuesday evening, brought forth evidence of deep interest in this community in regard to this important matter. No less than eighteen physicians and laymen appeared and spoke in behalf of municipal care of consumptives in the city of Boston.

The first speaker, Dr. F. I. Knight, explained in a general way the needs which exist of a hospital for patients suffering from tuberculosis, outlined the scope of its possible usefulness and emphasized the large percentage of deaths due to consumption. He was followed by Dr. V. Y. Bowditch, who described the methods employed at the State Hospital at Rutland, and offered to the committee suggestions as to the probable expense of a municipal hospital adapted to similar purposes in the city of Boston. He especially advocated provision for chronic cases.

Dr. A. K. Stone heartily favored hospital treatment for tuberculosis on the grounds that such treatment enables the patient to be much better cared for than he can be in his own home, that his removal from home permits possible wage-earners in his family who are hindered from securing a livelihood by their necessitated attendance upon him, to earn their living and so to avoid pauperism, and, finally, because the segregation of the infected individual tends to prevent the spread of the disease by contagion.

Dr. Robert B. Howard advocated other provisions for the treatment of advanced cases than now exist, on account of the fact that many persons suffering from tuberculosis find it a great hardship to enter the charitable institutions, which, alone, among the hospitals at the present time, receive such cases.

In speaking of the expense of construction, Dr. Howard expressed the opinion that a hospital within the fire limits would cost about \$2,000 a bed; buildings could, in his judgment, be erected outside the limits for a much less outlay.

Mr. J. H. Gallivan, street commissioner, who was interested in the founding of the Rutland Hospital, referred to the overcrowded condition of that institution and to the impossibility of its

caring for any considerable proportion of the cases of tuberculosis now existing in Boston. He warmly supported any project in the direction of a municipal institution for the treatment of consumption.

The next speaker, Dr. W. H. Prescott, referred to his experience with tuberculosis in Boston in connection with work upon a Dispensary District, and at the Long Island and the Deer Island Hospitals. He has observed that tuberculous patients in the last two mentioned institutions do well in spite of their proximity to salt water. He believed, both from a medical and from an economical standpoint, that some plan should be formulated whereby consumptives may have an asylum.

Dr. T. J. Reardon referred to the great prevalence of tuberculosis in Boston and to the decimation of families which it has effected, expressing the belief that our climatic conditions favor the spread of the disease.

Dr. H. C. Ernst favored the attempt to provide for the needs of tuberculous patients among the poor of the city, and suggested as a possible and suitable location for a hospital a tract of land in Jamaica Plain, overlooking the Arnold Arboretum.

In behalf of educational methods in the treatment of tuberculosis, Dr. Agnes E. Viator, advocated small hospitals in various parts of the city which might stand in the same relation to the special hygiene of tuberculosis that the municipal bathhouses hold to general hygiene.

Dr. George Burgess McGrath spoke briefly of the work done by the Long Island Hospital in the care and treatment of tuberculosis, and of the results which have been obtained by the methods there employed. This hospital, which is upon one of the larger islands in the harbor, is one of the few institutions in which tuberculosis is treated at practically sea-level and in close proximity to salt water. The patients of this hospital have the advantages of about a square mile of territory, including nearly three miles of sea-beach, abundance of fresh air and sunshine, immunity from dust, and a geographical position which affords an attractive outlook and many means of diversion. Notwithstanding the hitherto inadequate parietal resources of the institution, 23% of the 160 cases of phthisis treated in the hospital during the year ending April first were discharged "well" or with the disease "arrested."

Dr. E. O. Otis, urged that the poor of our city should be protected from tuberculosis, and emphasized the fact that at the present time there is no municipal institution in which they may obtain treatment for the disease without receiving the stigma of pauperism.

Drs. Donoghue, Allen, Badger and Perry followed Dr. Otis, each giving some account of his

own experience with tuberculosis in connection with his Dispensary District work.

The Rev. Mr. George, of South Boston, the last speaker, strongly advocated tenement-house improvement and emphasized the crying need of better sanitation and hygiene in the homes of the poorer classes.

Councilman O'Toole then summed up the case for the petitioners, and the hearing was declared closed, the committee taking the matter under advisement.

This question of sanatoria and hospitals for those afflicted with pulmonary tuberculosis, is demanding constant and increasing attention, and we shall have to revert to it not infrequently—doubtless in connection with this very petition. Assent to the general proposition involved is more easy than agreement upon the details for its practical application.

MEDICAL NOTES.

A FIELD HOSPITAL AT THE PAN-AMERICAN EXPOSITION.—Captain Edward L. Munson, U. S. A., has been selected to represent the medical department of the Army at the Pan-American Exposition at Buffalo. He will have charge of an exhibit consisting of a model field hospital, and will be in command of a detachment of thirty soldiers, who will give daily demonstrations of transportation of wounded, first aid on the firing line and field surgery, and the establishment and management of field hospitals.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—It is announced that the dates of the next meeting of the Mississippi Valley Medical Association have been changed from the 10th, 11th and 12th of September, to the 12th, 13th and 14th of September. This change has been made necessary because the dates first selected conflicted with another large association meeting at the same place.

PROPOSED STATE SANATORIUM FOR TUBERCULOSIS IN MINNESOTA.—The Minnesota Legislature has established a commission to report concerning the advisability of a State Sanatorium for Consumptives.

MEETING OF THE AMERICAN MEDICAL EDITORS' ASSOCIATION.—The annual business meeting of the American Medical Editors' Association will be held in St. Paul, Monday, June 3, 1901.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, May 15, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 80, scarlatina 31, measles 139, typhoid fever 7.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending May 11th was 238, as against 203 the corresponding week last year, showing an increase of 35 deaths, and making the death rate for the week 22.1. Consumption 24, pneumonia 36, whooping cough, 0, heart disease 22, bronchitis 10, marasmus 3. There were 11 deaths from violent causes.

FURTHER OPPOSITION TO CHRISTIAN SCIENCE.

—The elderly man who has been living during the winter in a tent in an outlying portion of Boston, presumably for the treatment of tuberculosis, is said to be gaining adherents to his doctrines, whatever these may be. If the following statement from a daily paper be true, they are, at least, sound in certain details: "At the same time with consumptives he wishes to treat people suffering from any disease which Christian Science has tried to cure and failed. He will take any such case—providing it is not surgical or contagious—and produce, by purely scientific methods, the same results that Christian Science sometimes produces; in other words, he will cure without medicine and without faith. He believes that Christian Science is spreading too rapidly, not only in this country but also abroad, and that its influence is pernicious, particularly in the disregard of contagious disease and the blessings of antitoxin which it teaches. Therefore, he says that he wishes to disprove its theories by cold scientific proof."

WORCESTER, MASS., MORTALITY REPORT.—The mortality report of Worcester, for March, 1901, gives the number of deaths, 189, as against 169 for March, 1900. It is of interest to note that 50 deaths, or 26.45% of the whole number were caused by pneumonia.

PATHOLOGIST TO THE CARNEY HOSPITAL.—We understand the position of pathologist to the Carney Hospital is now vacant.

NEW YORK.

LAW REGARDING DISPOSAL OF GARBAGE UNCONSTITUTIONAL.—On May 10th the Appellate Division of the Supreme Court, in a suit brought by the Sanitary Utilization Company, upheld a judgment of the special term which declared unconstitutional the law which was passed by the legislature in April, 1900, without the acceptance of the city, amending Section 1,212 of the Greater New York charter. The section, as amended, made it unlawful to carry on, in Manhattan Borough, "bone boiling, bone burning, bone grinding, horse skinning, cow skinning, or the skinning of dead animals, or the boiling of offal," and made it also unlawful to carry on in the borough of Brooklyn the "rendering or treat-

ing with steam or boiling of garbage, swill or offal." It furthermore made it the duty of the Board of Health to cause the discontinuance of such business. The action was brought to restrain the Health Department from taking any steps to enforce against the company any of these provisions. The site of the company's plant on Barren Island was selected by the late Col. George E. Waring, Jr., when street cleaning commissioner, and the expense of erecting buildings and appliances was over \$500,000. Within three months after the expiration of the contract then made, the city, by its terms, may acquire the plant at a price fixed by appraisal. The amount of garbage disposed of under the contract is stated by the company to be 900 tons a day during the year, and amounted to over 1,500 tons a day during the summer months. The case was before the court on demurrer to the complaint, and the judgment below sustaining the demurrer is now upheld.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—At the ninety-fifth annual session of the Medical Society of the State of New York, held at Albany, N. Y., January 29, 30 and 31, 1901, it was moved and unanimously adopted that, in order to increase the facilities for becoming permanent members of the society, each county society should be allowed to send five times the number of delegates it had formerly sent to the State society. These delegates are elected for a term of three years, and are eligible for permanent membership if they register twice during that time. This will make the number of delegates from county societies 750 in all, or one delegate for every eight or nine members of county societies, without increase of expense to the county societies. It was further agreed, in response to a widely expressed desire, that the society hold a semi-annual meeting in the city of New York in the early autumn, to be devoted entirely to scientific work and social intercourse.

MORTALITY STATISTICS OF NEW YORK.—The mortality of the city reported for the month of April represents an annual death rate of 20.67, against 21.39 in March and 24.26 in April of last year. As compared with March, the weekly average of deaths from pneumonia declined from 201 to 166.75; from influenza, from 27 to 17.5; from phthisis, from 179.75 to 177.5; from bronchitis, from 49.5 to 42.25; from diseases of the urinary system, from 129.25 to 124; and from diphtheria and croup, from 52 to 49.5. The weekly average of deaths from cancer increased from 18.5 to 51.25; from typhoid fever, from 9.5 to 11.25; from whooping cough, from 4.25 to 5.5; from scarlet fever, from 34.75 to 43.75; from measles, from 6.5 to 8.75; and from smallpox, from 8 to 9.25.

RESIGNATION OF DR. ROGER S. TRACY.—Dr. Roger S. Tracy, who has been in the service of the Board of Health for nearly thirty-one years, and who built up the system of recording vital statistics now in vogue and which has been followed by other cities here and abroad, resigned from the department on May 1st. He was first appointed registrar of records under the presidency of J. C. Bayles, and retained the position until 1892. From 1892 to 1895 he served as deputy registrar, and was then made registrar again. Dr. Tracy, in addition to numerous contributions to scientific publications, has written a work on "Physiology and Hygiene," and a "Handbook of Sanitary Information for Householders." He expects to travel for a time and to devote himself to literary work.

ACTION AGAINST CHRISTIAN SCIENTISTS.—The New Jersey Grand Council of the Royal Arcanum, representing 117 chapters in the State, in session at Trenton on May 7th, adopted a resolution to the effect that all persons who, when ill, reject, refuse or neglect the aid of medical science, are a very dangerous risk from an insurance standpoint, and that hereafter they shall not be eligible to membership in the order, unless agreeing or contracting to obtain or submit to such aid when ill, under penalty of forfeiture of insurance.

USE OF INTOXICANTS NOT A REASON FOR REFUSING LETTERS OF ADMINISTRATION.—Surrogate Petty, of Suffolk County, N. Y., has recently decided that the fact that a woman who has for some years been at times addicted to the excessive use of intoxicating liquors, is not a sufficient reason to refuse her letters of administration on the estate of her husband. In the case in which the decision was rendered, the application for letters of administration was opposed by the three adult children of the deceased.

SPREAD OF SMALLPOX.—In the first six days of May 135 cases of smallpox were reported, while during the entire month of April the number of cases amounted to but 139. The disease seems to be now well disseminated in all the boroughs of the city. On May 9th a policeman was attacked by smallpox and, on account of this, an order was issued by the head of the department that the entire police force should at once be vaccinated.

REQUESTS TO HOSPITALS.—Under the will of the late Joel Friedman the Montefiore Hospital for Chronic Diseases receives a bequest of \$1,500 and the Mount Sinai and Beth Israel Hospitals each \$1,000.

DECISION AGAINST NEW YORK UNIVERSITY.—One step in the litigation which has been in progress for years between the New York University

and the medical college laboratory and the Loomis Laboratory has been terminated. Judge Truax of the Supreme Court gave decisions by which the medical school property on East Twenty-Sixth Street and its contents, valued at \$150,000, is to be transferred by the New York University back to the medical college laboratory.

APPOINTMENT OF DR. L. EMMETT HOLT.—At the monthly meeting of the Trustees of Columbia University, held May 6th, Dr. L. Emmett Holt was appointed Clinical Professor of the Diseases of Children in the Medical Department.

AN EMERGENCY HOSPITAL ESTABLISHED BY WOMEN.—On May 5th, an Emergency Hospital established by women, with twenty-five beds and a well-equipped operating room, was opened in the old Gardner mansion at Union Hill, N. J.

BEQUEST TO FOUNDLING ASYLUM.—Among the charitable bequests of the late Mrs. Nathalie Reynal is one of \$5,000 to the New York Foundling Asylum.

Correspondence.

SHALL IT BE SUNLIGHT OR SLEEP FOR CHILDREN? WHICH IS THE MORE EFFECTIVE AGENT FOR GENERAL HEALTH?

Boston, May 1, 1901.

MR. EDITOR:—I have recently passed through an experience that may prove of some value in answering the above questions. You know how prevalent the opinion is among those who have the means to enable them to take the best care of their children, that they should be put to bed in the middle of the day and sleep an hour or two. We have tried most thoroughly this system with our two children, continuing it until they arrived at the ages of two and one-half and three and three-quarters, respectively. They were very healthy children naturally, but we were constantly obliged to have medical attendance for them, and at one time they had serious difficulty with their ears, requiring surgical operations. Although they slept an hour or two, it kept them in-doors the best portion of the day. Between dressing and undressing, lunch and sleeping, there were six months in the year when they got, practically, very little sunlight, and what they did get was of very little consequence, it being so early in the morning or so late in the afternoon.

About six months ago we ceased putting them to bed and let them play out-doors all day long, and immediately we saw an improvement. Since then they have constantly gained until now they are as robust as any children could well be. Although one swallow does not make a summer, two swallows are twice as near to it, and our experience with these two children seems to me to go far towards proving that sunlight is one of the most effective agents for preserving the health of any living creature.

Nobody can over-estimate the value to health of sleep, but does the child get more sleep in the twenty-four hours by being put to sleep in the middle of the day? Our experience proved to us that this was not the case. For though our children slept an hour and a half during the day, they lost from one-half to three-quarters of an hour in getting to sleep in the evening, and woke an hour earlier than now in the morning.

Very truly yours,

E. G.

METEOROLOGICAL RECORD.

For the week ending May 4th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Barometer. Daily mean.	Thermometer. Maximum. Minimum.	Relative humidity. 8.00 A.M. 8.00 P.M.	Direction of wind. 8.00 A.M. 8.00 P.M.	Velocity of wind. 8.00 A.M. 8.00 P.M.	Wet bulb. 8.00 A.M. 8.00 P.M.	Rainfall in inches.
S...28	30.47	46 55	38 32	48 40	N W S E	15 4	C. C. .0
M...29	30.28	55 41	75 42	33 34	N W S E	12 4	C. C. .16
T...30	30.65	61 61	81 58	33 34	N W S E	12 8	C. C. .12
W...1	29.96	46 51	42 39	82 86	N W S E	9 9	C. C. .29
T...2	29.74	46 53	38 85	86 86	N W S E	12 13	O. O. .01
F...3	29.68	50 54	46 69	12 56	N W S E	18 18	O. O. .82
S...4	29.87	52 62	42 30	48 39	N W S E	20 9	C. C. .0
Mean	30.01	50 61		60			

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 4, 1901.

CITIES.	Estimated population.	Repeated deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Cer. spinal meningitis.	Diphtheria and croup.	
New York.	3,487,392	1,245	436	26.26	13.65	3.06	.40	3.61	
Chicago.	1,698,575	—	—	—	—	—	—	—	
Philadelphia.	1,293,697	—	—	—	—	—	—	—	
St. Louis.	575,238	—	—	—	—	—	—	—	
Baltimore.	568,387	188	53	19.15	8.94	—	1.06	.51	
Cleveland.	381,768	—	—	—	—	—	—	—	
Buffalo.	352,387	—	—	—	—	—	—	—	
Cincinnati.	325,902	—	—	—	—	—	—	—	
Pittsburg.	321,616	138	49	23.91	14.92	.72	—	.72	
Washington.	278,718	—	—	—	—	—	—	—	
Milwaukee.	285,315	—	—	—	—	—	—	—	
Providence.	175,897	67	15	22.08	17.90	—	—	2.58	
Boston.	569,892	234	55	25.64	18.37	3.84	.42	—	
Worcester.	118,421	27	16	7.40	7.40	3.70	3.70	—	
Fall River.	104,863	—	—	—	—	—	—	—	
Lowell.	94,969	35	12	11.43	14.28	—	2.85	—	
Cambridge.	91,886	24	8	33.33	8.33	—	—	4.16	
Lynn.	68,513	23	5	21.75	4.35	—	8.70	—	
Lawrence.	62,559	14	5	14.28	7.14	—	—	—	
New Bedford.	62,442	15	4	26.67	—	—	—	6.67	
Springfield.	52,659	39	3	25.00	5.00	—	—	—	
Somerville.	61,643	17	3	5.88	17.64	—	—	—	
Holyoke.	45,712	9	3	—	22.22	—	—	—	
Brookton.	40,063	6	1	40.00	—	—	—	—	
Haverhill.	37,175	11	1	45.45	—	—	—	—	
Salem.	35,966	—	—	—	—	—	—	—	
Chelsea.	34,072	9	4	11.11	—	—	—	11.11	
Malden.	33,664	10	4	20.00	—	—	—	20.00	
Newport.	32,687	8	2	—	—	—	—	—	
Fitchburg.	31,531	11	3	27.27	—	—	—	—	
Taunton.	31,036	4	1	50.00	—	—	—	—	
Gloicester.	26,121	4	1	50.00	—	—	—	—	
Everett.	24,836	1	1	42.84	—	—	—	14.28	
North Adams.	24,200	10	2	36.00	10.00	—	—	10.00	
Quincy.	23,899	8	1	12.50	12.50	—	—	—	
Waltham.	23,481	1	1	10.00	—	—	—	—	
Pittsfield.	21,676	12	—	—	—	—	—	—	
Brookline.	19,935	1	—	—	—	—	—	—	
Chicopee.	19,167	5	2	40.00	—	—	—	—	
Medford.	18,244	4	1	25.00	25.00	—	—	—	
Newburyport.	17,478	4	1	25.00	—	—	—	—	
Melrose.	12,962	—	—	—	—	—	—	—	

Deaths reported 2,182; under five years of age 702; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 502, acute lung diseases 282, consumption 270, diphtheria and croup 60, diarrheal diseases 56, scarlet fever 50, influenza 3, erysipelas 12, typhoid fever 29, whooping cough 14, measles 12, cerebro-spinal meningitis 13, smallpox 10.

From whooping cough, New York 6, Pittsburg 5, Providence 1, Boston 2. From cerebro-spinal meningitis, New

York 5, Baltimore 2, Lynn 2, Boston, Worcester, Lowell and Cambridge 1 each. From scarlet fever, New York 38, Pittsburg 1, Boston 9, Worcester 1, Revere 1, From typhoid fever, New York 11, Baltimore 1, Pittsburg 12, Boston 3, Haverhill 1, Newburyport 1. From erysipelas, New York 4, Baltimore 3, Providence 1, Boston 3, Chicopee 1. From smallpox, New York 10.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,589,000, for the week ending April 20th, the death rate was 18.4. Deaths reported, 4,159: acute diseases of the respiratory organs (London), 374, whooping cough 108, diphtheria 39, measles 117, fever 27, scarlet fever 20.

The death rate ranged from 10.8, in Burnley, to 25.4, in Wolverhampton; Birkenhead 19.2, Birmingham 21.6, Blackburn 19.5, Bolton 19.4, Bradford 16.1, Brighton 15.0, Bristol 18.4, Cardiff 12.3, Croydon 13.5, Derby 17.1, Gateshead 22.3, Halifax 11.2, Huddersfield 14.8, Hull 18.0, Leeds 20.3, Leicester 16.2, Liverpool 22.9, London 17.5, Manchester 22.7, Newcastle-on-Tyne 20.4, Norwich 16.6, Nottingham 23.7, Oldham 14.4, Plymouth 13.1, Portsmouth 19.1, Preston 18.2, Salford 18.7, Sheffield 21.9, Sunderland 22.0, Swansea 20.4, West Ham 11.9.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, WEEK ENDED MAY 11, 1901.

J. S. TAYLOR, assistant surgeon, detached from the *Manila*, and ordered to the Naval Hospital, Yokohama, Japan.
F. L. BENTON, assistant surgeon, detached from the *Naval Hospital*, Yokohama, and ordered to duty on the *Asiatic Station*.

E. Z. DERR, medical director, detached from the *Naval Academy*, and ordered home to wait orders.

F. W. F. WEBER, surgeon detached from the *Naval Station*, San Juan, and ordered to the *Naval Academy*.

C. H. T. LOWDES, surgeon, detached from the *Lancaster*, May 11th, and ordered to the *Naval Station*, San Juan, P. R.

E. S. BOBERT, passed assistant surgeon, ordered to the *Lancaster*, May 11th.

L. W. CURTIS, surgeon, detached from the *Vermont*, May 11th, and ordered home and to be in readiness for sea duty.

G. P. KRELL, surgeon, ordered to the *Vermont*, May 11th.

C. F. STOKES, surgeon, detached from the *Asiatic Station*, and ordered home via mail steamer.

SOCIETY NOTICES.

AMERICAN DERMATOLOGICAL ASSOCIATION.—The twenty-fifth annual meeting of the American Dermatological Association will be held in Chicago, May 30 and 31 and June 1, 1901.

MASSACHUSETTS MEDICAL SOCIETY.—The annual meeting of the Massachusetts Medical Society will be held at 9:30 A.M., Wednesday, June 12, 1901, in Chickering Hall, on Huntington Avenue, near Massachusetts Avenue, Boston. Meetings of Sections will be held in the Medical Library, 8 The Fenway, on the preceding day, Tuesday, June 11th.

RECENT DEATH.

IRVING C. ROSSE, M.D., of Washington, died in that city on May 3d, at the age of fifty-four years. He was graduated from the medical department of the University of Maryland in the class of 1895. He served in the medical corps of the United States Army during the Civil War and later. He was a member of the American Medical Association, of the Medical Society of the District of Columbia, of the American Anthropometric Society, of the American Neurological Association, and of the New York Medical-Legal Society. He was a frequent contributor to medical literature, especially in the line of neurology and psychiatry.

BOOKS AND PAMPHLETS RECEIVED.

Circular No. 3. War Department. Surgeon General's Office. Reprint. 1901.

A Plan for the Study of Man. By Arthur Macdonald, Washington, D. C. Reprint. 1901.

Zur Behandlung des Pyothorax. Von Prof. Dr. Carl Beck, New York. Illustrated. Reprint. 1898.

Ueber Tendinitis und Tendovaginitis proliferans calcarea. Von Carl Beck, New York. Illustrated. Reprint.

Ueber die Bedeutung der Röntgenstrahlen bei der Spinalhämia. Von Prof. Dr. Carl Beck in New York. Reprint. 1898.

Mauclair (Paris), Antogreffes sous-cutanées des ovaires après salpingo-ovariectomie. (XIIe Congrès de médecine. Section de gynécologie.) Reprint. 1900.

Points of Practical Interest in Gynecology. By H. MacNaughton-Jones, M.D., M.Ch., Q. C. U. I. Reprint. Illustrated. New York: William Wood & Co. 1900.

Handbuch der Physikalischen Therapie. By Dr. A. Goldscheider and Dr. Paul Jacob. Teil I, Band I. Illustrated. Leipzig: Verlag von Georg Thieme. 1901.

Uterine Fibromyomata. Their Pathology, Diagnosis and Treatment. By E. Stanmore Bishop, F.R.C.S. (Eng.) Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

XIIIe Congrès International de Médecine. Du Traitement des rétro-déviationes utérines par le raccourcissement intrapéritonéal des ligaments ronds. Par Le Docteur Czeslaw Stankiewicz. Paris. Reprint. 1900.

Eczema With an Analysis of Eight Thousand Cases of the Disease. By L. Duncan Bulkley, A.M., M.D. Third edition of Eczema and its Management, entirely rewritten. New York & London: G. P. Putnam's Sons. 1901.

Atlas and Epitome of Labor and Operative Obstetrics. By Dr. Oscar Schaeffer. Authorized translation from the fifth revised German edition. Edited by J. Clifton Edgar, A.M., M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

A Textbook of the Practice of Medicine. By Dr. Hermann Eichhorst. Authorized translation from the German. Edited by Augustus A. Eshner, M.D. Illustrated. Vols. I and II. Philadelphia and London: W. B. Saunders & Co. 1901.

Atlas and Epitome of Ophthalmoscopic Diagnosis. By Prof. D. O. Haab, of Zurich. Authorized translation from third revised German edition. Edited by G. E. De Schweinitz, A.M., M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

Essentials of the Diseases of Children Arranged in the Form of Questions and Answers Prepared Especially for Students of Medicine. By William M. Powell, M.D. Third edition, thoroughly revised by Alfred Hand, A.B., M.D. Philadelphia and London: W. B. Saunders & Co. 1901.

Anatomical Atlas of Obstetrics With Special Reference to Diagnosis and Treatment. By Dr. Oscar Schaeffer. Authorized translation from the second revised German edition. Edited by J. Clifton Edgar, A.M., M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

Endothelioma of the Gasserian Ganglion. Two Successive Resections of the Ganglion: First, by the Extracranial (Hartley-Krause) Operation, and secondly, by an Intracranial Operation. By F. X. Bertram, A.M., M.D., W. W. Keen, M.D., L.L.D., and Wm. G. Spiller, M.D., Philadelphia. Reprint. Illustrated. 1900.

Atlas of the Nervous System. Including an Epitome of the Anatomy, Pathology and Treatment. By Dr. Christfried Jakob. With a preface by Prof. Dr. Ad. S. Strümpell. Authorized translation from second revised German edition. Edited by Edward D. Fisher, M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

A System of Practical Therapeutics. Edited by Hobart Amory Hare, M.D. Second edition, revised and largely rewritten. Vol. II. Fevers, Diseases of the Respiratory and Circulatory Systems, Diseases of the Digestive System and Kidneys, Nervous Diseases and Diseases of the Skin. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Hernia (Rupture). Its Etiology, Strangulation, Treatment and Radical Cure by Electro-Cathartic, Chemical Hypodermic and Surgical Methods. By Samuel H. Linn, M.D., Rochester, N. Y., University of Pennsylvania, Class of 1877; Academy of Natural Sciences, Philadelphia, Pa.; Monroe County Medical Society; Medical and Surgical College, St. Petersburg, Russia, etc. Reprint. Illustrated. 1901.

Peripheral Resection of Fifth Nerve. Three Cases with Microscopic Examination of the Portion of the Nerve Removed and Report on the Later Condition of Patients. By W. W. Keen, M.D., L.L.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, and Wm. G. Spiller, M.D., Professor of Diseases of the Nervous System in the Philadelphia Polyclinic, Associate in the Pepper Clinical Laboratory, University of Pennsylvania, Philadelphia. Reprint. Illustrated. 1900.

Original Article.

MUNICIPAL CARE OF THE CONSUMPTIVE POOR.¹

BY S. A. KNOPE, M.D., NEW YORK.

My first duty is to thank your distinguished president and the members of the Suffolk District Medical Society for the great honor you have conferred upon me by the invitation to address you this evening. For a stranger to be invited to read a paper before a medical body is always an honor; for a New Yorker to be invited by an audience of medical men of the great city of Boston, which, I think, should not only be called the Athens of America but also the American Athens of Medical Science, is an unusually great honor, and I wish to express to you my deep appreciation of it.

Boston was the cradle of anesthesia, the greatest blessing which was bestowed on mankind during the past century. It was here that the three great immortals of modern medicine, Bowditch, Holmes and Bigelow, gave to the world their wisdom and the experience of a long life's work, worthy of an Athenian of old. On the very subject about which I am going to speak, you, the sons, friends and pupils of these great modern teachers, have given to the rest of the American physicians, sanitarians and statesmen an example in the modern way of caring for, treating and curing the consumptive poor and those of moderate means. Your Sharon Sanatorium was the first of its kind to demonstrate the truth of a most important maxim in modern phthisiotherapy, namely, that the hygienic and dietetic treatment of pulmonary tuberculosis can be carried out with satisfactory results everywhere where the extremes of temperature are not too pronounced, and where there is relatively pure air and the condition of the soil and general environments are sanitary; also, that special climatic advantages, while a valuable adjuvant in phthisiotherapeutics, are no longer considered essential to the successful treatment of consumption. You all know of the excellent work this institution has done under the able directorship of Dr. Vincent Y. Bowditch; you are familiar with its results; but you may not know as well as I what a valuable lesson this work of Boston physicians has been to the rest of us. You have done the pioneer work in this direction, and in one of your neighboring towns an ingenious physician, Dr. C. S. Millett, of Brockton, has given additional glory to New England physicians by having demonstrated at East Bridgewater that the much feared New England climate is not only well suited to the treatment of patients in the various stages of pulmonary tuberculosis, but that even the New England night air can be advantageously enlisted as a factor in phthisiotherapeutics.

To you again belongs the honor of having the first State sanatorium in this country for the treat-

ment of indigent consumptives in the primary stages of the disease. But you are not content with your laurels, you want to do more. You desire also to have the first city sanatorium, the first municipal institution in this country for the exclusive treatment of the consumptive poor. You are anxious to take care of those who can not get into the State sanatorium, the Sharon Sanatorium or similar institutions, depending for their support on private philanthropy. In other words, you wish to show that there must, can and should be municipal care of the consumptive poor besides the work the State or private philanthropy can accomplish.

I do not wish to discourage you when I say that the work which you are about to undertake is the most difficult of all, and the magnitude of it may seem at first appalling to some of you. You have, however, the reputation of being able to accomplish difficult things, and the record of the past shows what you can do when your cause is just and good, and you have the support of those who can and are glad to help.

Since you have honored me by asking my assistance, permit me first to show those to whom you may appeal for help and support the justice of your cause.

I will not burden this paper with many statistics, for you all know that pulmonary tuberculosis is the most prevalent of all diseases. You know, furthermore, that it is most frequent among the poor and in the most densely crowded quarters of great cities.

To demonstrate the difference in the mortality from, and morbidity of, tuberculosis in the various quarters of a city, and among the different classes of the population, I will only quote from three cities, namely, Paris, Hamburg and New York.

In the French capital the mortality from tuberculosis in the poorest quarters is 65 per 10,000 inhabitants. In the quarters occupied by the working classes about 50 per 10,000, and in the quarters of the rich it is only 20 per 10,000 inhabitants.

In Hamburg, among the people who earn less than \$500 per year the death rate from tuberculosis is 40 per 10,000, and among those earning more it is only 15 per 10,000 inhabitants.

For New York I have been enabled from the existing maps of the Health Department, to which, thanks to the courtesy of Doctor Tracy, I had free access, to compile the following interesting figures: In the very poorest quarters, such, for example, as in the First Ward, near the Battery, where the Assyrians live, the mortality from tuberculosis is not less than 72 per 10,000 inhabitants. Next high in the death rate from tuberculosis comes Ward 4, which includes Park Row, where it is 63 per 10,000 inhabitants. Then comes Ward 8, that portion situated between Spring and Canal Streets, Broadway and Warrick, with 58; Ward 5, West of Hudson, between Read and Canal Streets, with 54; then Ward 21, the slaughterhouse district, above 40th Street, east of Second Avenue, also with 54; Ward 20, between

¹ Address delivered by invitation before the Clinical Section of the Suffolk District Medical Society, April 17, 1901.

26th and 31st Streets, West of Ninth Avenue, 54; and in the same Ward, between 31st and 40th Streets, between Ninth and Sixth Avenues, only 37; Ward 15, the lower half, between West 4th and Houston, Sixth Avenue and Broadway, mainly populated by French and Italians, 52; Ward 14, portion A, 50. In Ward 18, the portion east of First Avenue, the death rate is 49; and in the same Ward, near Madison Square, it is only 13. In the lower half of the Seventh Ward, largely populated by Irish longshoremen and sailors of all nationalities living in typical sailors' boarding-houses, the mortality from tuberculosis is 44 per 10,000 inhabitants; while in the upper part of Monroe Street, densely populated by Russian Jews, the mortality is only 35 per 10,000 inhabitants. In Ward 9, in Houston Street, west of Sixth Avenue, it is 43. In Ward 19, between First and Third Avenues, 54th and 70th Streets, where the artisans live, the mortality is 35. Ward 11 and 17 have a mortality of 35. Ward 10, the northern portion has 33, while in the southern portion, south of Grand Street, also populated by Russian Jews, it is 29. Ward 12, the portion situated between Columbus Avenue and Riverside Park, between 94th and 102d Streets, has only 18. The real wealthy portion of New York City, situated in Ward 19, between Park and Sixth Avenues, 50th and 59th Streets, has a death rate of 16 per 10,000 inhabitants. The same ward, between 70th and 76th Streets, Third and Fifth Avenues, has 11. That portion of the 22d Ward situated between Amsterdam Avenue and Central Park West, 66th and 77th Streets, has only 5, and Governor's Island, where our military posts are, has the smallest death rate from tuberculosis, that is to say, 3 per 10,000 inhabitants.

From the latest general statistics I could obtain, I learned that consumption was responsible for 11% of your own city's mortality.

However terrible as this mortality must seem, consumption is no longer considered a hopeless and incurable disease. It has been demonstrated that the early recognized case of tuberculosis has from 60% to 80% of chances of cure.

Not only living, but even the dead demonstrate the absolute curability of tuberculosis of the lungs. I know that some of my esteemed confreres in this city do not approve of the expression "absolute cure," when speaking of pulmonary tuberculosis, but prefer the more conservative expression, "arrested cases." But every one of them, I am quite sure, will acknowledge that there are a great many typhoid fever cases which will get absolutely well. In an absolutely cured typhoid fever case we would find, could we examine the inner lining of the patient's intestines, cicatricial tissue in the region of Peyer's patches. In the absolutely cured lung which was once invaded by the tubercles, we will find cicatricial tissue or a calcareous mass perfectly innocuous. I endeavored to collect statistics from the pathological records from all over the world for my little work on tuberculosis.² From them I learned that almost 25% of the people who died of acci-

dents or diseases other than tuberculosis, showed in post-mortem examination evidences of absolutely healed pulmonary lesions. If I add to this evidence from the dead my personal experience with many living, and very much alive, former consumptives, who were considered phthisical as many as thirty years ago, my colleagues will understand my enthusiasm and reasons for preferring the word "cured" to the expression "arrested cases."

Pardon this little diversion from the real subject, but we must, in our combat against tuberculosis be permeated with the one great idea that pulmonary tuberculosis is not only an eminently preventable but also a very curable disease.

Statistics show that the mortality from tuberculosis is most frequent between the ages of seventeen and thirty-five, just at a period when the individual should be a most useful member of society, a breadwinner and, if possible, a supporter of a family.

Your presence here tonight is a strong protest against existing conditions which still allow such fearful mortality. You know it is in the power of man to prevent this great loss of life, this great economic loss to the community and the calamity which is brought to many a family by the untimely death of some of its members. You ask why should this city lose thousands of persons every year from a disease which can be prevented and cured, and thus suffer a far greater material loss than had the community provided for timely treatment and care of the consumptive poor. It is this class of poor who, owing to the peculiarity of the disease, are more dependent upon municipal care than any other class of people. I know that you have here in Boston not quite such a bad tenement-house system as we have in New York, but those of you who labor among the poor will bear me out when I say that even a Boston tenement home is not a fit place for a consumptive to live in.

The most essential requirements for the treatment of a consumptive are good pure air, and plenty of it; sunshine, and plenty of it; good food, and plenty of it; medical supervision, and plenty of it. Six hundred cubic feet of space should be the minimum allowance for an adult person in the state of health; the consumptive should have rooms with at least a thousand cubic feet of air at his disposal, day and night. You know how little sunshine enters in some of the tenements of your own city.

The nutrition a poor consumptive receives depends largely upon what member of a family he may happen to be. If it is the son or daughter the patient will probably not be in want of food. The parents will gladly provide for the needs of their loved one; but if the consumptive sufferer is the father or mother, and particularly if the father is the invalid and unable to work, there will be economizing with the savings of better days, and the food furnished for the invalid must of necessity be scanty. If, finally, the wife has to take up

² Knopf: Pulmonary Tuberculosis; its Modern Prophylaxis and its Treatment in Special Institutions and at Home. Philadelphia: T. Blakiston's Son & Co.

the burden of supporting the family, there will be still greater distress, for the patient will not only lack the necessary food, but he will also be deprived during the day of the presence of his companion who made his sufferings bearable by the thousand little attentions which only a devoted wife knows how to bestow. I have had, in my work as a phthisiotherapist, opportunity to know the life of the tenement dwellers. When everything goes well, when the husband is industrious, sober and at work, the wife intelligent, and the children not too numerous in the family, they are, as a whole, a happy lot of people. But when sickness comes, and particularly when that chronic and communicable disease, consumption of the lungs, strikes one of the tenement dwellers, the family's happiness is doomed. Tuberculosis is a disease which is costly. The first thing the doctor, if he should be called in, will prescribe, is better food, meat, plenty of milk and eggs. He will probably also urge them to buy another bed, for the conscientious physician will insist that the consumptive patient has his own bed, preferably also his own room. And, nevertheless, even if these latter precautions are carried out, the close proximity in which tenement families live makes the communication of the disease to others almost inevitable. There is, to my mind, no sadder fate than to be a poor consumptive having a family depending upon him for support. Everything that is needed to prevent or cure consumption is lacking in the tenement of the poor, and even the most careful, conscientious and experienced physician knows that when he is in the presence of a consumptive man or woman of the poorer class, who are forced to continue to reside in their unhygienic homes and unsanitary environments in general, all his efforts to save this life will be of no avail. It is the old story; the prognosis of consumption depends, alas! only too often as much upon the money bag of the patient as upon all the other factors. The physician may be willing, and I know he always is, to give his service gratuitously, but he knows that without a better and richer diet, careful nursing and an improved hygiene, his devotion will be useless.

What are we to do for the thousands of cases of that kind in your own and other cities? I cannot advise to you anything new, but only emphasize what others have said and proposed, and add, perhaps, a few suggestions which are not feasible everywhere, but may be feasible in the good city of Boston.

I have learned that there is now a bill before your legislature for the establishment of a second State sanatorium, and before your city government there is a similar bill for a city hospital for consumptives. This is a right beginning, and there is not a shadow of doubt in my mind that both bills will pass unanimously and be approved by the distinguished chiefs of your State and city. If you desire to know what makes me so sanguine, so sure of all this, I will gladly tell you. When preparing this address, I had before me *Charities*, the official organ of the Charity Organization

Society of the city of New York, and here is what I read in an editorial of that paper of March 23d: "In the city of Boston, the helpless and unfortunate poor have a larger number of friends from the classes of the well-to-do than in any other city with whose needs and resources we are familiar. The evidence of this is abundant. They abound upon the boards which are at the head of the various city departments having charge of children, destitute adults and delinquents. They enroll by the hundreds for volunteer friendly visiting. They show in countless ways, even when not thus professionally connected with charitable activities, that they have a personal interest in the alleviation of distress and in the prevention of future dependence. Their views prevail before legislative committees and police commissions, in the mayor's office, and at the seat of executive State government. It is the normal and usual thing for the men, and, to an even greater degree, for the women, of Boston, whether they have had training in the Associated Charities or not, to have some familiarity with the elementary principles of charities, and in that fortunate city many fundamental axioms may be taken for granted which elsewhere have not been learned, or have been forgotten."

Your State legislature and your distinguished governor, your city fathers and your honorable mayor, will not only give you these two institutions and as many more as may be needed, because they are charitably inclined, but they know that through such wise legislation they will not only protect their fellow-citizens from the danger of contracting tuberculous diseases, but they also know that through such provisions a large majority of consumptives will be cured and made again breadwinners and supporters of their families. Thus they are prevented from becoming a burden to the community, and there will be not only a great saving of lives, but also in the end a considerable saving of money to the treasuries of the State and municipality.

There are in all communities people whom it is hard to convince by indirect proofs. To them I desire to say that by treating a consumptive patient in a sanatorium or special hospital, where he has from 50% to 75% of chances of cure, instead of treating him in your general hospital, where his chances of cure, in spite of the best of care, must be considerably less, the Commonwealth saves on each patient \$4.00 for every week when treated in a sanatorium.

According to the "Third Annual Report of the Trustees of the Massachusetts State Sanatorium for Consumptives," the weekly cost of maintenance per patient has been \$8.40. According to the kind information furnished me recently by Dr. Geo. H. M. Rowe, Superintendent of the Boston City Hospital, the average cost per patient per week last year was \$12.40.

To cure the curable patient in a sanatorium or special hospital requires from eight months to one year. The average length of stay of the incurable consumptive patient who enters the hospital,

from the day he is no longer able to work up to the date of his death, is about the same, that is to say, six months to one year. It requires no great arithmetical calculation to show the immense financial benefit which must accrue to the Commonwealth by taking care of the consumptive while still in the incipient stage.

From the same letter, which Dr. Rowe had the goodness to send me, I learned that, as a rule, patients with pulmonary tuberculosis are not admitted to the Boston City Hospital; but, as a matter of fact, in the course of a year they take in a considerable number. Cases of chronic phthisis where there is a hemorrhage or urgent symptoms, or people found in great distress, are brought there for temporary treatment. The charity characteristic of you Boston people allows here an infringement upon the rules of your hospital for humanity's sake; for, in reality, a general hospital is no place for consumptives, no matter in what stage of the disease. What is needed for the treatment of such people, such as large spacious rooms, rest-cure galleries for the open-air treatment, special hydrotherapeutic arrangements for the application of cold water, constant medical supervision, and so on, is not easy to be had in a general hospital.

While I have no doubt that in your excellent City Hospital the greatest care is exercised to avoid possible infection from the consumptive's sputum, so that he may not endanger his fellow patient suffering from typhoid fever, rheumatism or pneumonia, or enfeebled by surgical operations, there still exists the drop infection. Small particles of bacilliferous saliva may be expelled by the patient passing through the ward, during the so-called dry cough, sneezing, or loud and excited talking. In short, it requires more special care to prevent a consumptive from doing harm to his fellow patients and to himself than can be bestowed upon him in a general hospital. At night, when the consumptive patient in the ward of a general hospital would like to have his window open, the rheumatic neighbor might object, and in revenge the untrained consumptive might keep the whole ward awake with his cough.

To those of my hearers who are not familiar with the treatment of consumptive patients in a sanatorium or special hospital, I wish to add here for explanation that the consumptive in such institutions is only allowed to cough when he has to expectorate, at all other times he is taught that coughing without expectoration is not only useless and harmful, but also impolite. But, besides this discipline of the cough, the patient in the sanatorium learns a great many other things. He is taught that he must be religiously clean and careful with his expectoration and other secretions, and that any willful violation of the rules and regulations concerning the sputum means immediate dismissal from the institution.

Patients in the sanatorium are trained how not to take cold, what to do in the case of this or that accident which may befall them during the course of the disease, what to avoid and what to do in

order to continue on the road to recovery. The regular life which the consumptive leads and the hygienic training which he receives in the sanatorium are of inestimable value to himself, to his family and to the community. If completely or if only partially cured from his disease, this former inmate of a sanatorium will constitute a hygienic factor among his neighbors and friends on his return home.

There is one more benefit derived by the community, and also individuals, from the sojourn of consumptives in sanatoria, which has thus far not been highly enough estimated in this country, but which has been frequently observed and appreciated in Europe. The consumptive persons addicted to the abuse of alcoholic beverages have to lead, when they become inmates of a sanatorium for tuberculous patients, such regular and sober lives that with the improvement of their functions of nutrition and assimilation, one of the essential factors of the sanatorium treatment, they will very often reform, and on their discharge from the sanatorium will not only have regained their health and vigor, but also have become morally better men and women by having lost their desire for strong drink.

The physician in the sanatorium for consumptives is the close friend, advisor and educator of all his patients, and the modern sanatorium for the treatment of consumptives (poor and rich) must be, and is, a school of hygiene.

Let those who still doubt the need of more institutions in your city and State, or who claim that the American patient does not like sanatorium life with its discipline, as do patients in European sanatoria, read the latest report of Dr. Marclay, superintendent of the Rutland Sanatorium, wherein he says: "There have appeared, from September, 1899, to September, 1900, for entrance examination, 1,233 applicants, of whom 69% have been rejected because there were no prospects of immediate vacancies or because of too advanced condition of the disease."

It is not impossible that in your city or in your State there will be, and I have found them nearly everywhere, people who object to the establishment of a sanatorium or hospital for consumptives because they live near or have property in the vicinity of the future institution. To those who fear contagion from a sanatorium I will simply say that if they desire, I will be able to furnish them with official statistics for over fifty years, whereby it is conclusively proven that, since the establishment of sanatoria for consumptives, the mortality from tuberculosis among the villagers of Gorbardsdorf and Falkenstein, the two places where five of the most flourishing German sanatoria are now existing, has actually been decreased to one-third of that which it was before the establishment of the institutions. The explanation for this remarkable decrease of consumption in the villages of Gorbardsdorf and Falkenstein is simply to be sought in the fact that the villagers imitated voluntarily the clean habits which were obligatory for the sanatorium inmates.

To those who fear a depreciation of their property because poor consumptives will come near it, I will relate the following anecdote which happened a few years ago: Near Vienna existed a place which had been known for years as a health resort for consumptives and persons suffering from similar troubles. Thanks to the efforts of a distinguished professor and specialist in phthisio-therapeutics, and the funds given by wealthy philanthropists, it had been decided to found a sanatorium for poor consumptives, under the direction of this professor, in the resort mentioned. But the authorities of the community raised such an outcry at the prospect of having this institution in their midst, fearing it would drive away the class of wealthy patients who had come there for so long, that the professor, not wishing to go where his sanatorium would not be welcome, chose another locality. They thought they had done a wise thing; but soon the wealthy patients, thinking that the new place must possess superior advantages to have been chosen for his institution by so celebrated a specialist, began to flock thither, and the old resort, so favored for years, found itself quite deserted.

Besides the one or two city hospitals which you are going to have, and the second State sanatorium, you should have an especially constructed building which should serve as a large dispensary and reception hospital for tuberculous patients, from whence the cases for the city hospital or State sanatoria should be selected. Furthermore, I must plead with your city and State authorities to create, at not too great a distance from your city, and near the seashore, a sanatorium for the treatment of scrofulous and tuberculous children. If one considers the very large percentage of scrofulous and tuberculous children among the poor, it is simply surprising that the many wealthy communities along the seashores of this great country have not long since established sanatoria for these unfortunate little ones. It is a well-known fact that a seacoast climate, in connection with good food and treatment, acts almost as a specific in the treatment of scrofulous and tuberculous afflictions in childhood.

In France, Holland, Germany, Italy and the Scandinavian countries, there have existed for years a large number of seaside sanatoria for the exclusive treatment of tuberculous and scrofulous children. The results obtained in these institutions, which include surgical tuberculosis as well, vary from 60% to 75% of complete recoveries. To many excellent schools are attached, so that the children's general education is not neglected. That such children's sanatoria are most essential factors in the solution of the tuberculosis problem is evident, when we consider that they have both the mission of prevention as well as of cure.

Lastly, I desire to ask of the managers of your maternity hospitals to set apart the best-lighted and best-ventilated wards and rooms for the exclusive treatment of tuberculous pregnant women. To begin the hygienic and dietetic treatment, as

far as it is practicable, in such an institution and as long as possible before the confinement, and to see that it is continued afterwards at least for a year in a sanatorium or at the home of the mother, will save many a life.

Having now all our institutions, let us see what plan may be formulated in order to cope intelligently, practically, and with the hope of the greatest possible success, with the tuberculosis problem in your city and State. The first thing to be done would be to form a tuberculosis commission. This commission should be composed of physicians in the employ of the city, of sanitary officers, officers of the charity organizations, and of friends of the poor from the well-to-do of your good city, of which my friend, Dr. Edward T. Devine, editor of *Charities*, has spoken so eloquently. This commission would have its headquarters in the city dispensary for tuberculous patients. Its work would consist: Firstly, in determining the applicant's condition by a medical examination. If his condition demands it, he should be immediately placed in the reception hospital or assigned to one of the dispensary classes for treatment. Secondly, in the meantime the members of the tuberculosis commission on duty should visit the home of the patient and institute such hygienic measures as seem necessary to prevent further contamination. Thirdly, the medical member of that commission should examine the other members of the family in order to find out if any of them have also contracted the disease, and if so, counsel proper treatment. Fourthly, the commission will then make a full report to the sanitary authorities as to the condition of the patient's dwelling. Its thorough disinfection, renovation, or even destruction may become imperative when it is evident that tuberculosis has become endemic there owing to the continued residence of tuberculous invalids, the condition of the soil or other sanitary defects. Fifthly, the commission, the laymen of which will, of course, be drilled, so to speak, in the prophylaxis of tuberculosis, will have become real sanitarians, must help the doctor by distributing literature and by verbal advice to teach the families they visit the essentials of prevention of tuberculosis and hygiene in general. Lastly, the commission, being in touch with all the charity organizations of the city, will determine the financial condition of the applicant to the dispensary, special hospital or sanatorium; for we must not encourage abuse of medical or any other charity. If he is able to pay he should be made to pay; if he is poor, by all means extend to him the full benefit of charity. Nay, even if, by his being taken to an institution, the family should become destitute, it would be the imperative duty of the commission to see that the remainder of the family be protected from want by either public or private philanthropy. A letter of inquiry sent to the former physician of such a patient, if he has had one, might often aid the work of the investigating commission. Of course, it goes without saying that every member of the medical profession will be helpful in this work

by referring needy tuberculous patients to the investigation committee.

This, Mr. President, members and friends of the Suffolk District Medical Society, is all I have to suggest, and it only remains for me to wish you all God-speed in the work of combating one of the greatest scourges of the age, which was so justly called by your own Oliver Wendell Holmes, "the great white plague." You have done, already, more than any other State in the Union; there are prospects that, ere long, you will have done more than any other city in the Union, and I feel confident that it will be within your own borders that tuberculosis as a disease of the masses will first disappear.

Clinical Department.

ECHINOCOCCUS OF LIVER WITH PERFORATION INTO THE LUNGS AND BRONCHI.

BY WILLIAM F. GAY, M.D., BOSTON.

THE comparative infrequency of cases of this nature occurring in this country seems to be of sufficient importance to cause me to report the case briefly, although I have nothing new, perhaps, to offer, except what may be found embodied in the current literature of the subject by the various authors on medical practice, and bearing out the idea that symptoms of this disease are rarely prominent and may be so marked by intercurrent diseases, as in my case, that an absolute diagnosis is not possible until a rupture occurs, and the characteristic cysts and hooklets are demonstrated.

On January 10, 1901, I was called to see Angelo T., male, Italian, four years in America, age twenty-five, barber. On account of his inability to speak much English, I could only elicit the following as to his past history: Always ailing, more or less, up to fourteenth year, with cough, fever and general weakness. Then fairly well until his twenty-third year, about October or November, 1898, when he was operated upon in Boston City Hospital for (dropsy?). The scar showing a median laparotomy. History of slight attacks of hemoptysis, and more or less pain constantly in dorsal region. About December 1, 1900, he became quite ill, much cough, with blood streaked expectoration, headache and anorexia and marked debility, chills and moderate fever, with pain in the lower right side of chest.

On date of my first visit I found the patient much prostrated; emaciation moderate, face showing a dusky pallor, tongue heavily coated, temperature 100.8° F., pulse 98, and respirations 30 per minute; bowels constipated. The physical signs showed diminished respiration, crepitant and subcrepitant râles, slight dullness at base of right lung, small mucous râles and crackling at both apices with sinking in of the supra clavicular spaces, with dullness slight over both apices and jerky respiration. The dullness at base of right lung increased, bronchial breathing, rusty spu-

tum and rising temperature, with other symptoms, pointed to a right lower lobar pneumonia, with coexistent phthisis pulmonalis.

The pneumonia followed the usual course, and at the end of January the patient had recovered from it and was up and about, the lower right lung having cleared up, the other portions remaining about the same. At this time my attention was attracted to the liver, which was slightly painful and gradually enlarging.

During February the patient continued to gain strength, the appetite increased, and, save for a peculiar pallor and the liver enlargement, there were no noteworthy symptoms.

March 1st, I was called to see patient on account of several attacks of hemoptysis the previous day, and found him with much cough and bloody expectoration. Under treatment the hemorrhages ceased in a few days and the expectoration became viscid and white. The lungs showed a general acute catarrhal condition with a multiplicity of râles of all kinds. The liver at this time, however, showed considerable uniform enlargement, very firm and smooth and appreciable to the eye. The right lobe extended on a line about two and one-half inches above the umbilicus, the left lobe well into the left hypochondriac region; considerable abdominal tympanites, raised surface temperature, much pain on coughing, bowels inclined to constipation and feces clay-colored, fetid and pasty. There was, however, no jaundice, other than a peculiar pallor which could be called dusky, anxious expression, pinched features and cold sweats. Temperature 101°, pulse 120, respiration 32, with occasional attacks of stupor.

This train of symptoms continued for about a week, the breathing became labored, the liver more painful, and on March 13th had reached the maximum. Temperature was then 101.2°, pulse 134, and respiration 40. On March 14th the patient had several vomiting spells, the matter ejected being of a bright yellow color, suggesting bile. The expectoration became more copious and of bright orange color, and in a few days the temperature declined to about 99°, the breathing became less labored, the liver softer and decreasing in size, and the general condition, from being alarming, slowly improved.

The diagnosis of a perforation from the liver into the lungs and bronchial tubes was made, although I was at a loss to understand the exact condition of the liver giving rise to it, as the substance raised was not fetid nor pus-like, and the bright orange color was something I had never seen nor read about. Finding a small fragment of a whitish hyaline membrane in the sputum caused me to suspect hydatids, and, upon close search of the sputum every day, I was soon rewarded by finding an entire cyst about the size of a pigeon's egg. The expectoration of the cysts then became more common, and from one to ten per day of various sizes ranging from a pea to a pigeon's egg. A diagnosis of echinococcus was made, and upon submitting several of the cysts to

F. B. Mallory, M.D., pathologist at the Boston City Hospital, was kindly confirmed by him, he finding the characteristic lamellated cyst structure, daughter cysts and scolices, the orange color being due to crystals of hematoidin.

April 10th. The patient at the present time is holding his own, the expectoration is decreasing in amount, the orange color is disappearing, the temperature remains about 99°, having touched normal once or twice, although the pulse rate still remains at from 110 to 120, seemingly uninfluenced by the undulations in temperature. This strain on the heart, together with the general phthisical consolidation of the lungs, will probably prove the fatal factors in the case.

The main points of interest in the case, as I have tried to show, is the fact that intercurrent disease fully met all the prominent symptoms, and prevented a positive diagnosis until rupture occurred and the cysts were microscopically demonstrated, the temperature never reaching above 101° F., except during the pneumonia, when it reached 102°, the high pulse rate, uninfluenced by the temperature, the peculiar orange-colored masses in the sputum, the absence of pleuritic involvement at the time of perforation, and the presence of the cysts.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

(Concluded from No. 20, p. 476.)

DR. J. P. CLARK gave an exhibition of a CASE OPERATED ON FOR EXAGGERATED ROMAN NOSE.

The patient whom I have to present shows the result of a cosmetic operation on an exaggerated Roman nose. The photographs and plaster casts, which I pass around, show the appearance of the nose before and after operation. The credit of devising this method of operating in such cases belongs to Dr. Goodale, and he has reported 1 case.² The operation, as I performed it on my patient, was as follows: A pair of short curved scissors was introduced into the left nostril. One blade was made to perforate the septum just beneath the lower end of the prominence which I wished to remove. Then, with the convexity of the scissors uppermost, the septum was freed from the prominent portion of the nose, following as closely as possible the outline of the prominence. The extremities of this curved cut were then connected by a straight cut with a pair of straight scissors and the loose piece of septum removed with forceps. Next, a small nasal saw was introduced into one nostril and the nasal bone was sawed through as nearly as possible at its junction with the nasal process of the superior maxilla, care being taken not to injure the skin. The same thing was done to the other nasal bone. Now, using the padded handle of a tongue-de-

pressor as a pleximeter to prevent bruising the skin, a few gentle taps with a small mallet on



the nasal bones sufficed to break the frontal articulation and depress them, still firmly united with each other, until they came into contact with the upper margin of the septum, the sawed edges of



the nasal bones sliding down inside the nasal processes of the superior maxilla. The right nasal

² See Boston Medical and Surgical Journal of February 2, 1899.

process of the superior maxilla was now seen to be too prominent. A gentle blow on this, using the same pleximeter, easily fractured it, and an even, symmetrical surface was obtained. The nose was held in the desired position by means of suitable pads and a bandage for two weeks. By this time the bones were sufficiently firmly united to dispense with any splint. The interior of the nose now shows no evidence of any operation, in fact, the nasal cavities appear perfectly normal.

Dr. C. B. PORTER reported several cases of plastic operation.

PLASTIC OF HAND.

B. McL., age twenty-three, single, burned her left hand in a mangle July 30th, was treated in the Out-Patient Department for three weeks, thence referred to House for Grafting on August 20th.

Operation August 22d, by Dr. Balch, when the palm was attached to a flap reflected from the abdomen. This flap covered the palm and overlapped the first phalanges of four fingers. The flap was freed from the abdomen September 4th, twenty-three days after.

Discharged September 18th.

Re-entry December 13, 1900, for superfluous fat in skin-flap, operation December 18th, when the fat was dissected from beneath the skin.

Discharged December 24th.

Re-entry January 8, 1901, for cicatricial contraction of the fingers. Operation, January 10th. Here the web between the fingers was removed by a plastic operation.

Discharged January 28th to seats.

PLASTIC OF ARM.

W. T. D., age five years, on June 6th received severe burn of anterior surface of left arm and forearm to shoulder. Treated in Out-Patient Department for two weeks and admitted to house June 23d for skin grafting. This was done July 2d and August 7th.

Discharged September 7th. Treated in seats for granulations of arm.

Re-entered November 17, 1900, for cicatricial contraction of elbow. Only 10° of motion, that is, flexion to a right angle. Extension 10° above right angle.

Operation December 15th, plastic of skin from abdomen to arm, etc. Operation January 4th, separation of flap from abdomen.

ENTEROPTOSIS.

J. Q., age forty-two years, married.

Entry January 1, 1901. Married twenty-two years, seven children. Lump in right abdomen seven or eight years ago, lasted one year. Tumor reappeared later and grew steadily for four years as a hard lump in the right side. At the end of this time was pregnant and delivered a nine months child. Three hours after birth of child this mass was delivered, the size of a baby's head. Shortly after, the tumor reappeared for the third time, and has been there ever since.

Operation on January 12th for radical cure of enteroptosis.

Discharged February 4th for treatment of heart disease.

Dr. ELLIOT: Apropos of the young lady who had the accident with the mangle, two or three years ago I had very much the same sort of person as this who had her hand caught in a mangle. One roller in the mangle is hot and the other cold. The back roller is the hot one, and it took everything off the back of the hand down to the bone. I waited to see what could be done about it, and finally it cicatrized and, to my surprise, that is a perfectly useful hand; though the extensor tendons were gone, the cicatricial tissue took the place admirably.

Dr. J. M. JACKSON showed

A CASE OF MYXEDEMA AND ARRESTED DEVELOPMENT.

The patient, although nineteen years old, has the appearance of a girl of eleven. She is 50 inches tall and weighs 72 pounds, and one's first impression on looking at her is that she is a cretin, but on talking with her it is soon evident that she is a bright girl, though a little slow.

Her history is briefly as follows: A negative family history, except a possible specific disease in mother years ago. She had measles, chicken pox and whooping cough as a child. Began school at five years and graduated at fifteen years from grammar school without ever missing a day. Was a good scholar and stood well at school. Has since learned stenography and typewriting, though she is not very proficient as yet. She grew and developed like other children up to the age of eleven, since which time there has been no further growth. The mother says that the child used to have a high forehead, but that her hair has gradually encroached upon it, until, as you see now, the forehead is low and wrinkled. The teeth came in regular order except the eye teeth, which are just now erupting. The catamenia appeared last December for the first time.

Physical examination.—Undeveloped, but well nourished, muscles well developed. Height, 4 feet, 2 inches; weight, 72 pounds. Skin and mucous membranes of good color. Hair coarse and dry and comes low down on forehead; forehead wrinkled. Expression intelligent, speech rather slow, intellect clear. Skin dry, scaling and harsh. Thyroid not felt. No pads over the clavicles. Pupils equal and react normally. Epiphyses not enlarged. Bones small but normal. Tongue large, moist and clean. Teeth good, throat negative. No glandular enlargement, no pubic or axillary hair. Chest broad and short, no rosary. Breasts only slightly developed. Lungs normal. Heart, area of dullness normal, sounds regular and of good quality, no murmurs. Pulse slow, regular rhythm, good volume and tension. Abdomen full and rounded, not distended, no tenderness. Liver and spleen not enlarged. Legs long in proportion to the body, but otherwise normal. Knee jerks present or equal. Plantars normal. Marked

flatfoot of both feet. Temperature varied from 97° to 98°. Blood, hemoglobin 62%; whites, 8800. Urine, slightly pale, slightly acid 1020; chlorides normal; albumin, slightest possible trace; sugar absent; sediment slight, a rare squamous cell and leucocyte.

Treatment.—It is too late to expect much from treatment, but on account of the coarseness of hair, dryness of skin, and the greatly retarded development, I have put her on thyroids.

Dr. Fitz remarked that the case shown by Dr. Jackson is suggestive of the possible occurrence of a myxedema of adolescence in contrast to the congenital infantile and adult varieties.



The coarse, dry hair of the head, the absent axillary and pubic hair, and the conformation of the skeleton are what might be expected in a case of infantile myxedema. The low forehead and peculiar profile resemble those of sporadic cretinism, while the juvenile mental development corresponds with that observed in certain cases of infantile myxedema after treatment with thyroid extract.

Anatomical evidence of the condition of the thyroid in similar cases is lacking, but it seems not unreasonable to suppose that atrophy of this structure may be found as the cause of the arrest of development.

Medical Progress.

REPORT ON PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.
(Concluded from No. 20, p. 478.)

MESENTERIC CYSTS.

DOWD¹⁹ presents a very interesting paper which he read in part before the New York Surgical Society, December 27, 1899. The following summary is given:

(1) The occurrence in the transverse mesocolon of a multilocular cystadenoma which con-

tained pseudomucin, and which was exactly like the cystadenoma of the ovary, suggests its probable origin as an embryonic ovarian sequestration.

(2) The occurrence of dermoid cysts in a similar position suggests a similar origin.

(3) The occurrence of chylous cysts in the mesentery, which have the structure and appearance of ovarian and parovarian cysts, and which have in their walls lymph vessels, suggest embryonic cysts into which there has been an effusion of chyle.

(4) The sanguineous cysts appear to be pre-formed cysts into which hemorrhage has taken place; hematomata in the mesentery should not be described as cysts.

(5) The presence of cysts which have the structure of the intestinal wall suggest sequestration from the intestine.

(6) Serous cysts are apparently similar in origin and structure to the cysts already considered. They are usually not situated in the path of the lacteal vessels.

(7) Hydatid cysts form a class by themselves, and are due to the *Tenia echinococcus*.

(8) Reports indicate that mesenteric cysts are being removed at least as often as once a month. If microscopical examinations of the cyst walls and chemical and microscopical examinations of the cyst fluid are made, the entire subject should soon be understood.

(9) It is probable that all mesenteric cysts may be included in the classifications, (a) embryonic cysts; (b) hydatid cysts; (c) cystic malignant disease.

SUTURE OF ARTERIES.

Dr. Julius Doerfler²⁰ (Rostock) reports 2 successful cases of suture of arteries performed by Barre. In the first instance, a continuous silk suture, embracing adventitia and media, was applied laterally to the internal carotid injured in the course of the extirpation of carcinomatous glands. Result: Primary union; but at the post mortem, three months later, inspection of this vessel was overlooked (?).

On a second occasion, for a traumatic aneurism of the brachial, four interrupted silk sutures penetrating the intima were applied to the wound of the brachial, embracing half of the anterior circumference of this vessel. Result: Primary union; pulsation in the radial and ulnar weaker than the opposite side, and a distinct pulsation was visible below the site of suture.

These 2 cases bring the number of successful artery sutures recorded in literature up to 9. No failures have at least been published.

Experimentally, the author has determined that an aseptic thread jutting into the lumen does not cause any interference with the patency of the vessel; therefore he sees no danger in having the suture penetrate all the coats of the vessel. Any oozing from the needle punctures not controllable by pressure can be mastered by suture of the vessel sheath, or by covering it with an adjoining

¹⁹ *Annals of Surgery*, October, 1900, p. 515.

²⁰ *Annals of Surgery*, November, 1900.

slip of muscle or fascia. Wounds of greater extent than half the circumference call for the Murphy invagination method.

Indications for suture are: Accidental wounds, stab, gunshot, or lacerated wounds; injuries inflicted during operation; traumatic aneurisms. Rigid asepsis is a requisite for successful suture; therefore an infected wound offers no field for this procedure. Whereas the skin incision should be free to gain access to the vessel, the sheath should be spared as much as possible, and the vessel itself subjected to as little stretching as possible. To render the vessel free from blood, proximal and distal pressure digitally is to be preferred; this failing, strips of gauze or forceps covered with rubber have to be used. Cambrie needles armed with silk proved most useful for suture. Twelve experiments on animals performed with these precautions proved successful.

The Murphy method of invagination is indicated when more than half of the circumference is implicated, or when the laceration is extensive, or when traumatic aneurisms are not amenable to ordinary suture, or when a vessel has to be resected in the course of removal of new growths.

The author is wholly in favor of the invagination method as based on the successful outcome of his animal experiments and the three successful results in man. A particularly grateful field is augured for this method in aneurisms.²¹

THE TREATMENT AND PREVENTION OF CONTRACTION OF THE KNEE JOINT.

Carl Bruns²² has relieved 3 cases where contraction of the knee following injury or inflammation caused great functional disability and pain by transplanting the flexor tendons of the thigh (biceps and semitendinosus) with the quadriceps femoris. He considers that it is not the capsule, fascia or skin that causes the contraction, but the muscles. The first patient was a child, eight years old, where the contraction followed septic arthritis during infancy, and where a resection of the joint had been unsuccessful. The result at the end of five months showed a straight leg, and the patient could walk without pain. Before operation, when the stiff bandages were removed, the knee after a few days became flexed to 60°. In the other case the joint condition was the result of a nine-months' attack of gonorrheal arthritis which resulted in the marked tendency to contraction and pain in walking. Unrelieved by bandages, apparatus, extension with anesthesia, etc. Relieved after a few weeks by the above-described treatment. The third case was the result of chronic articular rheumatism of several years' standing with 50° contraction. Patient bedridden. The writer claims that the method is one which can be satisfactorily substituted for resections in many cases.

TREATMENT OF INJURIES TO THE KNEE WITH HEMARTHROSIS.

C. Lauenstein,²³ after reviewing the various forms of treatment now in vogue for these cases—

²¹ Beitr. zur klin. Chir., Bd. xxx, H. 3.

²² Centrbl. f. Chir., 1901, Bd. xxviii, S. 159.

²³ Centrbl. f. Chir., 1901, Bd. xxviii, S. 153.

(1) "Expectant" treatment with massage and passive motion; (2) "ambulante" treatment; (3) rest, leg raised and ice; (4) immediate puncture of the joint and removal of clots by irrigation followed by fixation—concludes that the patients recover quickest when the joint is freed from blood clots and kept at rest for several weeks in a stiff bandage. That when the tear in the joint capsule is probably healed the patient is allowed to get up and begin motion of the joint. In cases of fractured patella he would evacuate the joint before applying the other dressings. He claims that this is the most rapid way of getting rid of the blood clots and placing the rent in the capsule in a favorable position for its union.

STATISTICS OF ONE HUNDRED CASES OF CANCER OF THE BREAST AND THE RESULTS OF OPERATION.

McWilliams, of New York, has given the statistics of 100 cases of cancer of the breast in a paper which appeared in the *Medical News*, April 28, 1900, p. 644, and he gives the following summary: Trauma present in 44.6% of the cases; married, 74% of the cases; children born to 66.6% of the cases; average number of children to each, 5; pain present in 56.2% of the cases; nipple retracted in 45.2% of the cases; right breast involved in 51 cases; left breast involved in 49 cases; axillary glands palpable in 48.9% of the cases; axillary glands found cancerous by microscope, 78.6% of cases; average age was forty-nine years, six months, twenty-six days; mortality of operation was 4%; average length of time in hospital, twenty days; prolongation of life for one year, 59%; prolongation of life for two years, 36%. Cured (no recurrence at end of three years), 34%; recurrence took place in one year in 21 cases; recurrence took place in two years in 28 cases; recurrence took place locally in 15 cases; recurrence took place in lung in 6 cases; average length of time in recurrent cases from operation to death, one year, two months, twenty days; average length of time from period of recurrence to death, five months.

THE VALUE OF PEDICLED FLAPS IN INJURIES OF THE HAND.

Dr. W. E. Schroeder²⁴ gives the following:

The injuries met with in the hand which result in the destruction of the skin and subcutaneous tissues, leaving the tendons and all or some of the bones and joints intact, may in many instances be repaired by judicious treatment. These injuries are commonly produced by various kinds of machinery and by burns and frostbites.

Amputation is freely resorted to in contused lacerated wounds of the hand, whereas burns are usually allowed to get well of their own accord; that is, plastic operations are not often performed. It is for such cases that the pedicled flap method is to be recommended.

Elasticity and resistance are required of the skin in the palm of the hand, and neither one of these conditions is furnished by the Thiersch or

²⁴ American Journal of the Medical Sciences, July, 1900.

free-flap method, although both of these methods may be used successfully on the dorsal surface of the hand. Enderlen, in his article, has shown that in Thiersch's graft the elastic fibres all die, and that only a very thin layer of epithelial cells remains. It is also insufficient because of the ulcers that form when the hand is used. He also cites cases where free flaps were used and the microscopical examinations of specimens showed that parts of them died, resulting in the formation of connective tissue. The author, with Dr. Fenger's permission, reports a case of this kind. He placed a free flap over the metacarpal bones from which the fingers had been removed, and found that in time the flap shrank decidedly, and when the stump was used small blisters formed, resulting in ulcers. Microscopical examination showed a considerable increase in quantity of connective tissue. It finally became necessary to replace this with a pedicled flap, which terminated favorably.

Where one desires simply to cover the palm, dorsum of hand, or the palmar surface of the thumb, flaps may be taken with freedom from the chest or abdomen. Where the palmar surface of the fingers has been destroyed, it is much better to have double pedicles, and these can best be obtained from the hip. Furthermore, this position is reasonably comfortable. I would say, however, that in young and old patients such a procedure would be very trying and scarcely justifiable.

Summary.—Advantages of this method: (1) Mobility; (2) elasticity; (3) certainty of taking.

THE CARDINAL PATHOGNOMONIC SIGN OF FRACTURE OF THE LOWER END OF THE RADIUS (COLLES).

Ware²⁵ calls attention to an old sign of Colles's fracture, which he considers the cardinal pathognomonic one. It is the sign of Langier, which he has found reliable in diagnosing 300 cases of fracture of the lower end of the radius that have come under his observation.

This sign is based on the relation of the ulnar and the radial styloid. The styloid of the radius is at a lower level than the styloid of the ulna. This is always the case, normally differing in degree according to the development of the bones, being more marked in males than in females, less so in infancy. With the hand in the prone position and on the same plane with the bones of the forearm, this sign is most readily ascertained by then impinging the thumb and index finger against the styloids, and projecting a line between the two points, it will take an oblique course slanting to the radial side.

An estimate of the existence of the levelling or elevation of the radial styloid should be the first maneuver in ascertaining a fracture, thus precluding any further manipulation until reduction is performed. It would suggest itself that this relation of the styloids ought to be an index to proper reduction; this is but relatively so, as an absolute restoration of the normal relation of the styloid is impossible in the greater number of instances.

²⁵ Medical Record, March 31, 1900; American Journal of the Medical Sciences, July, 1900.

The presence of an altered relation in an old case indicates an old fracture.

TREATMENT OF OBLIQUE FRACTURES OF THE LEG.

N. Kafer, Odessa, has treated oblique fractures of the tibia with marked shortening and marked tendency of the fragments to displacement by accurately applied plaster-of-Paris bandages and an especially devised apparatus for producing extension. The apparatus consists of a round iron rod of the thickness of a lead pencil, one end of which is cut with a right, the other with a left hand screw thread. Its centre has a nut-like projection. The rest of the apparatus consists of two pieces of metal, 10 cm. long and 1.8 cm. wide. One end of each is thickened and is bored so as to leave a hole 2 cm. long, into which the end of the first described rod can be screwed. The remaining surface is left rough. Kafer's method consists of applying a bandage of plaster-of-Paris to the leg from the toes to above the knee. It should fit accurately, especially below the tibial tuberosities and above the malleoli. When nearly hard it is cut through transversely round the leg at the point of fracture. The parts of the apparatus bearing the female screw are placed on the edges of this cut, one on the upper half, one on the lower, and fastened in place by a few circular turns of stiff bandages. The rod is then fitted into the holes at the ends. When the bandage is hard by turning the rod, the cleft of the bandage is gradually widened and the leg extended. This extension is made gradually a little daily till the shortening is overcome. The apparatus is usually placed on the anterior surface of the leg. In one case reported, the upper half of the bandage was separated from the lower by the screw apparatus, a distance of 5 cm. in a few days. In the original article²⁶ a detailed description and illustration shows accurately the above-described appliance. The writer claims that his clinical experience shows that his apparatus has been a very efficient aid in the treatment of this difficult class of fractures and also in osteotomies.

STERILIZATION OF SPONGES.

C. A. Elsberg²⁷ claims to have found a method by which "reef" sponges can be sterilized by boiling without the deleterious effects which such a process usually produces with such substances. It is the following:

(1) Soak the sponges for twenty-four hours in an 8% solution of hydrochloric acid to remove calcareous substances and coarse dirt; (2) wash thoroughly in water; (3) boil five to twenty minutes in a solution of caustic potash 10.00, tannic acid 20.00, water 1000.00—; (4) wash in sterile water or carbolic or sublimate solution until the dark brown potash-tannic acid solution is entirely removed; (5) keep in 5% carbolic solution.

This method, it is claimed, leaves the sponge with its original porosity, softness and elasticity

²⁶ Centrbl. f. Chir., 1901, Bd. xxviii, S. 1.

²⁷ Centrbl. f. Chir., 1900, Bd. xxvii, S. 7289.

even after repeating boiling of periods of one hour duration. Also that the same solution of caustic potash and tannic acid can be repeatedly used if the amount of evaporated water is replaced.

Sponges infected with *staphylococcus aureus*, *streptococcus pyogenes* and *anthrax bacillus* have always been found sterile after this method. Elsberg calls it a certain and simple method.

ON SURGICAL DISINFECTION.

Ochsner² describes the methods of surgical disinfection employed at the Augustana Hospital, Chicago. The following conclusions give a summary of his views:

(1) *a*. Theoretically it is almost impossible absolutely to disinfect the skin of the patient and the hands of the operator; *b*. practically it is one of the easiest and simplest tasks to obtain a degree of surgical cleanness that will insure primary wound-healing.

(2) *a*. Theoretically strong chemical disinfectants are indicated for the purpose of disinfecting the hands; *b*. practically careful washing with the mildest, namely, soap and water and alcohol, is absolutely sufficient and very much safer for the patient, because hands roughened by the use of the strong antiseptics are much more likely to become hopelessly septic than hands which are covered with smooth, healthy skin.

(3) *a*. Theoretically it is extremely simple to keep the hands aseptic after they have been rendered so; *b*. practically there is no more difficult task in any clinic than to keep all interested hands clean after they have been disinfected.

(4) *a*. Theoretically sutures passing through the skin and the deep tissues underneath are a menace to the patient, because they form a direct communication between the skin which contains *staphylococci* and the deep tissues which are primarily sterile; *b*. practically these stitches never cause an infection unless drawn too tightly, in which case the resulting pressure necrosis is the cause of the mischief, because it furnishes these micro-organisms dead tissue to thrive upon.

(5) *a*. Theoretically catgut sutures and ligatures are objectionable; *b*. practically, if applied properly and not tied too tightly by a clean surgeon with clean assistants, they are absolutely satisfactory and not objectionable.

(6) *a*. Theoretically, it is as safe to operate upon clean cases after dressing suppurating wounds as at any other time; *b*. practically, surgeons who follow this practice always have a great amount of wound infection on account of accidental contamination of something coming in contact with the wounds.

In order to have wounds heal without suppuration, he believes the following conditions should be considered:

(1) The surgeon, his assistants and nurses must be habitually clean, and the skin of their hands must be free from irritation and roughness.

(2) Their attention should constantly be directed towards the prevention of accidental infection.

(3) The surgeon and his assistants should be careful not to breathe or speak into the wounds.

(4) Tissues should not be exposed to unnecessary traumatism.

(5) Sutures should not be tied tightly enough to cause pressure necrosis.

(6) A reasonable system should be employed, so that everyone concerned can assist intelligently in preventing infection.

EXPANDED METAL A NEW SPLINT MATERIAL.

Hübscher³ calls attention to this new building material as valuable and convenient for making splints. It can be made of any metal, as aluminum, and with metal shears is easily cut into any desired form. The open, lattice-like form of the metal makes it yield readily and conform to the contour of the limb, and yet when bound in place it is very rigid. In dressing a leg the foot piece is made by cutting the metal transversely nearly half its breadth on each side; it is then turned up along the sole of the foot, the cut ends interlocking into the leg portion of the lattice work. Angular splints of great rigidity are made in this way for any portion of the limbs or body. When combined with plaster-of-Paris this splint produces exceptional rigidity, and yet can be made much lighter than a splint made in the ordinary way of plaster.

PAIN AS A PATHOGNOMONIC SYMPTOM OF ECTOPIC PREGNANCY.

Coe,⁴ in a paper read at a meeting of the Harvard Medical Society, January 27, 1900, summarizes his views as follows: Pain alone, when not accompanied by a clear history of menstrual irregularity, symptoms of pregnancy, and the presence of a tumor at the side of the uterus or in Douglas's pouch, known to be of recent development, is pathognomic of extra-uterine pregnancy only under certain conditions, namely: The pain is of a sharp, colicky character, distinctly localized on one side, attended with faintness more or less marked, and is usually followed by intervals of hours or days of complete remission. The pulse is accelerated during the attack, but there is no rise of temperature. The latter is an important symptom distinguishing ectopic from inflammatory conditions. The violent tearing pain attending intraperitoneal rupture is accompanied by the unmistakable evidences of internal hemorrhage. In extraperitoneal rupture the symptoms vary in severity according to the amount of blood lost, but soon subside, being succeeded by the usual evidences of pressure resulting from a mass in the folds of the broad ligament which displaces the pelvic organs. A persistent pain following the acute attack may indicate localized peritonitis.

² Chicago Medical Recorder, February, 1900; American Journal of the Medical Sciences, May, 1900, p. 506.

³ Centrbl. f. Chir., March 3, 1900; American Journal of the Medical Sciences, 1900.

⁴ Medical News, April 21, 1900, p. 601.

A REMOVABLE DEEP SUTURE.

Schoemaker³¹ describes a simple removable suture which overcomes the difficulties which have surrounded the employment of non-absorbable materials in uniting abdominal wounds layer by layer. It is nothing more nor less than the chain-stitch sewing of the older machines. A needle is employed having the eye in the point. It is carried through both sides of the wound and the loop caught. Without unthreading the needle it is withdrawn and the second stitch taken. This time, and on each successive stitch, the loop is carried through the last loop, thus locking it. The final stitch is carried out through the skin and the end pulled through the loop. When it is to be removed the end is withdrawn from the last loop by pulling on the thread, each successive loop is drawn out, and the whole thread is thus released. The thread can be drawn very tight without interfering with its removal, but rather facilitating it.

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Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY.
SECTION FOR CLINICAL MEDICINE.
PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting, April 17, 1901, Dr. V. Y. Bowditch in the chair.

DR. S. A. KNOPF, of New York, read a paper upon

MUNICIPAL CARE OF THE CONSUMPTIVE POOR.¹

DR. KNIGHT: I certainly think we are very much indebted to Dr. Knopf for taking the trouble to come on here and help us out in our effort to make some headway, as I think we have already begun to do, against this great scourge. What Dr. Knopf has said certainly does not call for criticism, but only for commendation. I am very glad, however, to have this opportunity, after making a few comments on topics which he has suggested, to give my experience before our legislative body, particularly in behalf of the institutions for which I have appeared. Before I do

that, however, I will say, in the first place, in regard to Dr. Knopf's statement that we have undertaken the most difficult task of all in setting up a hospital for the chronic cases, in undertaking to care for that class of consumptive patients, that this is true. It is a task of enormous magnitude and incapable of complete accomplishment. In the same way it seemed in the beginning, when the infectious character of the disease was first admitted, too big a problem to attack. But, although we cannot do at once all we strive for, we can accomplish a great deal, and that is very well shown in the statistics, particularly of German cities where they undertook the thing more seriously and earlier than we did. For instance, in Berlin in ten years after the adoption of very elementary regulations the mortality was diminished one-third. That is a tremendous gain. I don't believe the disease is going to be extinguished, but if we can make any such change in the mortality rate as that, it will be worth the undertaking.

Another thing has interested me very much. Dr. Knopf does not speak of it here, but does in his book. It pertains to the economic side of the problem, and that is the side which naturally, after the humanitarian, appeals to the legislator. He does not want to appropriate money too freely for the sake of humanity or of philanthropy, but if he finds the economic question favorably affected, he is all the more willing and ready. The point which I refer to is the experience of the insurance companies in Germany, the companies which insure the working people during sickness and make payments after death. These companies quite early became interested in the treatment of tuberculous cases, and began to put them into sanatoria, and they got them in so early that they obtained the best statistics as far as concerned shortness of stay required for cure; and they were so good that some of the companies, as Dr. Knopf states, have set up sanatoria for themselves, so that when their risks are infected with tuberculosis they have institutions in which they can put them for a few months or a year until cured, and then send them back to work. That is a good illustration of the economic value of these institutions for the treatment of the early cases.

In regard to the question of cure. I think we admit here in Boston the ultimate cure of many cases, but it takes a long time. If we should have an autopsy in arrested cases at the end of a year I don't think we would always call them cured by any means. With this idea of cure in mind we are possibly liable to make a mistake in returning cases of arrested disease too soon to their old occupations. I think we must be exceedingly careful about this.

Dr. Knopf speaks of the children. That is a very important point in the attack on the whole question, the treatment of children of consumptives. It is undoubtedly true, as he says, that a seashore home for them would save a very large percentage from developing tubercular disease in the future; so also is the treatment of the pregnant woman very important, a matter which has never

³¹ Centrbl. f. Chir., April 7, 1900, No. 14; American Journal of the Medical Sciences, July, 1900.

¹ See page 487 of the Journal.

engaged our attention very much. And in regard to a commission, there is no question about its value. Just think how soon we would have had a commission if acute disease of such mortality had come upon us suddenly — yellow fever or any of those diseases which produce such scares — they would get a commission in a very short time; but this being chronic, we have become so used to it, that a commission never occurs to anybody. But a commission can do as much good or more in the treatment of a disease chronic in its nature as it can one that is acute.

When I first went to the legislature in regard to the sanatorium at Rutland the first thing that struck me was the willingness, apparently, of the committee to give us anything we wanted. The gentleman who had charge of the bill had no idea that he was going to get it through the first year. The finance committee, however, before whom that bill went, seemed to be unanimously in favor of it, and said to me: "You will eventually want more than one — two or three in different parts of the State?" I said: "Certainly, I think so." So it went through. And so it was the next year when we went up on some related question, and again this year, when we asked for a second sanatorium, the committee seemed fully alive to the importance of the matter. This has yet, however, to come before the finance committee. The committee, being business men, I think appreciated the economic as well as the humanitarian side of the question.

In our effort thus far to get a hospital for chronic cases in this city I think it is possible we made a mistake in designating the locality. It is possible if we had simply asked for an appropriation for that purpose and left the selection of site to a board of trustees afterward, it might have been better; but there had been so much talk this year about the expenditure of city money that it seemed rather improbable that we could get a large enough appropriation to build a suitable home, and so we looked around to see if the city owned any buildings which might be utilized without great expense, and we found the old Marcell Street Home in Roxbury which the city owned and apparently had no use for, and after talking with the Mayor about it, it was understood if we asked for a building for that purpose he would recommend this one, which he did, but the recommendation failed to pass the council for various reasons, partly the opposition of neighbors, and very likely some members of the city government had other ideas in regard to the disposition of this building. There are some members of the city government here who will speak for themselves. I think, as far as I have heard anything about it, the feeling of the members of the city government is that we ought to have something of the kind, that if we ask for an appropriation for this purpose we will be likely to get something, and I hope what Dr. Knopf has said tonight will aid us in accomplishing that object.

DR. E. O. OTIS: I desire to express my appreciation of Dr. Knopf's kind service to us in com-

ing here to give us the results of his most valuable and wide experience upon this all-important question. Surely no one, either in this country or in Europe, could speak with more authority. The whole civilized world is now aroused to the importance of stamping out consumption, and as evidence of this great movement is the coming "Congress on Tuberculosis," in London, under Royal auspices, a programme of which I have here and from which it will be seen that the subject of dealing with consumption is an enormous one.

The State and municipal authorities can and do now legitimately interfere in the matter of prevention. Consumption is a contagious disease, and the community have a right to demand of the authorities that all proper and known means should be employed to protect them from it. Further, as the municipality has assumed the duty of providing decent accommodations and proper medical care for the unfortunate sick poor, it can no longer ignore the large yearly contingent of poor consumptives who now are excluded from all the general hospitals. It is an unjust and cruel distinction of two equally worthy poor patients, to afford one all the benefits of our magnificent City Hospital because he is fortunate enough to have any other disease except consumption, and to relegate the other to the poorhouse because he is unfortunate enough to have consumption. I believe our city Board of Health has wisely put this disease in the list of contagious ones, and requires notification, as with the other contagious diseases; but as a logical result of this ordinance, the city must afford the Board of Health some means of isolating the poor consumptive when it finds he is endangering the lives of those about him. His honor, the mayor, and the honorable city council have taken this matter in hand, and already there is a bill before the city authorities for the appropriation of money to provide a city consumptive hospital. I believe that this will be in the process of accomplishment within the year. In a recent letter received from Dr. Briggs, of the Department of Health of New York City, he writes me that he hopes before the end of the present year to have in that city a consumptive hospital with a capacity of four or five hundred beds. I do not believe that Boston will be far behind New York. Dr. Knopf has elsewhere said that it is his firm conviction that for social and economic reasons the majority of tuberculous patients will have to be treated near their homes. In this opinion I concur, and all the more true is it because the majority of tuberculous patients are poor.

The district physicians of our Boston Dispensary are continually clamoring for some place to send their advanced cases of consumption, both that they may receive proper care and for the sake of the protection of the other members of the household. They will not go to the poorhouse because, from a natural pride, they do not want to die as paupers.

None of us believe that a city consumptive hospital will alone stamp out consumption — better

housing of the poor, better knowledge of how to live and take care of one's health, better sanitary conditions of workshop and store, more air spaces, playgrounds, sand-gardens, open air gymnasiums, fewer saloons, are all very essential factors in this great warfare against tuberculosis. Moreover, we must strive for a wide dissemination of the simple methods of avoiding the tendencies to consumption, and of safely disposing of the sputum of a consumptive.

Regarding the administration of a city consumptive hospital, I believe as Dr. Knopf does, that there should be as careful medical supervision of the patients as in the general hospitals, both in regard to the patients themselves and in order that there may be no possibility of danger to the neighborhood. As Dr. Knopf has shown, a properly supervised consumptive hospital is not only not a menace to the neighborhood, but on the contrary is a benefit to the community by serving as hygienic educators. As Dr. Knopf has said, "Well-conducted sanatoria for consumptives are not centres of infection, but, on the contrary, places where one is safest from contagion."

Another valuable aid in stamping out consumption is the especial ambulatory clinics for tuberculosis, such as now exist at the Boston Dispensary. Here one gets hold of the early cases, instructs the consumptive how to make the most of such environment in which he is obliged to live; how to keep from infecting others, and in many other ways such clinics are most valuable, not only in aiding the consumptive himself, but in protecting the community. Such especial clinics can from their nature, give more careful and prolonged attention to their patients than could be afforded in large general clinics. For example, during the first three months of this year there were 517 new patients at the tuberculosis clinic of the Boston Dispensary, and 1,120 new and old patients. Regarding State sanatoria I think we will all agree that Rutland has been and is of inestimable value, particularly in its educative influence. We shall soon have all over the State patients who have learned the plan of the open-air treatment and who, by example and precept, are teachers of others in wholesome methods of living, and who can show consumptives who cannot leave home how they can make the most of their home conditions. Patients from Rutland are now setting up boarding-houses in Rutland and elsewhere, where consumptives who cannot get into Rutland can go and carry out essentially the same plan of life and treatment as at the Sanatorium.

DR. A. K. STONE: I think we all thank Dr. Knopf for coming and giving us this talk, and also for the very flattering things he said about Boston and the State of Massachusetts. We are always glad to have the flattery, and we hope all he has prophesied will come to pass in the near future.

I was specially interested in what he had to say about the harmlessness of sanatoria. It is a subject to which the public must be educated. We have gone so far in our education of the public

that consumption is a dangerous disease to those who come in contact with it, that we have almost produced the belief that a consumptive is a leper. It comes upon him in all directions. The poor man finds he is shut out from workshops and boarding-houses, avoided by friends, and in many ways his life is made very miserable. It seems to me we must swing the pendulum back and say the consumptive is not a dangerous person if he takes care of himself, lives in suitable surroundings, of which sanatoria are by far the most suitable. The medical man and the layman must all be taught that the properly constructed sanatoria are places where disease is held in check, not spread, and that the idea of the hypothetical bacillus that floats away from the walls or surroundings of a given sanatorium and is conveyed for half a mile's distance, is entirely hypothetical and must be disregarded. Even with a consumptive walking about the streets, expectorating on the sidewalk, the chances of the sputum being diluted, washed off, carried into the gutter, are very great, so that even in our dusty streets the amount of dilution is so much that probably the cases of infection from that source are very few in number; but when you come to cars, railway stations, and office buildings, where the material is confined, quickly powdered by the rapidly tramping feet into fine dust, there is a chance for infection; but it is not there even that the greatest chance lies, but in the home where the man is living in a small room, often with a carpet, there the chance of dust infection with him is very great. But where you come to the clean-painted walls, the hardwood floors, with care of himself and constant teaching in the care of his sputum and the general need of cleanliness, and the undesirableness of unnecessary coughing, immediately the disease is held in abeyance, and the chances of its spread are very, very slight. We want to emphasize this just as emphatically as we have emphasized the danger on the other side.

DR. MILLETT: I feel very keenly the compliment paid me in asking me to say a few words, quite as strongly as I feel my inability to speak on the subject. Dr. Knopf kindly mentioned our institution, and certainly after his able paper we must all of us keep very quiet. My own personal experience leads me to say a few words, however, about some of the subjects that have been mentioned. One is that the institution should be small. It seems to me it would be better if every county in the State had some such institution. Patients would be near their homes, could visit their homes when they began to get better, and would be much happier. Another idea is to tell the patient they contaminate themselves with the sputum if not extremely careful. This leads them to be still more cautious, and is kinder than to say they will poison other people. Dr. Otis spoke of the number of hours the patient should be out of doors. It is perfectly easy for a patient to be out of doors twenty out of twenty-four hours eight months of the year. In regard to cough, if they are out of doors eighteen to twenty hours a day

the cough almost wholly disappears and all the other symptoms are ameliorated.

DR. GERRY: I am very much pleased to be present tonight and to hear the discussion. I have been interested for a good many years in this matter of the prevention of the spread of tuberculosis. Two years ago, when I was president of the Norfolk District Medical Society, we tried to instruct the Boston Board of Health in regard to the prevention of tuberculosis, calling on them to fine people, etc., and we found that they had done that. Another idea we brought out was, that all rooms which were occupied by the consumptives, and in which consumptives died, should be just as thoroughly disinfected as those rooms in which people died from diphtheria, scarlet fever and typhoid fever.

I will not touch, particularly, upon the medical side of it, but I would like to say a word regarding the municipal side. There are, of course, a good many things to be considered when the city government begins to think about establishing a hospital, which necessarily must cost \$100,000 to \$300,000 in its building and be quite a large expense in the matter of maintenance. Those are the two things, as my friend Alderman Norris will tell you, that all committees of the city government have to consider. In the first place, we have the loan bill which comes in the finance committee, and another bill coming in the appropriation committee for maintenance, entirely separate and distinct, and one cannot encroach upon the other. I am happy to be able to say that I think that, not only the city government but the citizens of Boston are not only prepared to do what they can for the tuberculous poor, for their comfort, cure and the prevention of tuberculosis, but they are also desirous — the citizens are — that the city government should do something practical as soon as possible. I was very glad when this matter was brought up as it was in regard to the Marcella Street Home. I did not favor the Marcella Street Home as a hospital for the consumptives of this city. I opposed it because I did not consider it a proper place. It would be well enough if we could not have something better, but I was in hopes and am now, that we shall have something better. I felt that if the tuberculous poor of the city were turned into the Marcella Street Home we should never get any further, or not for many years. When you come to expend \$10,000, as I believe the estimate was, for fixing up that old trap, we would have had to get the interest on the money before we could have moved to West Roxbury or Dorchester or any place better, hygienically and every other way. I think I can promise as much as anybody can promise who has to do with the voting of city money or getting votes enough for carrying a loan for any institution, that something will be done this year by the city government to see if we cannot relieve the tuberculous poor of the city of Boston, and put them in a place where they will not only get great benefit themselves, but cease to be a menace to their families and friends.

A remark was made by one of the gentlemen that we should not carry our tuberculous patients too far away from home. That is a very important point. Of course, it may be that the city of Boston may buy land and may establish a consumptives' retreat, we will call it, for the cure — I say for the cure — not only cure, but also, outside of the limits of Boston, the housing of chronics. I am one that believes that we can have two elements in this matter of a consumptive home; that is, properly treat the people who are amenable to cure, and also the people who are unfortunate and who are obliged to be victims of the disease. Now, we know that in our institutions for insanity, for instance, — Pierce Farm and the insane hospitals at Taunton, Worcester and other places, — the poor find it a burden to have the sick member of the family too far away. The car-fare is quite an item to the poor man. Then, again, it costs the poor man his day's labor when he goes to see his sick wife or one of his children. Of course, it is not quite as hard on the wife. I suppose the women do most of the visiting, but still the men like to go once in a while and see the sick friends, and the expense is, naturally, quite a little item; so that we find that Anstin and Pierce Farms are very popular as places of retention and treatment of the insane, and made so largely by the fact that the friends of the insane can go there for ten or fifteen or twenty cents, on, perhaps, a holiday or Sunday, when they will not be exposed to losing their day's pay. I, occasionally, have applications from people who think their friends are going to be transferred from Pierce Farm to Taunton and wish them to be retained there, and state as the reason that it is so much handier to go there to see them. I am very glad that this matter is going to come up this year, because I want to take an active part in doing what I can to follow out the suggestions of my old teacher, Dr. Knight, and of the other medical gentlemen of Boston, whom I know very well, and I can assure you that we will do all that we can to secure the establishment of such an institution as you desire.

I agree with one of the gentlemen who said that instead of one large building, two smaller ones or more are better, if that plan can be carried out without too great an additional expense. If it cannot, we shall have to have larger buildings and do the best we can.

I am very glad of this opportunity to say my word, and I think you will be able to look to me to do what I can to help this matter forward.

MR. O'TOOLE: I do not know that there is much that I can say, speaking from the standpoint of a layman only whose interest lies in conquering as much as possible this disease, consumption. The first of this year I introduced an order in the city government for a municipal hospital for the care of incurable cases of consumption. The order asked for the loan of \$400,000, and was referred to the finance committee. About the same time a committee, composed of the medical men of Boston, and I talked over the subject, and it

was proposed that we try to procure the Marcella Street Home for a consumptive hospital, and while I feel we may have made a mistake in so doing, I think our efforts were not wholly lost, for the educational work and the interest aroused through newspaper agitation were of great benefit to the community in enlightening them in reference to this disease. I feel, as a member of the city government, that this year we will get something in the way of a municipal hospital. Of course we may not be able to get a loan order of \$300,000 or \$400,000 through, on the plea of economy; but, inasmuch as the city government is thinking of appropriating \$100,000 for a municipal zoo, I think it ought to be possible to get \$200,000 or \$300,000 for a municipal consumptive hospital. I will do all in my power to keep up the agitation, and feel it will result this year in something. I thank the gentlemen of the society for inviting me here tonight. I have been very much pleased and instructed by the paper read by Dr. Knopf.

MR. NORRIS: I am here on the invitation of Councilman O'Toole, and I am glad I came. I was very much interested in listening to the discussion of the subject by the various medical gentlemen. Owing to the agitation of members of the Massachusetts Medical Society, with the co-operation of certain gentlemen connected with the city government, I think the chances of getting a consumptives' home in Boston are very good. I was pleased to hear the remarks of Dr. Gerry, who is associated with me on the finance committee. As chairman of that committee, I wish to say that when a meeting of that committee is called I shall be pleased to give a public hearing, and invite the members of the Massachusetts Medical Society to appear, in order to encourage the idea of a consumptives' home in Boston. I believe we should have such a home, but I believe in having it built within the limits of the city, so as to give the poor people of the city an opportunity to see their friends without expense and loss of time. I was at first in favor of using the Marcella Street Home as a consumptive hospital, but later I felt that were I a resident and abettor on that place I possibly would object to having such an institution there. I believe it would be best to place it on some of the vacant land owned by the city. Our financial resources this year are large. We can borrow in the neighborhood of \$6,000,000. Now I think Dr. Gerry ought easily to secure \$200,000 of that for a consumptives' home, and I want to say to Dr. Gerry that I shall assist him in any way possible to secure enough money for that particular object.

I was very much interested in the paper read by Dr. Knopf, and I would like to see a copy of it when it is printed. This is a discussion which interests the home, the poor people whom I am pleased to represent. I know of cases which cannot be taken at Rutland because that hospital is already crowded. We have not a hospital in the city, except the Carney, which will take incur-

able cases of consumption. It is a shame, in my opinion. I am glad to see the Massachusetts Medical Society take this matter up. I believe that with your assistance and co-operation we shall be able this year to secure a consumptives' hospital. I thank you, Mr. Chairman, for inviting me to say a few words on this important subject.

DR. RICHARDS, of Fall River: I have come here tonight with three of my colleagues on account of the fame of Dr. Knopf and a little personal correspondence I have had with him from time to time, and because of the great interest that we, in the third city of this Commonwealth in point of population, have in this subject. We have been trying to do a little educational work in our city. We induced the mayor in his last annual address to suggest a municipal hospital. We are interested in the progress of Boston and other cities in this line; for we hope in our own municipality to be able to have some means of taking care of the consumptives. At present our chronic cases are admitted to our city hospital, which is an almshouse although a perfectly equipped hospital.

There is one point which has been a drawback, which no speaker has referred to, and that is the unwillingness of the patient in the early stages to accept the diagnosis of the physician, and also the unwillingness of many physicians to make the diagnosis, although pretty certain in their own mind that they have a case of tuberculosis to deal with. Furthermore, among many people, no sooner is a diagnosis of that kind made by a conscientious physician in the early stage of the disease than the patient promptly calls another physician. It has been said to me by a physician of ability that he could not afford to make such a diagnosis, because if he did so he immediately lost his patient, so that he must call it bronchitis, etc., and do the best he could until such time as the disease had advanced sufficiently to be evident to any one. We have a campaign of education to make among the profession as well as among the laity. There can be no doubt of the laity being scared. I visited Rutland and Princeton last summer, and the gentleman who drove me around told me that people from New York and Boston, summer residents, were afraid to drive within two miles of the Rutland Sanitarium for fear of being infected. I was told by a physician in the town of Princeton that the idea suggested itself to him of having a sanitarium in Princeton, but he said if he did he would lose all his other practice. No tuberculosis patient will be admitted in any private boarding house or hotel. The summer residents of the town of Princeton are scared on account of the proximity of the town of Rutland, and afraid of great depreciation of property on account of the nearness of Rutland.

We are having the same trouble as others with reference to sending patients to Rutland. A few years ago we could not get the patients to go, and now they are returned because there is no

room. I was afraid possibly it was because we were away from Boston, and did not have any pull, and I wrote Dr. Bowditch that we were afraid that we were being discriminated against; but he replied that we were not; it was the same from every quarter. Massachusetts is doing a tremendous amount of good along this line, and such meetings as this do good because reported elsewhere. A little pamphlet of mine on the "Duty of the State towards the Tuberculous" was used this year before the legislature of Minnesota, and a physician in St. Paul wrote me that they had secured the appropriation for the land, and hoped next year to get the building.

Dr. FAIRBANKS: I would like to relate one case to illustrate the utter impossibility of treating these poor people in their homes. A woman came some time ago with moderate trouble in the lungs, and we put her through the usual course of instruction. She had no appetite, and we put her on a bitter tonic. She came back in the course of a week, saying her appetite was better, and went away again, and that kept up three or four weeks, yet she did not gain, was steadily losing, but each time she said her appetite was better. On inquiring more thoroughly into her circumstances, with reluctance, she admitted that some days she got scarcely anything to eat. It was absurd to give that woman a tonic for her appetite when she had not anything to eat. She informed us that her husband had died some months previously of the same disease and she had nursed him. All the funds had gone. There were two children in the family. Two weeks ago an Italian woman came with incipient trouble in one lung; she had six children, the oldest eight and the youngest under a year. She could not speak English. It was almost impossible to talk to her, to advise precautions; practically a hopeless case. We could do nothing to save those children from the great danger to which they were exposed. It is the matter of food, which is the greatest difficulty. We may give these people a good appetite, but cannot furnish the food to satisfy it.

The educational value of these people who come from a sanitarium, particularly from Rutland, is great. I have had occasion to examine several who have come simply to have their lungs examined. It is remarkable to compare them with the ordinary case from the city homes. I have sometimes felt perfectly helpless in dealing with these latter people. I do not know what to do. All cases of evident trouble are reported to the city. All they do is to visit the case, keep track of it until death occurs, when they disinfect.

Dr. V. T. BOWDITCH: The object of this meeting was to give a special impetus to the efforts made lately by some of our colleagues and a few of the laity towards establishing a municipal hospital for the consumptive poor, more especially for the advanced cases who are known to be too ill to receive permanent benefit from sanitarium treatment.

It is especially gratifying to hear of the cordial endorsement which the scheme has received, not

only from the mayor, but from influential members of the board of aldermen and common council. Whatever decision is finally made as to location, it shows us at least that we have hope for the establishment in the near future of a suitable institution in or very near Boston. No one could possibly realize more than myself the crying need which exists here for proper shelter for the hopelessly ill consumptive. In my connection with the Sharon Sanitarium and the State Sanitarium at Rutland I am constantly brought face to face with these poor people for whom there exists no adequate provision, and the pathos of it cannot be too strongly painted.

Our hands are tied in trying to give these poor people advice. If we tell them to try to get into the country, we find that the doors of boarding houses are becoming more and more tightly closed against them, as the idea of the communicability of the disease becomes more and more an established idea in the minds of the community. We need say nothing at this time of the instances of heartless cruelty on this point which must come to the attention of every physician who has had any experience with such cases. Surely it is our duty to provide adequate shelter and treatment for these poor people without delay.

I can add nothing to what has been so well said here this evening. I only wish to emphasize most heartily what Dr. Otis has said in regard to the possible marked improvement of some patients sufficient to warrant their transfer to a sanitarium for the more hopeful cases. I claim that no physician can speak positively as to the future of any consumptive from one examination. Surprising cases of improvement with proper care we all see, and we should adopt no name for such a hospital which would seem to take away hope from those who enter it. While I believe its purpose should be primarily to receive the advanced cases of consumption, under no condition whatever should it be called a hospital for incurables.

I wish to add my thanks and express my sense of personal obligation to Dr. Knopf, who, at much sacrifice of time, has given us his valuable and helpful paper this evening.

Dr. KNOPF, in closing the discussion, said: My eminent colleague, Dr. Knight, did not quite agree with me on the expression "absolute cure." In a little work I recently published,² I quoted the following statistics which give an idea of the relative duration of cures of consumptives. These statistics are of recent date: Among 99 patients discharged from the Falkenstein Sanatorium as cured, 72 were well at the time the inquiry was made, which was three to nine years after the patient had left the sanitarium. In 15 cases a relapse had occurred, but 12 of these patients had improved again; 12 of the 99 had died. Dr. Wolff's inquiries concerning 95 patients discharged as cured from Bremler's institution in Garbersdorf, resulted in the following: Five were alive

² American Edition of the International Prize Essay, Tuberculosis as a Disease of the Masses and How to Combat It. M. F. Firestack, 200 West 94th Street, New York: Publisher.

and well after a period of from twenty-one to twenty-nine years; 52 were well after a period of from twelve to twenty-one years; and 38 were well after a period of from seven to twelve years. Dr. Hauffe, of the St. Blasien Sanatorium in Germany, wrote in 1891 to 324 former patients who had left the institution between 1879 and 1889. Forty-six did not reply, 5 were reported dead, 12 had grown worse, 201 thought themselves still relatively cured, and 72 were absolutely cured. Dr. von Ruck, of Asheville, N. C., reported to the author of this essay that he had written to 650 of his former patients who had left the sanatorium from one to three years before; 457 responded, directly or through friends. Of these, 67 felt absolutely cured; 70 felt relatively cured; 258 felt still improved; 62 got worse or had died. Dr. E. R. Baldwin, of Saranac Lake, N. Y., reported recently that at the Adirondack Cottage Sanatorium they were in constant correspondence with 115 patients who had been discharged within the last ten or twelve years, and while a few had relapsed slightly, the majority were well at their homes. Of course these reports do not, and cannot, correspond exactly. With the exception of the last-named institution, which only takes patients in the earlier stages, those sanatoria receive patients for treatment in all stages of the disease. But, as a whole, these statistics are certainly encouraging, and the question, "Can consumption be absolutely cured?" may well be answered in the affirmative. Of course, in regard to patients discharged from a sanatorium as cured or improved, there remains a most important work to be done to help the solution of the tuberculosis problem. We must keep the patient who is discharged from the sanatorium under control, and it was for this reason that I pleaded with you to have a special institution in the city, a reception hospital with a dispensary attached to it, where a patient who had been in the sanatorium could go in case of a relapse, and ask new advice if his improvement does not continue.

I was exceedingly pleased by the favorable comments made by several of the gentlemen on home climate. I believe that the majority of consumptive patients, and the majority of them are poor, should be treated in a climate as nearly as possible the same as that in which they will have to live and work after their restoration to health. If you send a patient away to a very high altitude where different climatic conditions prevail, his chances of remaining well after his return to lowlands may be considerably diminished. But let it be understood that, no matter to what climate the patient may be sent, he must be treated and not be kept. And here I cannot emphasize enough what has already been said so well by my distinguished friend, Dr. Otis, that a so-called "consumptive home" without a residing medical officer to supervise and treat the inmates, can not be considered an up-to-date institution, intended to combat tuberculosis. To see that fifty or a hundred consumptive patients never violate any of the rules concerning the care of the infectious sputum, re-

quires more than the gentle hand of a minister or matron, the persons usually selected as managers of consumptive homes.

One of your distinguished aldermen spoke of the necessity of having the institutions near the city, saying that the relatives of the patient would be often very anxious to see him. This is true, but there is another point which I believe to be just as important: We should not send the majority of patients far away, because we must avoid adding to their sufferings another disease, namely, nostalgia, or, in other words, homesickness.

We should not make people afraid of consumptives. While we should always teach the danger and the communicability of the disease, we should not call it contagious in the sense of being conveyed from the consumptive to the healthy person by simple touch. Some people are afraid to shake hands with a consumptive. A clean consumptive is no more a danger to his fellowmen than any healthy person, and I am far more willing to go and sleep in sanatoria and in the homes of careful consumptives than in many other places. I have lived for months in sanatoria with consumptive patients, taken my meals with them, and slept in rooms previously occupied by some of them, and I felt more sure that I would not catch consumption than I feel in some of our Pullman sleepers.

Time is passing, and much as I would like to say a few words in response to everyone who has honored me by discussing my paper, I must stop. I wish to thank them and you all for so kindly listening to me. I hope we will ere long have such good and generous aldermen in New York and such a wise city and State government as you have. Then we, too, will have all the institutions we need. Let me congratulate you on the really remarkable help you receive from your city fathers, and I wish to repeat what I said in my paper that I believe Boston and the State of Massachusetts will be the first places in the Union where the tuberculosis problem will be solved.

Recent Literature.

Sexual Debility in Man. By F. R. STURGIS, M.D., formerly Clinical Professor of Venereal Diseases of the University of the City of New York; sometime Visiting Surgeon to the Venereal Division of the Charity Hospital, Blackwell's Island, etc. NEW YORK: E. B. TREAT & Co. 1900.

If originality is lacking anywhere in this work it is certainly not in its dedication, in which the writer expresses a somewhat singular sentiment in the following words: "To the sexual cripples of the United States, whose infirmities have in part contributed to his support, this book is gratefully dedicated by their obliged friend, the author." It is to be hoped that the cripples will appreciate this handsome acknowledgment; the profession may perhaps be excused for failing to do so.

After this unusual prelude there is a sense of disappointment upon finding that the work must be ranked as but one of a series, already too numerous, we believe, of similar publications, since it has not the distinction of especial excellence. It is well arranged, and the sequence of its subjects is good. The nine illustrations which appear at the end of the volume are rather inferior in quality. In the chapters devoted to the anatomy and physiology of the male sexual organs there are some interesting examples of abnormal and precocious sexual development recorded, but as a whole this part of the work adds nothing new of scientific or practical value to our present knowledge of the subjects. The chapter in which masturbation is discussed is notable chiefly for the expression of the writer's view of the subject, which combats the usually accepted belief as to the serious evils resulting from indulgence in the habit, and condemns that idea as exaggerated and mistaken, unless the habit is practised to excess such as is infrequently met with. While conceding to this work some good qualities, we do not think that it is entitled to special consideration, or that it has the merit which we might expect in a contribution from this author.

1. *Dictionary of Medical Science.* Containing a full explanation of the various subjects and terms of anatomy, physiology, medical chemistry, pharmacy, pharmacology, therapeutics, medicine, hygiene, dietetics, pathology, bacteriology, surgery, ophthalmology, otology, laryngology, dermatology, gynecology, obstetrics, pediatrics, medical jurisprudence, dentistry, veterinary science, etc. By ROBLEY DUNGLISON, M.D., LL.D., late Professor of Institutes of Medicine and Medical Jurisprudence in the Jefferson Medical College. Twenty-second edition, with appendix, thoroughly revised and greatly enlarged, and with the Pronunciation, Accentuation and Derivation of the Terms. By ROBLEY J. DUNGLISON, A.M., M.D. Philadelphia and New York: Lea Brothers & Co., 1900.

In the preface, the present editor tells us that "more than seventy years have passed since Dr. Robley Dunglison gave to the English-speaking world its first standard of medical lexicography, during which long period no less than twenty-one editions have been called for, and it is a fitting and proper tribute to his memory that the author's portrait should preface the twenty-second revision." As illustrating the growth of the many sciences embraced today in the word medicine, and the difficult task imposed upon the medical lexicographer, the preface also tells us that the twentieth edition contained 6,000 new words, the twenty-first edition, issued seven years ago, increased by 11,000; a few years later 2,000 more were added, and now in the present edition 15,000 words are added.

Dunglison's Medical Dictionary has been too long and too favorably known by the medical profession to need further endorsement at this day, beyond the statement that this new edition puts it well abreast of the times.

THE BOSTON

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NEW LIGHT ON THE CAUSE OF PANCREATITIS.

At the recent meeting of the Association of American Physicians, no more valuable or original work was presented than that embodying the researches of Dr. E. L. Opie concerning the etiology of acute hemorrhagic pancreatitis. The suggestion for the experimental investigation carried out by Opie was given by the following case:

A patient ill with acute abdominal symptoms was operated upon, and acute hemorrhagic pancreatitis discovered. No gall stones were felt during the operation, although they were searched for carefully; but at the autopsy, which occurred soon after, a biliary calculus was found in the diverticulum of Vater, occluding the entrance of the conjoined pancreatic and hepatic ducts into the duodenum. The stone was only a few millimetres in diameter, and had naturally enough escaped detection at the operation. It was of sufficient size, however, completely to prevent the entrance of bile into the duodenum, so as to shunt off the bile stream into the pancreatic duct, and an extensive infiltration of the pancreas with bile was noted at the autopsy. The possibility occurred to Opie that the pancreatitis might be due to the soaking of the pancreas with the misdirected bile stream, and he accordingly instituted experiments upon dogs, to determine whether hemorrhagic pancreatitis could be produced by the injection of the animal's own bile into the pancreatic duct.

The result of these experiments was the demonstration that the lesions of acute hemorrhagic pancreatitis, both gross and microscopic, can be produced experimentally by the injection of bile. These experiments also show that even a very temporary biliary obstruction by a gall stone in the diverticulum of Vater might suffice to produce pancreatitis. On reviewing the literature relating to autopsies in cases of acute pancrea-

titis, Opie found that in almost all fully described cases the presence of gall stones in some part of the biliary tract was noticed. If gall stones are present at autopsy in all cases of pancreatitis and if the presence of bile in the pancreas is sufficient to excite experimental pancreatitis the presumption is strong that misdirected bile is the *fons et origo mali*. It is not essential that the calculus should be in the diverticulum of Vater at the time of autopsy. It may have lodged there but a few minutes, temporarily diverted the bile into the pancreas, and then passed on. We have, then, a plausible explanation of the cause of acute pancreatitis, and while it is not yet safe to say that the only cause of acute pancreatitis is the deluging of the pancreas with bile, yet it certainly seems justifiable to consider that many cases are brought about in this way.

In the course of the same discussion, Flexner demonstrated specimens of acute experimental pancreatitis produced by the injection of gastric juice into the pancreas. He admitted, however, that it seemed very unlikely that gastric juice would find its way into the pancreas.

Two comments upon Dr. Opie's discovery will occur to everyone: First, that cancer of the duodenal papilla or pancreatic stones lodging in the diverticulum of Vater might cause a similar turning of the bile stream into the pancreas. Secondly, that catarrhal jaundice, were its pathology as generally stated, would be apt to be followed by acute pancreatitis. The time-honored hypothesis of the mucous plug at or near the duodenal opening of the pancreatic and hepatic ducts, in cases of catarrhal jaundice, has been doubted by many pathologists. We are not here concerned with the truth of this hypothesis, but desire only to point out that, if it were true, the gastro-duodenal catarrh, which we ordinarily picture as extending to and occluding the lower biliary passages, might occlude, *first*, the duodenal opening of the conjoined ducts and so turn the bile stream into the pancreas. If, then, the old explanation of catarrhal jaundice were held to, it would seem strange that hemorrhagic pancreatitis does not oftener follow. To us, however, it seems more likely that Opie's discovery will tend to throw still greater doubt upon the "mucous plug" theory of catarrhal jaundice.

No doubt these points will be considered by Opie in the printed text of his paper, no abstract or summary of which has yet found its way into any of the reports of the meeting at which it was read—a curious, perhaps an inspired, omission.

In conclusion, we desire very heartily to congratulate Dr. Opie upon the completion of one of the most interesting and valuable pieces of scientific work yet done in America.

A NEW MEDICAL LABORATORY FOR THE UNIVERSITY OF PENNSYLVANIA.

WITH the development of medical education, which has marked the last few years, has come the necessity of providing space for the prosecution of the work which is both an effect and a cause of that development. The medical school of the future clearly cannot be contained in one small building, provided with several lecture rooms and an occasional laboratory. Above all things, room is required, not only for original investigators, but also for the use of students. It is perfectly safe to say that nearly every medical school in America is more or less hampered in its teaching facilities by this lack of adequate space for the practical work of its students. It is also a safe prophecy to make that the next few years will see an extraordinary growth of buildings devoted to medical science in the broad sense.

The University of Pennsylvania seems likely to be a pioneer in this effort to enlarge the possibilities of a truly liberal medical education. We have before us plans of a proposed laboratory building, to be erected at a cost of upward of \$500,000, for the medical department of that university, with other detached buildings in contemplation. The announcement of the general plan of the new building states that it will be two stories in height above a high basement, and will measure 340 feet front by nearly 200 feet in depth. The long front faces north, securing a maximum amount of the best light for laboratory purposes. Along the front are arranged small rooms for research, rooms for professors and their assistants, a library, etc.; these open into a private corridor, so that men employed in these rooms may pursue their work without interruption from students passing through the main halls. The first floor will be devoted to physiology and pharmacodynamics, and the second floor exclusively to pathology. Special laboratories will be provided on this floor for comparative pathology, neuro-pathology and surgical pathology, with abundant rooms for individual research. In addition to these laboratories there are to be four lecture rooms, two with a capacity of 185 students and two with a seating capacity of 400. In the construction of the building care has been taken to provide sufficient light, a matter which at times is overlooked; a large central court admits direct light to the inner portions of the various laboratories. Ample provision has likewise been made for photography, which has become an essential adjunct of the modern laboratory.

This step in progress on the part of the University of Pennsylvania should prove a stimulus to many other institutions. While recognizing the fact that buildings and laboratories do not make a

medical school, nor necessarily develop investigators and scholars, we are, nevertheless, convinced that such a material recognition of the needs of medical instruction will do much to bring nearer the day when medicine will be completely established as a branch of scientific education.

THE ILLEGAL SALE OF NARCOTICS.

A SOMEWHAT alarming report comes from Vermont as to the amount of narcotic drugs sold and consumed in that State. The following is said to be in part the substance of an investigation recently instituted by Dr. A. P. Grinnell, of Burlington: "In the regular drug stores and in 160 of the 172 general stores in the State of Vermont there is sold every month 3,300,000 doses of opium beside what is dispensed in patent medicines, and beside what the doctors dispense, which gives one and one-half doses of opium to every man and woman in the State above the age of twenty-one years every day of the year. By dose I mean one grain opium, one-eighth grain morphine, one-half ounce paregoric, and twenty drops laudanum. The amount consumed each month means a half-dose for every person in the State every day of the year."

Whether or not these figures are exact, we have no means of knowing, but in any case the result of Doctor Grinnell's investigation gives us considerable food for thought. The one palpable fact of importance which we must all recognize is that drugs are sold illegally in large amounts everywhere and that no adequate measures are taken to stop the traffic. It is a common enough experience to be told by morphine habitués that they have no difficulty whatever in obtaining the drug in as large an amount as they desire. There apparently exists in certain instances a kind of freemasonry between the buyers and sellers which naturally does much to extend the evil. On one occasion a young woman who was on the verge of a complete breakdown from morphine-taking and other vicious habits, told us, with considerable resentment, that of course she would not tell where she got her drugs; that they had treated her squarely in selling to her, and that she had not the smallest intention of "giving them away." Doctor Grinnell has certainly inaugurated a good work and one which should ultimately be of great value to the community at large, if he can succeed in exposing the full extent of the vice in his State and can further accomplish the more difficult task of bringing to justice the men who profit by the illegal business.

In connection with this general subject, a recent decision of Judge Cornish, of Lewiston, Me., regarding certain proprietary medicines, is of im-

portance and interest. The litigation arose from an attempt to bring into the State a certain so-called medicine containing a large amount of alcohol. The Judge, in rendering his decision, said: "The testimony shows that wine is the predominating element in this compound; that it contains 23% of alcohol; that the wine retains its character as an intoxicating liquor, capable of use as an intoxicating beverage, notwithstanding other ingredients have been mixed therewith. The compound, therefore, falls under the ban of the law."

This, again, is undoubtedly a step in the right direction. It is extremely desirable that people in general be made aware of the ingredients of the numerous nostrums, which are paraded as specifics before the public. There can be little question that various addictions are fostered, if not actually started, by so-called specifics, the ingredients of which are unknown. The whole problem is a large one, and one, no doubt, exceedingly difficult of satisfactory solution, but a little energy on the part of the constituted authorities, and a stricter censorship of drug concerns on the part of physicians, would certainly do much to mitigate the evil.

MEDICAL NOTES.

OFFICERS OF AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.—The following officers were elected at the annual meeting of the American Gastro-Enterological Association held in Washington, D. C., May 1, 1901: President, John C. Hemminger, M.D., Baltimore; First Vice President, W. D. Booker, M.D., Baltimore; Second Vice President, S. J. Meltzer, M.D., New York; Secretary and Treasurer, Charles D. Aaron, M.D., Detroit. The next annual meeting of the Association will be held in Washington, D. C., May 2, 1902.

DEATH OF JOSEPH FODOR, M.D.—Joseph Fodor, M.D., professor of hygiene at the University of Budapest, has died. He was born in 1843, was a pupil of Pettenkofer at Munich, and later studied under Baron Liebig.

A DECORATION FOR DR. CHRISTIAN FENGER.—Dr. Christian Fenger, of Chicago, has received the Cross of Dannebrog from King Christian IX, of Denmark, in recognition of his contribution to surgical knowledge.

SMALLPOX IN DETROIT, MICH.—A number of cases of smallpox have recently been discovered in a Polish convent in Detroit. The institution has been quarantined by the Board of Health.

SPECIAL TRAIN FOR THE AMERICAN MEDICAL ASSOCIATION.—Arrangements have been perfected with the Chicago & Northwestern Railway, to run a special train from Chicago to St. Paul for the

accommodation of such members of the American Medical Association and their friends as desire to attend the fifty-second annual meeting.

A NEGRO CENTENARIAN.—Rev. William H. Connor died recently at his home in New London, Conn., aged nearly one hundred and one years. He was born in slavery.

STANFORD E. CHAILLE, LL.D.—Tulane University, New Orleans, has recently conferred the degree of LL.D. on Dr. Stanford E. Chaille, dean of the medical department.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, May 22, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 60, scarlatina 35, measles 150, typhoid fever 8, smallpox 13.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending May 18th was 193, as against 245 the corresponding week last year, showing a decrease of 52 deaths, and making the death rate for the week 17.9. Consumption 27, pneumonia 26, whooping cough 0, heart disease 16, bronchitis 5, marasmus 3. There were 5 deaths from violent causes. The number of children who died under one year was 31; under five years, 54; persons more than sixty years of age, 44; deaths in public institutions, 67.

SMALLPOX IN AND ABOUT BOSTON.—Several cases of mild smallpox have come to light in Roxbury. It is said that 3,000 persons have been vaccinated in the district in which the disease has appeared, and no serious epidemic is apprehended. A single case of smallpox is also under treatment at the United States Marine Hospital in Chelsea, having been transferred from a vessel coming from New York. Isolation is complete and there is no likelihood of the development of other cases.

EXAMINATION FOR LICENSE TO PRACTICE MEDICINE IN NEW HAMPSHIRE.—The next examination for licenses to practice medicine in the State of New Hampshire will be held at the State House, Concord, on Tuesday and Wednesday, June 11 and 12, 1901, beginning at 8 o'clock A.M. All unlicensed physicians who were not in practice in this State on and before March 16, 1897, must pass the examinations in order to receive a license to practice legally their profession.

A CENTENARIAN.—Mrs. Eunice Slade died in Walpole, N. H., May 12th, at the age of one hundred and one years and six months. She was married before she was twenty, and is survived by 2

children, 15 grandchildren and 13 great-grandchildren.

BEQUEST TO THE CARNEY HOSPITAL.—By the will of the late Julius Adams the Carney Hospital is to receive \$56,500.

NEW YORK.

OPENING OF HOSPITAL FOR CRIPPLED AND DEFORMED CHILDREN.—The formal opening of the New York State Hospital for the Care of Crippled and Deformed Children, at Tarrytown, took place under the most gratifying auspices on May 17th. The establishment of the hospital is due, mainly, to the efforts of Dr. Newton M. Shaffer, now its surgeon-in-chief, who, in a paper on "The Care of Crippled and Deformed Children," read at the annual meeting of the National Conference of Charities and Correction held in May, 1898, spoke of the large number of these unfortunates who were being only half cared for by the existing medical institutions of the State, and aroused interest in the subject. Later, a bill incorporating a State hospital for this class of patients was passed by the legislature and an appropriation for it of \$15,000 for the first year was made. In June of last year, an old country house on the banks of the Hudson, at Tarrytown, with spacious and attractive grounds, was leased, and has since been renovated and equipped for hospital purposes at an expense of \$5,000.

AMERICAN CONGRESS OF TUBERCULOSIS.—The second annual Congress of Tuberculosis was held at the Hotel Majestic on May 15th and 16th, under the auspices of the New York Medico-Legal Society. The election resulted in the selection of Dr. A. N. Bell, of New York, former President, as Honorary President; Dr. Henry Holton, of Vermont, as President; and Clark Bell, Esq., of New York, President of the Medico-Legal Society, as Secretary and Treasurer. A long list of vice presidents was also elected. The aims of the congress, as announced, were: First, to determine the best methods for checking the spread of consumption; and, second, to recommend legislation for carrying the same into practical effect. It cannot be said, however, that the cause of scientific medicine was advanced to any appreciable extent by the meeting. No discrimination, whatever, seems to have been shown in the selection of papers, so that the time of the convention was largely taken up by cranks and by those with axes to grind in the shape of self-lauded special methods of treatment.

APPOINTMENT OF DR. FREDERICK PETERSON.—Governor Odell has made an admirable selection in the appointment of Dr. Frederick Peterson, of New York, on the State Commission in Lunacy, in the place of Dr. Wise, which was announced on May 13th. In addition to having made spe-

cial studies in Europe, comprising six years in all, Dr. Peterson was for three years first assistant physician in the Hudson River State Hospital for the Insane. He has had a large experience as a private consultant, and is at present president of the Craig Colony for Epileptics, consulting physician to the Manhattan State Hospital for the Insane and clinical lecturer on insanity in the medical department of Columbia University.

SMALLPOX.—In consequence of the considerable number of cases of smallpox occurring among immigrants arriving from Naples, Health Officer Doty recently held a conference with the various steamship companies trading to that city, in which the companies agreed to at once notify their agents abroad to use their best efforts to secure the rigid enforcement of the regulations regarding smallpox and vaccination.

Miscellane.

THE ONE HUNDRED AND FIFTIETH ANNIVERSARY OF THE PENNSYLVANIA HOSPITAL.

THE exercises commemorating the one hundred and fiftieth anniversary of the founding of the "Mother of American Hospitals" were held in the new entrance hall of the hospital May 11th. Among the guests were many American physicians and not a few representatives of foreign societies and medical associations.

The address of welcome was delivered by the president of the Board of Managers, Benjamin H. Shoemaker. He spoke briefly of the first action taken to found the hospital, and introduced as the speaker of the occasion Mr. John B. Garrett, a member of the Board of Managers, who delivered the commemorative address. This was historical in character, the progress of the hospital being traced from its inception to the present time. At the time of its foundation the province of Pennsylvania had a population of about 200,000, and the city of Philadelphia 25,000. It was remarkable that less than seventy years after Penn's treaty with the Indians and twenty-five years before the Declaration of Independence was signed, an institution for the care of the sick should be established, and, what was more remarkable for those times, that it should include provision for the insane. Benjamin Franklin was largely responsible for the inception of the institution, but his name is not prominently identified with its early history.

May 11, 1751, the act incorporating the "Contributors to the Pennsylvania Hospital" was signed by Governor Hamilton, and from that day the institution dates its history. In August of the same year subscriptions to the amount of £2,751 were reported, this making available £2,000 voted by the Assembly. In 1751 the lot of ground on

Pine Street, from Eighth to Ninth, on which the hospital now stands, was purchased. In 1755 the cornerstone of the new hospital was laid.

The founding of the insane department marked a distinct epoch in the history of the hospital. A partial separation of the insane and of the sexes was begun in 1825, but the accommodations were inadequate. In 1835 a tract of 101 acres was purchased in West Philadelphia, buildings erected, and in 1841 the insane patients were removed thereto. Drs. Rush and Physick took charge of cases, and thus took a distinct step in the specializing of medicine. This period also marks the beginning of a distinct advance in the treatment of the insane, and in the results attained. The history of the insane department has been one of constant advance.

The Pennsylvania Hospital has received no State or municipal aid for over a century.

After the commemorative exercises were over the visitors made an inspection of the hospital buildings. A like inspection of the insane department was made May 18th.—*American Medicine.*

THE SUBSIDY PROBLEM IN NEW YORK CITY.

ON May 13th, when the general session of the National Conference of Charities and Correction, convened at Washington, was devoted to a discussion of the division of work between public and private charity, Controller Color, of New York, made an interesting and instructive address on the subsidy problem in that city. In the course of it he said: Largely on account of the constant afflux of an alien population, the charity problem of no other city of the world can be compared with that of New York. Prior to the passage of the so-called Stranahan Act in 1899, the city had been appropriating various sums of money to private charitable institutions, under special acts of the legislature, passed from time to time, at the solicitation of individuals interested in these institutions. No uniform policy had been pursued in the passage of these acts. The whole subsidy system was characterized by an entire lack of system. The effect of the Stranahan Act of 1899, following the Constitutional amendment of 1894, was to grant to the local authorities full and ample power and discretion in the matter of making appropriations for charitable purposes, and to throw upon the city government the entire responsibility for these expenditures. In rearranging and reapportioning appropriations for private charities in the budget of 1900, the Board of Estimate and Apportionment adopted the following principles: First, all such appropriations were included in the annual budget, which is raised directly by taxation, so that each item thereof could be under the easy scrutiny of the taxpayers.

Secondly, with scarcely an exception all payments to private charitable institutions were measured by a system of per capita charges or by

some other system of pro rata payments governed by the specific service performed.

In 1899 the amount actually expended by the city in aid of private charities was \$2,886,229.30. Under the new system first inaugurated in 1900, the Board of Estimate and Apportionment appropriated \$3,079,259.60,—it being uncertain at the time of making these appropriations just what the results of the new system would be. The actual amount expended in 1900, however, was \$2,676,534.28, or \$200,695.02 less than the amount expended in the preceding year, and \$402,725.32 less than the amount appropriated. Speaking broadly, therefore, I may conclude by saying that the subsidy system of New York City has been greatly improved by entrusting its treatment exclusively to the local authorities, and that while it is still a proper subject for much criticism and improvement, there has been enough accomplished already to mark out a path upon which the most substantial and beneficial progress may be made in the future.

THE FACTS ABOUT A TYPHOID FEVER EPIDEMIC.

In the April *Monthly Bulletin* of the Connecticut State Board of Health, Dr. C. A. Lindsley, secretary of the Board, makes the following authoritative statement regarding the recent outbreak of typhoid fever in New Haven:

On the 3d of April, 1901, 6 cases of typhoid were reported to the health officer, all in one section of the city. This was indicative of a fresh localized infection which threatened further results. An investigation was begun at once with such success that on the following day it was discovered that one reservoir, supplying the section of the city in which the fever patients resided, had become infected from a family living on its watershed. The water was immediately shut off from its consumers, and has not since been used. New cases continued to be reported daily in increasing numbers until the 9th of April, on which day 95 were reported. From that date the numbers gradually diminished until near the end of the month, when they ceased. This termination of the outbreak was expected, as the period of incubation after the 4th of April had expired. During April, between the 3d and the 30th, 455 cases were reported at the office of the Board of Health. Some of these were reported as "suspicious," and others were prematurely stated to be typhoid but which afterwards proved not to be. A careful inquiry is being made to determine as close as possible the number of true cases.

The total deaths at this date, May 12th, have been 54, nearly 12% of the cases reported. The reservoir has been emptied completely and the pipes flushed with water from other sources. The reservoir has been re-filled and will stand, by order of the Board of Health, unused a month and then drawn off, and may again be refilled for renewed use.

The New Haven Water Company, under its present management, has been and is making many efforts to protect the water from contamination. Many hundred acres of watershed have been purchased and cleared of all sources of pollution. The large extent of watershed contributing to the supply is constantly patrolled. The town health officers are paid for reporting to the company every case of typhoid fever occurring near any tributary to the reservoir.

Notwithstanding all the above precautions, this disastrous accident has occurred, and illustrates, more emphatically than any argument, the danger of disposing of typhoid excretions without previous disinfection.

Obituary.

CHARLES RICE, M. D.

CHARLES RICE, M. D., for thirty-five years a chemist in the Department of Charities of New York City, and one of the leading pharmaceutical authorities in the country, died at Bellevue Hospital on May 14th, of cancer of the throat. He was born at Munich, Bavaria, in 1841, of Austrian parents, and was educated at Munich, Vienna and Passau. He came to America in 1862, and served as surgeon's steward in the navy until 1865, when he entered the service of the Department of Charities and Correction, New York. In 1867 he was made a trustee of the New York College of Pharmacy, and afterwards served as chairman of the Pharmacopœia Committee of the American Pharmaceutical Association, and also chairman of the National Commission on Revision of the United States Pharmacopœia. He received the honorary degree of Doctor of Philosophy, from the University of the City of New York, and was an Honorary Fellow of the New York Academy of Medicine, and an Honorary Member of the Philadelphia College of Pharmacy. In addition to his professional attainments, Dr. Rice was eminent as an Oriental scholar, doing valuable work for the Indian Government, and was recognized as an authority in philology and etymology. A special meeting of the medical board and staff of Bellevue Hospital was held to take action on his death.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, MAY 11, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Measles.	Diphtheria and croup.	
New York . . .	3,437,292	1,279	415	27.65	13.75	3.83	62	4.06	
Chicago . . .	1,698,575	—	—	—	—	—	—	—	
Philadelphia . .	1,288,697	475	143	22.73	14.95	1.26	34	3.57	
St. Louis . . .	575,238	—	—	—	—	—	—	—	
Baltimore . . .	508,957	182	49	18.13	10.98	—	—	.54	
Cleveland . . .	281,728	—	—	—	—	—	—	—	
Buffalo . . .	352,387	—	—	—	—	—	—	—	
Cincinnati . . .	325,902	—	—	—	—	—	—	—	
Pittsburg . . .	321,616	—	—	—	—	—	—	—	
Washington . . .	275,718	—	—	—	—	—	—	—	
Milwaukee . . .	285,335	—	—	—	—	—	—	—	
Providence . . .	175,597	65	15	24.64	16.94	1.54	1.54	1.54	
Boston . . .	560,892	238	72	18.42	19.32	4.42	1.68	1.68	
Worcester . . .	115,421	39	1	18.38	12.82	5.56	—	—	
Fall River . . .	104,863	27	11	22.29	11.10	—	—	—	
Lowell . . .	94,969	35	11	5.71	14.28	—	—	—	
Cambridge . . .	91,886	32	11	40.62	9.37	—	6.25	3.12	
Lynn . . .	69,013	20	5	10.00	—	—	—	5.00	
Lawrence . . .	62,559	25	9	8.00	16.00	—	—	—	
New Bedford . .	62,442	16	6	25.00	6.25	6.25	—	—	
Springfield . .	62,059	15	2	13.33	—	—	—	—	
Somerville . . .	61,643	19	2	21.05	36.84	—	5.26	—	
Holyoke . . .	45,712	8	1	25.00	—	—	—	—	
Brookton . . .	40,063	7	1	14.30	42.90	—	—	—	
Haverhill . . .	37,175	11	2	9.10	36.36	—	—	—	
Salem . . .	35,566	12	2	16.67	—	—	—	—	
Chelsea . . .	34,072	10	1	10.00	—	—	—	10.00	
Malden . . .	33,064	6	3	33.33	—	—	—	16.67	
Newton . . .	33,587	7	1	—	14.30	—	—	—	
Fitchburg . . .	31,523	11	3	18.18	—	—	—	—	
Taunton . . .	31,036	9	2	22.22	—	—	—	—	
Gloucester . . .	26,121	5	1	20.00	—	—	—	—	
Everett . . .	24,536	5	1	20.00	40.00	—	—	—	
North Adams . .	23,990	12	1	28.60	14.30	—	—	—	
Quincy . . .	23,809	7	1	28.60	14.30	—	—	—	
Walham . . .	23,481	9	2	22.22	11.11	—	—	—	
Pittsfield . . .	21,766	2	—	—	—	—	—	—	
Brookline . . .	19,935	4	1	—	—	—	—	—	
Chicopee . . .	19,167	4	1	—	—	—	—	—	
Medford . . .	18,244	5	1	40.00	20.00	—	20.00	—	
Newburyport . .	14,478	4	—	—	—	—	—	—	
Melrose . . .	12,962	—	—	—	—	—	—	—	

Deaths reported 2,609; under five years of age 784; principal infectious diseases (smallpox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 619; acute

Original Article.

THE DIAGNOSIS AND SURGICAL TREATMENT OF RENAL TUBERCULOSIS¹.

BY F. TILDEN BROWN, M.D., NEW YORK.

YOUR complimentary invitation to read a brief paper of this sort gave a double pleasure, in that it meant being present with you at so instructive a symposium and, again, because we inferred the possession of some items of interest which might be offered in partial exchange for the privilege. On reviewing our material, however, this was seen to be too scanty and intangible to shape up as a satisfactory contribution to the purely surgical treatment of renal tuberculosis, and we are therefore going to ask you to accept a recital of abbreviated histories given with the brief comments which seem best suited to bring out their salient features of symptom and treatment, whether this latter may redound to the credit of surgery, medicine, or neither.

For obvious reasons, in this malady, no one can speak authoritatively, either as to the final results of supposed radical surgical treatment, or, on the other hand, as to the certain progress towards a fatal termination of all cases which are not treated in some way.

Only a few cases fall to the lot of each observer, and even if we have been successful in overcoming the difficulties of determining the exact localization of the disease, the subsequent course of the patients and their residences are not easily kept track of. Some of the reported cures by nephrectomy are rather operative recoveries, and afford but temporary respite from the dangers of new foci of tuberculosis, because other lesser lesions had not been recognized, while not a few of the cases claimed as cures by climatic influence mean but a freshly fortified organism able to keep the disease in abeyance for an uncertain period. There is no fixed limit of time permitting the positive announcement of permanent recovery by either treatment. This is not meant to disparage the well-recognized value of both procedures; in fact, we would strongly advocate combination of the two whenever feasible; by which we mean that there are no cases of purely localized unilateral renal tuberculosis which we would entrust to climatic change as the best treatment, as opposed to surgery; and, on the other hand, there are no such cases just recovering from nephrectomy where we would not seek for the patient twelve months or more of this climatic benefit.

So, if we find here tonight two rival camps ready to contend for the custody of these sadly damaged pieces of humanity, the reader may not be found a very aggressive partisan of those who claim for surgery a radical cure in renal tuberculosis, except for the cases rarely seen and diagnosed early enough; namely, those where the disease is strictly limited to one kidney.

Despite the immense amount accomplished by earnest labor in the field of tuberculosis, we have yet to hope that something more specifically curative than the knife, sanitation or the piney woods may soon be hit upon.

In other localizations of the disease the importance of early diagnosis has long been appreciated. When the kidney is involved, recognition of the fact is apt to be unfortunately tardy. The trouble is not uncommon, consequently a diagnosis of pyelitis, nephritis or cystitis should not satisfy us until the etiology has been determined, or at least most diligently sought for. To secure more satisfactory results from surgical treatment, renal tuberculosis must be detected in anticipation of, rather than long after, the objective symptoms have become so conspicuous as not alone to render differentiation of the urines difficult, but to have involved so much of other parts of the urinary tract as to preclude a radical operation. Urinary analysis in general should mean as careful a routine search for tubercle bacilli as is customarily given to the other formed elements of a sediment. When this is done, wholly symptomless cases of the disease will at times be discovered. Upon this initial evidence the suspicion should be verified and smegma bacillus excluded by getting the bladder urine through a catheter, then cystoscopic ureteral catheterization may at once be utilized to locate the lesion in the bladder or kidneys. We believe there is no more accurate and simple way to do this in both sexes than with the writer's double-barrelled ureter cystoscope, each channel of which conveys a flexible sterile catheter to its respective ureter; by this means both kidneys are collected from at the same time, while the same nerve influences and the same physiological conditions pertain. With specimens thus synchronously collected, minor qualitative variations in the excretions of the two glands may be given a value they could not be allowed if gathered in the ordinary fashion, that is, one after the other. It is scarcely necessary to point out the service rendered by such a double ureter catheterization in giving information about the other kidney, even if the specimen drawn from the diseased organ fails to definitely determine the presence of tubercle bacilli.

We have seen more than a half dozen cases where an erroneous diagnosis of urinary tuberculosis has been made because smegma bacilli were repeatedly present in urine voluntarily passed; but none of the individuals were subjected to any operation or lost much time with needless treatment before the mistake was corrected by collecting the urine from the bladder by catheter and then demonstrating the absence of these bacilli. In one or two of the cases, where tubercle bacilli might have had an origin anterior to the bladder, animal inoculation of the normally voided urine was relied upon to determine the non-specificity of the bacilli found. We have seen no case where urines gathered from the bladder or kidney by catheter contained micro-organisms answering to tubercle bacilli and afterwards, by

¹ Read before the Surgical Section of the Suffolk District Medical Society, March 6, 1901.

operation or otherwise, found that any error had been made.

In connection with this subject it seems worth while to allude to an ambiguity seen in a recent small brochure, "Surgery of the Kidney," wherein the author² cites Mendelsohn's case of nephrectomy done for pyelonephritis, supposedly tuberculous, and where quite a misleading interpretation is given to the discussion which followed the operator's report. In this it is said, "Professor Leyden called attention to the great difficulty of making a positive diagnosis of renal tuberculosis by examining the excretions from the kidney and finding tubercle bacilli, on account of the almost omnipresence of the smegma bacillus in pyelitis and the great similarity of this organism to that of tuberculosis." A novice might too readily infer from the foregoing phraseology that the smegma bacillus had a habitat in the kidney when this was affected with a pyelitis. We have been unable to find recorded any case where this micro-organism has been proven to be anergic.

Since there are cases of renal tuberculosis where the lesions are not in open communication with the urinary channels, hence the micro-organism not possibly attainable for microscopic or inoculation evidence, it is therefore proper that the symptoms, and any other aids in diagnosing the disease, should receive some brief attention.

It is not so very unusual for an open tuberculous renal lesion to shed so few bacilli that persistent microscopic search fails to find them. Here animal inoculation should always be early resorted to.

Sometimes the subjective symptoms are quite pronounced, even in the early stages of the disease; in other cases the pains are little noticed in advanced stages of the trouble, except by the behavior of the bladder, and too often these vesical symptoms are cited as evidence that this viscus is the original and only seat of the trouble. Coming to this point of our subject, it is clear that the topic cannot be handled without some reference to vesical tuberculosis, but this will be done only so far as it relates to symptoms or influences the treatment of the original invasion.

A dull aching in the lumbar region is significant; equally so is a much more acute kind of pain referable to the kidney or ureter. When these occur as crises, associated with nausea and vomiting, renal calculus or gravel colic is most apt to be thought of.

So many cases give a history of having had systemic manifestations resembling mild malaria, that we have come to look upon them as not infrequent precursors to the more distinctly localized later symptoms.

Commonly, however, patients will say they were never ill until their present trouble began with having to urinate too often, both day and night, and not infrequently they tell that they have had several recoveries from the annoyance, but each recurrence is more persistent than the last. We had once looked upon this *thannuria* as

the classical and almost pathognomonic symptom of renal tuberculosis. Further observation tends to show that, in the majority of cases, frequency of urination appears not until the lower segment of the ureter has either acquired a genuine tuberculous lesion, or at any rate marked hyperemia and edema have developed, with an irritable state about the mouth of the ureter. We have in one case seen such hyperemic patches in a bladder which had to empty itself every hour or oftener. After the removal of a large tuberculous kidney, the ureter being left, the bladder recovered its normal repose. In this instance other micro-organisms in addition to tubercle bacilli may have come from the kidney and been responsible for these inflammatory vesical patches. That tubercle bacilli or their toxins can act as irritants and produce hyperemia and yet not affect an implantation at such points, we have some slight reasons to suspect.

The principal objective symptoms are a kidney which is larger and more tender than normal, as well as all grades of pyuria and hematuria, besides a just appreciable or a very marked diurnal variation in temperature; loss of color and weight; a reaction to tuberculin; finally, the presence of tubercle bacilli in the urine derived directly from one or both kidneys.

Since microscopic examination of the urine so gathered from a tuberculous kidney is not always affirmative, we think a great deal of value attaches to the injection of tuberculin. This would be used where a unilateral pyelonephritis was found in an individual giving some other suggestions of urinary tuberculosis, but at the same time running a nearly normal temperature. Should a fairly typical reaction here follow the injection, and could tuberculous foci in other parts of the body be excluded, we would feel pretty sure that guinea pigs inoculated by sedimental urine from this individual kidney would develop tuberculosis.

The test of such urines by sedimentation and growing of tubercle bacilli on culture media has not yet inspired general confidence. But we advocate the employment of tube cultures in all cases of ureter catheterization in order to determine the presence of other pathogenic micro-organisms, making the planting direct with five or six drops of urine as it falls from each ureter catheter. Although the majority of such tests have yielded us no growths, it is to be hoped that by persistent use data may be gradually accumulated which will add to the much yet to be learned regarding the reasons for the different clinical manifestations and apparent responses to various forms of medicinal treatment of renal affections. We have, for instance, grounds to believe that a renal tuberculosis, attended with some other form of infection, would act and react differently from a pure invasion of either single kind.

It is gratifying and surprising that so few deaths attend nephrectomy for tuberculosis. We have had to do with five, and seen perhaps twice as many done by others, where no fatalities occurred. Some

² Bayard Holmen, B.S., M.D.

of these cases, however, were very sick for several days, and with a full series no one could expect less than a 5% to 7% mortality. This, and the necessary uncertainty about the apparently healthy kidney, should make us investigate every case most thoroughly before proposing a nephrectomy. Then every precaution to have the patient in favorable condition is essential. In our limited experience persistent and exhausting vomiting has caused more solicitude than any threatening anuria. Consequently, the alimentary and urinary tracts, together with the kind and quantity of anesthesia, receive most attention. Three days may be taken for gentle but effective catharsis, and during the same time much larger quantities of fluid can advantageously be given. If the heart is unquestionably sound, chloroform is the anesthetic preferred; otherwise, nitrous oxide gas and ether.

The incision necessarily varies, being influenced by the proportions of the patient, as well as the size and position of the kidney. Whatever the line of approach, it is preferably extraperitoneal throughout. With a kidney nearly normal in size and position and a fair iliocostal space, the oblique lumbar incision answers every requirement for the kidney alone, or with not more than two or three inches of the attached ureter. To excise the ureter at the sacral brim, the lower end of this oblique incision must be carried well down and inward. A lateral posture of the patient is required for this lumbar incision. If the kidney alone is to be exposed or removed, an anterolateral incision approximating the costal curve can be done with the patient on the back. With a low kidney and lax abdominal walls, the patient being in the same dorsal position, a generous initial incision along the linea semilunaris can be used advantageously when the ureter also requires investigation or removal. On reaching the parietal peritoneum this is stripped away, while at the upper end of the incision another, more or less at right angles, is made outward. Then additional stripping of the peritoneum affords excellent access to kidney, and the ureter as low as the sacral brim. When the dorsal position can be employed, we believe it will be of advantage in guarding the other kidney from a degree of pressure possibly quite injurious in some cases.²

During a nephrectomy for renal tuberculosis, if the disease is seen to extend down the ureter to a point below the first sacral vertebra, we are not ready to urge that a total extirpation should then, or even at a later operation, be done. Several of our observations tend to the inference that a considerable amount of tuberculous ureter can be left with comparative safety; because, now being in a functionless state of repose, this particular focus is amenable to curative systemic processes. At the same time sufficient experience has not been accumulated to assert that a routine practice based on this presumption is always the best surgery. If total removal did not necessitate such an

increased operative exposure, the radical step would better satisfy the surgical indications here just as well as in dealing with any tuberculosis.

If it were thoroughly ascertained that a ureter was diseased from kidney to bladder, and the operator felt inclined to do a total extirpation or none, it might improve the patient's chances to have a primary ureterectomy of the lower half, while the proximal end of the tube was given a temporary cutaneous implantation, there to drain the kidney until an early favorable time for nephrectomy. In this order the services of both kidneys would be available for convalescence from one operation.

Again, in some such cases, by passing before operation a ureter catheter carrying in its lumen a strand of chromic gut, this latter might be secured by needle to the severed ureter with the intention of invaginating the tube as it was stripped from the peritoneal attachment sufficiently low down to permit an inguinal or vaginal incision to extirpate the stump near the bladder.

We shall purposely omit reference to partial nephrectomy or nephrotomy and drainage in these cases, if for no other reason than that your time and the limits of this paper require brevity.

Even in cases presenting tuberculous vesical lesions where only one kidney is similarly diseased, we think that nephrectomy is indicated in a certain number of such individuals as offering the best chances for extension of life and comfort. Every reasonable effort should be made to determine the condition of each kidney before any operation is done for the relief of vesical symptoms, because nothing can be gained by this latter step so long as tuberculous debris is coming into it from above. Should efforts to ascertain the state of the kidneys be unavailing, then the epicystotomy done for drainage should be utilized to at once lead a small flexible ureter catheter into each ureter mouth, whatever treatment is immediately afterwards to be given the tuberculous bladder lesions. While it is not always easy to insert these ureter catheters even with the bladder opened above the pubis for visual inspection, still by having the proper catheters already led through the urethra, and one of them identified by an outside loop of white silk, then using a very short but large calibre cylindrical speculum which can act as a coffer or partial dam over much of the region surrounding one ureter opening, careful sponging will be apt to disclose the orifice. Now, seizing one of the catheters by a delicate spring forceps a half inch from its tip, it can be inserted and slowly advanced for the necessary two or three inches by successive short grasps of the forceps. It is highly essential to note whether it is the right or left ureter which receives the identified catheter. Artificial illumination, such as that given by an electric headlight, is almost indispensable for the accomplishment of this procedure.

If you can tolerate the review of several of the cases of renal tuberculosis with which we have

² Non-obstructive Post-operative Anuria, *Annals of Surgery*, March, 1901, p. 235.

had more or less to do, some items can be presented to show the basis for the rambling remarks just made. We trust these brief histories may make as good a framework for discussion of the topic as would accrue from a larger array of published generalized statistics.

We would take this opportunity to thank Dr. McCosh and Dr. Eliot for permission to include accounts of two of their patients; and at the same time to express our indebtedness to many others for interesting material we would otherwise never have had.

CASE I. An advanced case of right renal, vesical and prostatic tuberculosis, where climate and hygiene exerted a striking temporary benefit:

A. R., male, thirty-one years, Denmark. First seen April, 1892. One year before he had first noticed *thamuria* and occasional hematuria. He had been in various hospitals and repeatedly searched for stone. He is now urinating every few minutes during the day and involuntarily at night. Mingled with the urine sediment I found minute cheesy particles consisting wholly of countless tubercle bacilli. Reception for the patient was immediately sought of Doctor Trudeau, at Saranac, where, three months later, he had so much improved that he at times retained urine for two hours and gained strength and weight. Although during the fifteen months of residence in Saranac he was quite ill on three or four occasions, when new foci of the disease caused crises, he felt well enough at the end of this time to insist upon returning to New York to work. Almost at once the old urinary symptoms recurred, together with loss of appetite and appearance of large tuberculous lesions of the tongue. He died within two months.

CASE II. A quite chronic right renal tuberculosis coming to nephrectomy only after the kidney was immensely distended, and had by rupture initiated a perinephritic abscess simulating one of appendical origin. Excellent operative result. The left kidney had first given symptoms:

M. H., female, thirty, single, Ireland. First seen October, 1893. Has had slight cough for years. One year ago had a fall on the back; two weeks later pain in the left lumbar region, with nausea and frequent urination. On entering the Presbyterian Hospital, half hour urination, after which a reflex pain along the outer anterior surface of the left thigh. Urine contains pus and a few tubercle bacilli. Cystoscopy shows some discrete patches of hyperemia over the base. Rest and vesical irrigations during four months improved the condition, but menstruation was not reestablished. For nearly two years the patient was not seen, when she summoned us in January, 1896, suffering with a large fluctuating tumor filling the entire right abdomen and pointing near the anterior superior spinous process. We sent her to the Presbyterian Hospital where, after evacuation of the perinephritic abscess, Doctor McCosh removed a very large pyonephritic kidney. Recovery uneventful but tedious. The frequency of urination was at once most favorably influenced by the nephrectomy, and when last seen, in 1899, she was passing urine only five times in twenty-four hours, and was again menstruating regularly. She had been for the past two years in quite good health and doing the services of a domestic. At this time of writing it has been impossible to get trace of the patient. Since the reading of this paper we have seen the patient; she is in even better health than when last reported.

CASE III. Showing the uncertainty of finding tubercle bacilli by microscopic examination, and where the evidence of animal inoculation would

probably have saved much suffering and prolonged life:

A. D., female, sixteen years, United States. First seen July, 1893. Two years before, after fresh water bathing and a long cold drive immediately following, she had a chill, and shortly experienced left lumbar pain, then frequent urination and later syrapubic pain. At times all have been so severe as to be considered and treated as if of calculus origin. She brought analyses of urine by two different examiners, one reported the finding of tubercle bacilli, the other containing the diagnosis of renal calculus. We referred her to Doctor McCosh for operation. Numerous examinations by the pathologist of the hospital failed to detect tubercle bacilli in the urine. A nephrotomy was made evacuating a moderate amount of pus. Many mountings of this showed no tubercle bacilli. Had they done so a nephrectomy would have been done at once and thus pretty certainly saved the severe suffering constantly endured by the patient. Some months later, in another city, after nephrectomy, the patient died. The kidney was said to have been tuberculous.

CASE IV. Case lacking all the usual premonitory symptoms, although the kidney showed advanced caseous destruction of several pyramids and considerable pus foci. Most satisfactory result from nephrectomy. Now nearly seven years ago:

J. D., female, thirty-three years, married, Ireland. Seen July, 1894. No syphilitic history. Ankylosis of the right knee for nine years. She has never had any lumbar pain or noticed any urinary symptoms. She entered the Presbyterian Hospital in the service of Doctor Eliot for fracture of the right femur. After three weeks, while still abed, she developed a temperature the cause of which was not apparent; the patient felt well. Pus had suddenly appeared in the urine and examination discovered an enlarged right kidney. Tubercle bacilli were found in the urine. There were occasional chills. A week later nephrectomy gave a large tuberculous kidney. She was discharged with a small sinus in the loin which closed later. The patient has had one child since the operation, and is now in good health; she can eat and drink things which formerly caused her considerable distress.

CASE V. Another chronic case showing absence of all subjective symptoms in a bilateral renal tuberculosis, and where an error would probably have attended the evidence given by ureter catheterization on the right side, had it been done. A good example of sudden acute military tuberculosis in a life-long scrofulous subject:

A. O., male, twenty-eight, Germany. First seen August, 1894. Always sickly as a child; knee joint involvement when twelve; recovery without ankylosis. Two years ago fell while carrying a load on the shoulder, weight striking him above the sacrum. Five weeks later an abscess pointed there, and knee joint again gave trouble, not improved by immobilization and iodoform injections. Three months later I resected the joint, and two months after a tuberculous testis was removed. Just before this latter operation I examined, by way of curiosity, the urine and found tubercle bacilli, although the urine was almost normally clear and there had never been any renal or urinary symptoms. During the next year we watched the patient with interest, always finding tubercle bacilli in the urine together with a very few leucocytes. No symptoms could be elicited to suggest their place of origin and the man was gaining strength and weight

* Illustration of entire urinary tract, Presbyterian Hospital Report, 1899, p. 61; also New York Medical Journal, 1896.

but losing color. Four months later he was brought to the medical service of the hospital with a brief history of a rather sudden onset two weeks before of what had been diagnosed typhoid fever. On admission examination suggested acute miliary tuberculosis, but sputum showed no tubercle bacilli. Death three days later. Autopsy showed acute miliary tuberculosis of both lungs. The urinary organs disclosed two tuberculous dilations near the middle of the left ureter and two rather small necrotic foci in each kidney. Those in the left were in open communication with the urinary channel, while those in the right were apparently not so, and had urine gathered by ureter catheter from this side, probably neither tubercle bacilli or leucocytes would have been found in it.

CASE VI. Case of emergency nephrectomy yielding, as expected, a tuberculous kidney. Remarkable systemic improvement as well as relief of urinary symptoms were followed five months later by a new focus of the disease and death:

W. C., male, fourteen years, United States. First seen August, 1896. One year before had fallen from a tree; three months later frequent and painful urination. Six months later another surgeon found good reason to make a suprapubic cystotomy, and removed a very large soft mortar-like calculus. At the same time he discovered a tumor in the right loin. This increased rapidly and one month later the patient was sent to me for immediate nephrectomy at the Presbyterian Hospital. The boy was much emaciated and had an immense tumor of the right kidney. The urethra was occluded and all urine passed through the suprapubic fistula. The history and present condition suggested to us that the kidney was tuberculous and had been the original seat of all his urinary disease. A kidney greatly enlarged by many pus foci was removed extraperitoneally. The greater part of a large indurated ureter was not removed. Three weeks later internal and external urethrotomy for the tuberculous obstruction of the urethra with curettage of the suprapubic sinns. Six weeks later both sinns closed and all urine passed by the urethra. Left hospital with a gain of 30 pounds. He was feeling comparatively well when five months later I saw him with tuberculous meningitis. Death in ten days. At autopsy we noted a striking diminution in the size of the right ureter. When this case was reported² it was said that, in view of the non-hygienic conditions of his home, some early relapse was to be anticipated.

CASE VII. A case of bladder tuberculosis, with doubtful involvement of the left kidney, but reported to illustrate the benefit which may result apparently from a strictly hygienic life and local treatment:

C. K., male, forty-four years, United States. Seen May, 1895. No venereal disease. Father and his six brothers and sisters all died of consumption between the ages of twenty-five and forty. Both of his father's parents were consumptive. The patient, a man of fine physique, weighing 185 pounds, had believed himself to be perfectly well, except that five years ago an attack of malaria had kept him from business five or six weeks; possibly had some minor bladder symptoms a short time after, but these yielded to treatment. About January, 1893, he first noticed a drop or two of blood at the end of micturition and a slight tingling in the glans penis. Thinks he had a slight similar manifestation two years before which yielded to beechwood creosote. Frequency now amounts to every two hours; if held longer there is apt to be a little more blood. Prostate and vesicles, as well as external genitals, normal. Palpation of the left kidney causes slight pain. Urine quite muddy, with pus. Specific gravity 1.015

(and it has never been found higher). Marked trace of albumin. First examination for tubercle bacilli revealed eight or ten; never found subsequently. The afternoon temperature was 100°. Cystoscopy reveals a congested trigonum, and about the left ureter a lesion about an inch in diameter, nearly half of it an open ulcer. The patient was advised to seek an open air life in the Adirondacks. For two years he lived in the mountainous parts of New York or North Carolina with decided benefit. During this time his urinary intervals increased and blood was noted only a few times. The exigencies of life then compelled him to accept a non-confining business in New York. His attention to every hygienic detail of life was the most perfect. After his return some of the old symptoms began to trouble him, and he again sought treatment. Tubercle bacilli could not be found by microscope, and some doubts were hoped for regarding our diagnosis, but guinea pig inoculation was confirmative. At the expiration of a year or more, the slight bleeding was commonly manifested and irritability of the bladder more and more bothersome, but never of the extreme type. The old ulcer at the mouth of the left ureter was still to be seen, but smaller.

He insisted that it was impossible to give up business again and that something must be done medically or surgically for his relief. I could think of nothing more promising than a suprapubic cystotomy to permit curettage and cauterization of the single bladder ulcer and at the same time catheterizing the ureter of the questionable left kidney. Not only was this not urged, but it was most reluctantly submitted to the patient in answer to his demands for treatment. Fortunately, I believe, for us both, he was advised by friends to seek some other alternative. Going to an esteemed confrère, with my introduction, he was urged to leave New York again. When this was explained to be impossible, vesical irrigations were employed by his new physician with pretty prompt beneficial results. For the past two and a half years he has continued treatment, going into camp life during summer vacation. I have had occasional opportunities to inquire of the patient, and only a few days ago he told me that urine is now retained for from five to seven hours, and that he is practically unaware of any urinary disturbance.

CASE VIII. A case of urinary tuberculosis. Strong suspicion of a right renal origin, but proof by microscopic examination of right ureter catheter specimen was not affirmative. Animal inoculation tests should also have been made. The patient writes from Italy that he is about as well as when first seen:

A. D., male, thirty-five, Italy. Seen July, 1898. Six months before urination became frequent; pus and occasional blood noted; pretty constant pain above the symphysis. Tubercle bacilli were found at times in the voluntary urine. I catheterized both ureters twice because a marked pyelonephritis was found in the right side, but the microscope discovered no tubercle bacilli either time. Urine from the left kidney was normal. The cystoscope showed a very hyperemic and gaping condition of the right ureter mouth. Patient's vesical symptoms considerably improved during five months' hospital rest, hygiene and boric acid irrigations, and he returned to Italy.

We believe the kidney to have been tuberculous and think it unfortunate for patient, despite his present report, that tubercle bacilli were not detected in the right kidney urine so as to have justified a nephrectomy.

CASE IX. Illustrating rather unusual periodicity of symptoms in a case of pretty certain left renal tuberculosis. Microscopic examination of a single ureter catheter specimen unsatisfactory. Great fluctuations both in the condition of the patient and her left kidney during two years and a half. Present state as inferred by letter one of

² Medical and Surgical Report of the Presbyterian Hospital, 1897, p. 49. Renal Tuberculosis, p. 49; also New York Medical Journal.

considerable improvement over that of a year ago:

J. G., female, twenty-two, United States. Seen but once, May, 1898, when referred by Dr. Trudeau for ureter catheterization. She had had pulmonary trouble for some time. Two years ago she first felt pain along the crest of the left ilium, radiating to groin, with nausea. At that time pain disappeared on reclining. Three months ago, while at Saranac, had persistent left lumbar pain for six weeks, nausea and often vomiting. Pain had a regular afternoon exacerbation lasting five or six hours. Lost about 15 pounds. Had a slight thamuria. At the time the patient was examined when passing through New York, I did not know that Dr. Trudeau had found a few probable tubercle bacilli in the urine, and that affirmative evidence was about to follow his animal inoculations. Had this been known, the same test would have been used with the urine gathered from the left kidney. Our microscopic examination of this urine showed a pyelonephritis, but tubercle bacilli were not found.

A recent letter from the patient's mother tells that two months after this examination there was great increase in the size of the left kidney and great suffering. After another two months this was gradually recovered from. For the next two years the benefits of various climates were sought, and although different joint, skin and pulmonary complications appeared, the patient gradually got better of each, and now, with the old cough persisting, the kidney shows scarcely any enlargement and no pain, the urinary system giving scarcely any annoyance. Careful microscopic examination of urine just sent me shows no tubercle bacilli.

There is room for speculation as to whether the patient would be in better or worse condition today had nephrectomy been done three years ago. Possibly the kidney is now destroyed and its ureter occluded.⁶

CASE X. A second case of renal tuberculosis, with no vesical symptoms. Also a good example of promising radical cure by an early diagnosis and early nephrectomy:

P. A., female, thirty-four years, Germany. Seen October, 1898. Rather marked family history of tuberculosis. Well until four years ago; then a nondescript illness was improved by a trip to Europe. Two years ago first noticed occasional dull aching in the left lumbar region, gradually increasing in severity. Three months ago had severe pain with nausea and vomiting lasting three hours. Has frequently had similar half-hour recurrences since then. Pain always begins at a definite point over the left ureter on a line with the umbilicus; then radiates to kidney and back. The periods and comfort of urination not affected nor have they ever been. Has lost 20 pounds in three months. Palpation over the left kidney causes some pain. My first examination of voluntary urine showed tubercle bacilli. Cystoscopic ureter catheterization revealed no vesical lesion, and gave a normal urine for the right side, while that from the left showed a pyelonephritis and tubercle bacilli. Patient readily accepted the proposition of nephrectomy; done under chloroform, November 26, 1898. Six inches of ureter removed with the kidney.⁷ The latter had but a single focus of disease at the apex of one pyramid, a few tubercles in the pelvis, while the ureter just above and for three inches below its renal attachment was greatly thickened in the submucosa, so as to favor temporary occlusion. This would appear to explain the nature of the pains experienced. After operation the patient had the advantage of six months' care under Dr. Trudeau at Saranac. She is now very active and claims to be in as good health as she has ever known. This is the only case of renal tuberculosis we have had where cystiscopy showed no vesical lesions, even a trifling hyperemia about the ureter opening.

⁶ Illustration of such condition. Presbyterian Hospital Reports, 1897, p. 45.

⁷ Illustration, *Annals of Surgery*, March, 1901, p. 229.

CASE XI. A case of pretty advanced renal tuberculosis and apparent cure by nephrectomy, although the vesical symptom of frequency still persists.

A. W., female, thirty-four years, United States. Seen October, 1898. Strong family history of tuberculosis. When twenty-three years old patient gave manifestations of a general decline; moved to the country to live and improved. Three years ago she had occasional pains in the right lumbar region and first noted frequency of urination. In 1897 the thamuria was every fifteen minutes. In September, 1898, she had chills and fever. Dr. E. E. Smith, of New York, found malarial organisms in her blood and, being struck with the urinary symptoms, examined for and found tubercle bacilli in the urine. He then referred her to us for localization of the disease and treatment. Cystiscopic ureter catheterization showed a greatly congested trigonum and a gaping edematous right ureter. Urine from the right side evidenced a marked pyelonephritis with tubercle bacilli, that for the left ureter a normal kidney. Lumbar pain and general unrest were so distressing that she eagerly accepted nephrectomy. This was done on December 7, 1898, under ether anesthesia. Nearly eight inches of the ureter was removed with the kidney.⁸ The latter showed four of its pyramids nearly destroyed, while the ureter was much dilated but soft and studded with tubercles. These evidently were continuous in the part not removed. The patient made a slow but good recovery. Now she has no pain. She has gained 75 pounds and does all her own household work. The remaining diseased ureter or a bladder much contracted before the operation may be responsible for the still persisting painless thamuria. Whatever its cause, frequent microscopic examination of the urine since nephrectomy has failed to discover tubercle bacilli. Animal inoculation will shortly be made when the patient returns to New York for vesical irrigations, which she has thus far not seen fit to bother with since she and her family view the case already as a cure. Since the reading of this paper the patient's urine has responded negatively to animal inoculation, and bladder washings have greatly benefited the frequency.

CASE XII. Case of right renal tuberculosis; the strong suspicion that the left was also tuberculous appeared to warrant nephrotomy only.

D. P., male, thirty-five years, United States. Seen March, 1899. Ten years before severe laryngitis, ascribed by some consultants to tuberculosis, by others to syphilis which he had had. Six months ago he first felt occasional pain in each lumbar region, and shortly after he experienced frequent and somewhat painful urination. He has had the benefit of various climatic changes. Has lost much during past half year. He is now urinating every hour and a half. Marked pyuria and tubercle bacilli present. Palpation of right kidney painful, not so over the left. Cystiscopic ureter catheterization shows some small open ulcers about the right ureter and edematous state of its opening. General hyperemia of the entire base. A pea-sized tumor just in front of the left ureter makes it impossible to pass a catheter. The urine drawn from the right ureter evidenced a pyo-nephrosis with tubercle bacilli. Patient desired nephrectomy, but his unfavorable condition and appearance of general dissemination of the disease led me to offer nephrotomy, by which considerable pus and necrotic material was evacuated. This permanent drainage was maintained with some relief of the urinary symptoms until death by exhaustion nine months later.

In this case left kidney urine was collected from the bladder while the right ureter was plugged and being drained by a catheter. In one such collection tubercle bacilli were found; at the second trial they were not. Such a test of the kidney's condition, where the bladder is diseased, is not reliable.

⁸ Illustration, *Annals of Surgery*, March, 1901, p. 227.

CASE XIII. A case of right renal tuberculosis where nephrectomy was declined, and the patient now claims she is getting well :

C. B., female, thirty-one, United States. Seen July, 1899. For past two years she has had occasional sharp pain in the right lumbar region. Six months after its appearance she noticed frequent urination and sometimes bloody urine. The right kidney is found to be hard and enlarged. It is tender and nearly all below the costal margin. Tubercle bacilli have at times been found in the voluntary urine. Cystoscopic ureter catheterization shows no general vesical lesions, but the mouth of the right ureter is swollen and hyperemic. Contraction of the muscular coats of this ureter upon the catheter are evidently painful, for with each intermitting discharge of several urine drops the patient complains. Urine from the right kidney shows a pyelonephritis and tubercle bacilli, that from the left kidney is normal. Judging from behavior and expression this patient had much lumbar pain, and the case seemed unusually favorable for a nephrectomy; when proposed however, she left the hospital. Efforts to learn her present condition brought a letter from her "clairvoyant physician" and one from the patient. That from the latter is the more explicit, and in part is as follows: "I have been doctoring on and off since I left the hospital, with different ones, and at last I think I have struck the one that is going to cure. . . . I have been gaining slowly ever since I left the hospital, and feel very thankful I did not stay for the operation you were going to put me through. . . . My health is better in every respect, and I hope in short to be a well woman. I have been under entirely too many operations for my own good already."

CASE XIV. Case showing chronicity and good behavior of a tuberculous kidney without treatment:

M. I., female, sixty-two years, United States. Seen May, 1899. Father and nearly every one of his immediate relatives died of consumption. The patient has always been delicate and nervous. Has had many serious illnesses. Four months ago, when lifting, felt a pain in the left lumbar and inguinal region radiating to the perineum. Hourly urination with burning, moderate afternoon rise of temperature. Urine contains considerable pus, marked trace of albumin and many tubercle bacilli. Left kidney is tender and palpable. Cystoscopy shows no open bladder lesions but a congestion and edema about the left ureter. While in the hospital the vesical symptoms were considerably improved, apparently by boric acid irrigation. Then she declined further observation or treatment. Now, after much search, we find her in an old ladies' home looking better than two years ago, and claiming that her side is not so painful, nor her urination so frequent as when in the hospital, but she will permit no examination.

CASE XV. A second case of apparent cure of renal tuberculosis by nephrectomy, but with persistence of frequent urination:

I. C., male, thirty-two, Hebrew. Seen August, 1899. Tuberculosis on the mother's side. The patient has had a slight cough as long as he can remember, but has always been unusually strong and vigorous. Seven months ago he first felt dull pain in the right loin and noticed frequency of urination. He entered a hospital where he had at times high temperature. He left suddenly, frightened at a proposed cystoscopy. His lumbar suffering has steadily increased; now urinating every fifteen minutes. Neither kidney palpable, but firm pressure over the right causes some pain. Our first examination of urine shows tubercle bacilli. Cystoscopic ureter catheterization reveals a congested trigonum with more marked hyperemia and edema of the right ureter. Right kidney urine evidences a pyelonephritis and tubercle bacilli. Urine from the

left kidney is normal. He desires immediate removal of the diseased organ. This was done under chloroform, August 29, 1899. The kidney⁹ was large, the cortical surface and pelvis were studded with large tubercles; it is presumed that the ureter was also implicated, but for reasons it was not deemed advisable to explore or try to remove any of it. The patient's abdomen was large, its muscles were in a state of tonus during the operation, and an old appendicitis cicatrix, which was almost a hernia, was to be avoided. The patient made a good recovery. At times, while in the hospital, he had three-hour urinary intervals, but now he says they are as often as every twenty or thirty minutes. Many subsequent and some very recent microscopic examinations have failed to detect tubercle bacilli in the urine. The former pain is gone and he works hard as a peddler.

Here, as is suspected in the patient A. W., Case XI, the presence of a diseased ureter may be the cause of the thaurmia. But in this patient's case, also, there has never been any intravesical treatment since the operation.

CASE XVI. Illustrating the occasional difficulties of proving a tuberculous kidney to be such. This case might have responded negatively to the animal inoculation test, probably affirmatively to tuberculin:

P. M., male, forty years, Italy. Seen November, 1899, to examine bladder and collect urine, at request of Dr. Bolton. Patient had had malaria in 1884, otherwise healthy until April, 1898, when micturition was as frequent as thirty or more times a day and continued so for two weeks, then improved materially. Four months ago pain was first felt in left lumbar region, continuous and does not radiate. Little or no pain now during urination, but this is frequent. Left kidney is palpable and tender.

Cystoscopic ureter catheterization shows hyperemia and swelling about the left ureter. Urine from the left kidney shows a marked pyelonephritis, but no tubercle bacilli. Urine from the right kidney normal. The voluntary bladder urine also failed to reveal tubercle bacilli. In this case Dr. Bolton made a successful nephrectomy. From his report¹⁰ it is only necessary here to quote the following: "The kidney was considerably enlarged . . . presenting several rounded eminences . . . filled with semifluid pus and caseous material. On section this lower half of the kidney is converted into three distinct and several smaller cavities, one of which is larger than the others, is empty and communicates with the pelvis. The walls of all these cavities are very actively inflamed. . . . and on microscopic examination show numerous milary tubercles . . . smears of the contents of these cavities show neither tubercle bacilli nor other bacteria after a lengthy search. In the sections, however, tubercle bacilli were demonstrated in the milary tubercles."

CASE XVII. In this case there was a probable mistake in not making a cystoscopic ureter catheterization and urging an immediate nephrectomy if tubercle bacilli had been found in urine of the suspected kidney. The case also illustrates temporary climatic benefit, and the fallacy of bladder drainage when either kidney is the seat of tuberculosis:

F. M., male, twenty-nine years, United States, fireman. Seen May, 1900. The patient has always been well and strong, but at times during the past two years he has had mild attacks suggesting malaria. Five months ago, during the winter months, his duty as fireman obliged him on three occasions to stand for an hour or more in the cellars of burning buildings when the water was above his waist. Two weeks after the

⁹ Illustration, *Annals of Surgery*, March, 1901, pp. 231 and 233.
¹⁰ *Annals of Surgery*, June, 1900, p. 749.

last such exposure he experienced a pain in the right lumbar region, together with bloody and frequent urination. Now, on entering the hospital, he urinates every half hour and has a slight afternoon rise of temperature. Characteristic reaction to two milligrammes of tuberculin and tubercle bacilli found in the urine. He has had, elsewhere, a great deal of bladder sounding for stone, so we make no instrumental examination, but advise an immediate change of air and to report on his return. We have not seen him since, but learned the following from his wife. He went to the Loomis Sanitarium, Liberty, N. Y., for two months, where he gained 14 pounds, besides being able to take long walks without pain and hold his urine for four hours. He then felt well enough to take up work again. Two days after reaching New York the hematuria and frequency recurred, and, continuing to get worse, he one month later entered the Homeopathic Hospital where a suprapubic cystostomy was done for permanent drainage. He has never left his bed during these five months, and his death is daily expected.

CASE XVIII. A case of right renal tuberculosis, where postponing nephrectomy may have been a mistake:

E. N., female, twenty-two years, United States. Seen August, 1900. One and a half years ago, and six months after the birth of her child, she first experienced frequent and somewhat painful micturition lasting only three weeks. Some two months later the annoyance recurred, to be again recovered from. But for the past seven months these symptoms have been continuous and are intensified just before menstruation. Has had no pain in either lumbar region, but the right kidney is distinctly palpable and tender. Cystoscopic ureter catheterization shows only some hyperemia and edema about the right ureter. Urine from the right kidney evidences a moderate pyelonephritis and contains tubercle bacilli. Left kidney urine normal. As it was the middle of a hot summer, when the patient would evidently derive great benefit from country air and be in better condition for operation, I sent her to the mountains for two months, to report on return. A letter written two weeks after she had reached the Catskills told of improvement. She has not been seen since. To properly complete this history persistent search has been made for the patient, but resulted only in an indirect report that she is now very ill, her whereabouts being withheld.

A retrospect of our own limited material leads to the conclusion that too great pains cannot be taken by physician and surgeon to determine the location and extent of the disease before determining upon the treatment. The integrity of the other kidney, of course, has great bearing on the surgical aspects of any case. To determine in any particular case just what rate of progress the disease may pursue if left untreated, or what degree of immunity from some of the annoying symptoms we can promise the patient by a nephrectomy, is not easy.

In ward hospital cases the immediate operation appears to be the only alternative. For those who can afford climatic changes and rest a careful preliminary observation of the existing conditions of the urinary tracts should precede their travels, and the same examination, when at all indicated, should be repeated in order to keep posted regarding such an advance of the disease as to call for operation.

L. Emmett Holt has been chosen clinical professor of diseases of children at Columbia University.

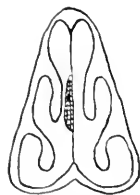
Clinical Department.

ASTHMA.¹

BY F. P. EMERSON, M.D., BOSTON.

IF we turn to general treatises on internal medicine, we find the pathology of asthma very indefinite. In fact, there is a description of the symptomatology, and not of a pathological process at all. At one time it is stated that there is a hyperemia of the bronchial mucous membrane, with a characteristic exudate of mucin due to pneumogastric or vasomotor functional disturbances. At another that there is no lesion whatever, and the condition is a pure neurosis, the exciting cause being anywhere in the body, with morbid changes found at autopsy due to the resulting chronic bronchitis pulmonary emphysema and right ventricular hypertrophy with dilatation. If we turn to special investigators, there is not here that unanimity of opinion we would expect. Some authorities considering it a vasomotor bronchitis analogous to the rhinitis of hay fever, and that both are a neurosis, which in their chronic form become a neurotic habit due to an unstable condition of the nervous system. Others attribute importance to a psychic influence with only occasionally a local disorder. While others assert that the condition is due to the individual as a whole and not to any particular peripheral irritation or to varying ones. A few favor the auto-toxic theory, while an increasing number claim that the whole question turns on the integrity of the respiratory function of the nose, and that the essential condition is an ethmoiditis amenable to treatment.

The following cases are offered as simply showing the trend of my observations, and not the final word in this disorder:



CASE I. Spur opposite Middle Turbinate.

CASE I. Miss R., single, thirty years. Born in Woburn. Seen November 20, 1896.

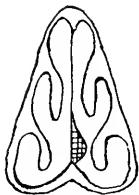
Family history.—Negative except father's cousin, who died of asthma.

Past history.—Had pleurisy and pneumonia seven years ago. Sick five weeks. Asthma commenced two years ago, the attacks increasing in frequency and duration. Menses regular. Some cough all the time, but only a little between the paroxysms. Signs of bronchitis general, but more

¹ Read before the Clinical Club, March 11th, and the Roxbury Clinical Record Club, February 6, 1901.

marked over the left lung, and quite free at the apex of the right. Heart action negative. Bowels regular. Has lost fifteen to twenty pounds of flesh and is cyanotic, with the stooping shoulders of a confirmed asthmatic. Changed residence, as the parents thought she had phthisis.

Present illness.—First seen November 20th in an acute attack, and by December 17th she had so far recovered that she went in town; took cold and had a relapse. This history repeated itself, so that it was in the early spring before she was in condition to undergo any radical local treatment. At this time examination revealed a spur in the right naris opposite the middle turbinate, and well back on the vomer, which was removed. The attending subacute rhinitis and ethmoiditis received appropriate treatment, and she rapidly gained flesh and strength, and has since worked in her father's bakeshop without any relapse, which now covers a period of five years.



CASE II. Ridge running through the Inferior Meatus.

CASE II. Mrs. H., age twenty-eight years, was referred to me by Dr. C., January 23, 1900. Is now being treated for nervous exhaustion, and comes to me on account of sneezing, hydropneumonia; asthmatic breathing and cough, particularly on rising, which had followed a cold the October previous.

Family history.—Negative.

Present history.—Married four years. Three years ago overworked; one miscarriage followed by some local operation. Good recovery. Menses regular but scanty. Has frontal headache and backache. Pupils dilated. Asthma constant in the morning.

Examination.—Temperature and pulse normal. Chest negative; cough constant. Acute rhinitis. Left naris encroached upon by a ridge opposite the inferior turbinate. No separation of cartilage. No myxomatous tissue. Second turbinate normal. On right side ethmoid cells covered by acute secretion, with anterior and posterior discharge.

Treatment.—No internal remedies given, but cough diminished and all symptoms subsided with the cure of the ethmoiditis. She has now been free from asthma one year, although her general health remains poor.

CASE III. Mrs. P., 75 years. Born in Yarmouth, N. S. Six children well.

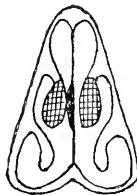
Family history.—Father died at eighty years; always well. Mother died at ninety years; al-

ways had asthma, as did her five sisters. One brother died of apoplexy; two sisters of phthisis; one sister of apoplexy, and was always an epileptic.

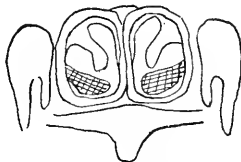
Past history.—Had croup as a child, beginning at one week. At seven years had asthma badly until she was ten, and has been entirely free until two years ago, when, at seventy-three, she had a nasopharyngitis followed by pneumonia, and has had asthma continuously since with the exception of two days while away in the summer. Since the nasopharyngitis there has been continuous dropping from her head, and a sensation of stuffiness on the right side which she had not had before.

Present history.—Was wiry and active and remarkably well until two years ago. Heart, lungs, kidneys and bowels normal. Stomach occasionally becomes disordered, usually from constipation. Some arteriosclerosis but not marked. Commenced local treatment January, 1901.

Examination.—Nares narrow and a little more free on the left side. Mucous membrane thin



CASE III. (a).—Adhesion between Middle Turbinate and Septum; both Middle Turbinates cystic anteriorly.

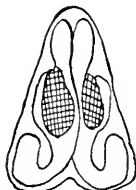


CASE III. (b).—Middle Turbinates hypertrophied posteriorly.

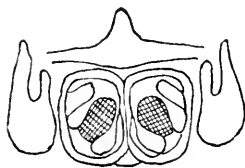
and not injected. Inferior turbinate not enlarged, and normal space between it and the septum. Middle turbinate anterior ends both cystic, and on the right side there is an adhesion to the septum, with cell proliferation opposite the second turbinate. The nares being narrow, the whole space between the septum and the nasal wall is filled, and on the right side there is marked obstruction to drainage from the ethmoid cells. No myxomatous degeneration. There is free dropping into the pharynx, and a sensation of stuffiness on the right side. During asthmatic attacks this side is blocked up, and on the inhalation of volatile remedies much mucus is released, and the attacks are always relieved temporarily. Syringing brings away characteristic flocculent mucus from the ethmoid cells. Asthmatic attacks start with a nasopharyngitis followed by

bronchitis, and at one time with pneumonia. Septum normal and also the columnar cartilages, with no thickening of the vomer posteriorly. Larynx normal and urine negative.

Treatment.—The adhesion between the septum and turbinate was relieved and the ethmoiditis cured. Local treatment, which was commenced January 1st, stopped all dropping posteriorly, and in two weeks the asthma ceased, being the first cessation, since it began two years ago, except for two days. This immunity still continues April 1st, at date of writing.



CASE IV. (a).—Second Turbinate Myxomatous; Septum deflected, involving Triangular Cartilage and Vomer.



CASE IV. (b).—Posterior extremity of Inferior Turbinate presents Cauliflower Hypertrophy.

CASE IV. Miss C., age thirty-five years, was referred to me in September, 1900.

Past history.—Asthma ten years. History of nasopharyngitis, which would be followed in four or five days by bronchitis and asthma. Had taught school ten years; then, following an attack of grip, broke down nervously; recovered and now works hard as manager in an office down town.

Family history.—Negative.

Examination.—Columnar cartilage dislocated into left naris. Triangular cartilage deflected to the left, involving the vomer, with marked cell proliferation opposite the second turbinate. Inferior turbinate hypertrophic, and middle turbinate anteriorly seat of myxomatous degeneration, especially on the left side; ethmoiditis; posterior hypertrophy of both inferior turbinates, with cauliflower appearance, and also posterior hypertrophy of second turbinate. Tonsils fibrinous; chronic catarrhal process in both ears, with diminished hearing and feeling of obstruction in right ear from closure of the Eustachian tube. Heart and lungs apparently normal, except for the bronchitis.

Treatment.—The columnar cartilage was removed on the left side, and also the myxomatous tissue and both posterior hypertrophies. Eth-

moid cells were cleared out and the tonsils opened up. Tonics and diet. For fifteen months previous to treatment she was never entirely free from a sense of weight and tightness across the chest, and during most of this time averaged to be up at night two out of three nights, generally from 3 to 5 A.M. Commenced treatment the middle of September, and was up as usual through November, but since then she has not been disturbed except two or three nights following a cold. For the last two months she has felt no chest discomfort or pressure, and there is very little post-nasal discharge and no asthma.



CASE V. Septum deflected to the right; horizontal Ridge through Inferior Meatus.

CASE V. Mrs. S. was referred to me August 8, 1900, by Dr. A., with the following history: Dr. A. was called at 11 P.M. and found the patient with an acute nasopharyngitis following exposure after being overheated. She awoke in the night with a smothered feeling accompanied by cough and wheezy respiration. Relieved by poultices and morphia. History of a previous attack the August preceding, which lasted six months, accompanied by sneezing, with pain and discomfort over the bridge of the nose.

Past history.—Mrs. S. was born in Scotland, and as a girl had repeated head colds. Three years ago she moved to Vermont, where she was apparently well. She came to Boston in April and in August she had the attack as given above, which lasted six months, and then came on the succeeding August, when seen by Dr. A.

Family history.—Negative. She is robust, with two healthy children. No asthma in the family.

Examination.—The septum is deflected to the right, including all the triangular cartilage, and through its lower part is a horizontal ridge extending back through the inferior meatus and touching the inferior turbinate, so that the right side is practically occluded and covered with acute secretion. There is moderate posterior hypertrophy of the inferior turbinate. There is an anterior and posterior ethmoiditis in the acute stage.

Treatment.—The ridge was removed and the ethmoiditis cured. April 1st, she remains well, and has had no cold or asthma during the winter.

GENERAL SUMMARY.

The foregoing cases are not sufficient in number, nor have they been under observation for a

period warranting any definite conclusions; but they are offered because here in every case is a definite pathological condition found in the respiratory tract, where we would logically expect it as a sequel to the nasopharyngitis, a clear history of which was obtained either as an acute or subacute inflammation in every case. While the gross abnormalities of the nose were corrected, and the general condition improved as far as possible, this had no apparent effect on the asthmatic attacks, which, however, yielded readily to local treatment, with freedom from recurrence in proportion as we were able to control or cure the ethmoiditis.

A CASE OF TRICHINOSIS.

BY GEORGE G. SEARS, M.D., BOSTON.

M. D., an Italian laborer about twenty-four years old, was admitted to my wards in the City Hospital, December 6, 1900. Six days before entrance he was attacked with pains in the legs and arms and a slight diarrhea, which was soon followed by constipation. He felt feverish and chilly. Soon after the appearance of the first symptoms he noticed considerable swelling of his face. He was a well-developed and nourished man, whose puffy face and eyelids, combined with his pallor, suggested an acute nephritis. The skin was hot and dry. The forearms and legs were swollen, the result rather of a general increase in the size of the muscles than of any change in the skin, which was not edematous. There was tenderness along the outer sides of both tibiae, as well as in the muscles of the calves, thighs and forearms, though in the latter situation it was less marked. The heart was laterally enlarged, and later a soft systolic murmur developed over the pulmonary area. The liver and spleen were normal. The tongue was heavily coated. A blood count showed 16,200 leucocytes, of which 17½% were eosinophiles. Two days later the white cells numbered 9,500, 13% being eosinophiles. The reds numbered 5,240,000, and contained 90% of hemoglobin. The urine was concentrated, but was not otherwise noteworthy.

December 10th. A well-marked urticarial eruption appeared over the trunk and thighs. The face is less puffy and the muscles less tender.

December 17th. The temperature, which reached 104° as its highest point and closely simulated typhoid fever in its course, returned to normal by lysis two days ago. Swelling and tenderness of the muscles had gone. The cardiac area was enlarged and extended three fingers' breadth beyond the right sternal border, and on the left one-quarter inch beyond the mamillary line. No murmur was heard. The liver reached from the fifth space to an inch below the costal margin, but the spleen could not be felt. The white cells numbered 10,800, and contained 31% eosinophiles.

White counts made on December 19th and 23d, and on January 3, 1901, showed, respectively,

9,800, with 39% of the eosinophiles; 12,400, with 33%, and in the last count 23% of the eosinophiles.

He improved steadily and was discharged January 3d. His muscles were still weak and flabby, but the heart had returned practically to within normal limits. A piece of the left gastrocnemius was removed on December 8th and submitted to Dr. Mallory, who reported acute myositis with occasional degeneration of muscle fibres with infiltration with leucocytes. No trichinae. Ten days later a larger piece was removed from the right gastrocnemius, in which trichinae were so abundant that thirteen were seen in one microscopic field.

The preceding case is the twenty-fifth which has found its way into literature since the discovery at the Johns Hopkins Hospital of a marked eosinophilia in trichinosis. All have been reported by American observers, and all have confirmed the first observation, with the exception of a fatal case reported by Howard, in which no differential count was made ante-mortem. An increase in the number of eosinophilic cells has been found as early as the fifth day, the earliest date on which a count was made, and in a case reported by Stamp they still composed 15% of the whole at the end of four months. The proportion has at times reached extraordinary heights, 60% being exceeded in several instances, while in a case reported by Kerr it was over 80%. It is noteworthy that the higher counts were made comparatively late in the disease, days or even several weeks after the initial symptoms, and even after the fever had gone down and general improvement had taken place in the patient, so that, while the migrations of successive crops produced by the parent worm in the intestine might account for the earlier variations, they do not seem to explain the large numbers which appear so late that reparative processes must have already begun. The severity of the disease seems to have no effect on the relative number of these cells, but it may influence the extent of the leucocytosis.

Medical Progress.

RECENT PROGRESS IN OTOLGY.

BY PHILIP HAMMOND, M.D., BOSTON.

ANATOMY AND PHYSIOLOGY.

ZIMMERMAN¹ advances the theory that sound vibrations are transmitted through the drum to the air of the middle ear, and thence directly to the labyrinth, without the assistance in any way of the ossicular chain. Spear² states that in many cases the presence of the drum is an actual hindrance to hearing, and shows that the drum may be punctured with impunity. In the case of small open perforations, most excellent results are obtained in his hands by the use of a small disc of absorbent cotton placed over the opening.

The relationship of the facial nerve to the mastoid process has been studied by Joyce,³ of Dublin, on a series of 30 temporal bones with the following results: (1) The facial nerve lies altogether in front of the mastoid process, and a drill sent straight in from any point on the surface of the latter cannot injure the nerve; (2) in 43.3% of the cases the facial nerve was more superficial than the external semicircular canal, and in an equal number of cases the opposite of this was true; in the remaining 13.4% these structures were the same distance from the surface.

E. Amberg,⁴ from a study of 17 temporal bones, is inclined to agree with Trautmann, of Berlin, who says that displacement of the lateral sinus is due to and is indicated by asymmetry of the skull, and that it is usually placed farther forward on the right side.

Okada³⁸ concludes, from a study of 111 skulls, that one can obtain no trustworthy guide from the anthropological form as to the presence or absence of the so-called danger points in the temporal bone.

Arthur Cheate,³ of London, discusses the anatomy of the petrosquamosal sinus, and reports 2 cases in which at autopsy it was found that there had been an extension of the septic process through this aperture.

AURICLE.

Zeroni⁵ reports 5 cases of carcinoma of the ear. The diagnosis in each case was confirmed by microscopic examination. The first was an epithelioma of the auricle; amputation, recovery. The second case was an epithelial carcinoma involving nearly the whole temporal bone, with perforation into the cranial cavity. The disease was too far advanced to admit of operation, and the patient died. The third was an epithelial carcinoma of the auricle with swelling of the lymph glands behind the ear, in neck, and one over the clavicle. Auricle amputated, cartilaginous portion of the external meatus, and swollen glands removed; recovery. The fourth was a case of epithelial carcinoma of the auricle extending to the temporal bone; perforation into the cranial cavity; meningitis; death. The fifth was an epithelial carcinoma arising from the middle ear; extension inward; death; no autopsy. All the patients were over forty years old, three over sixty.

Lermoyez⁶ describes two varieties of eczema of the ear: the acute, which is usually moist, and the chronic, which is usually dry.

CANAL.

Schwartz⁷ has devised an operation for the relief of atresia of the meatus, which consists of detaching the auricle and cartilaginous meatus posteriorly down to the structure, which is then removed, the walls of the canal being slit horizontally and sutured backward, as in the radical operation. He does not ordinarily leave a permanent opening behind the ear. In 11 cases on which he has performed this operation, only 2 were unsuccessful; and it is a significant fact, in

view of the poor results generally attending such operations, that in the 2 cases where no bone was removed from the posterior wall of the canal a poor result was obtained. The author naturally makes the suggestion that at least a portion of the bony canal be removed in these cases.

FOREIGN BODIES.

Many cases of injury to the drum caused by too zealous efforts to remove foreign bodies have been reported during the past year. Lermoyez⁶ points out that it is the unskilful efforts to remove foreign bodies that does harm, rather than the object itself. "Hundreds of lives might be saved every year if physicians, nurses and parents realized that a foreign body in the ear does no harm as long as it is let alone. Under ordinary circumstances the syringe is the best means of removing a foreign body."

Sturrock⁸ has employed suction in the removal of smooth foreign bodies from the canal, using for this purpose a syringe attached to a piece of rubber tubing dipped in glycerine.

Church⁹ reports the case of a patient who had experienced pain in the right ear at intervals for two years. Examination showed the ear to be filled with epithelial scales and wax. After removing considerable of this, a large live tick was found embedded next the drum.

In a case where a piece of rubber from the end of a lead pencil had become tightly wedged in an ear, rendering its removal difficult, Macaskie¹⁰ placed against it a string, previously dipped in a strong adhesive solution. This was allowed to remain for twenty-four hours, when no difficulty was experienced in removing both string and rubber.

DRUM MEMBRANE.

Packard¹¹ reports several cases of traumatic rupture. Sudden condensation of air in the meatus is a common cause of this accident. He calls attention to the fact that at the battle of Santiago, when the men did not have time to take the necessary precautions, many ruptures of the drum membrane occurred; while at the battle of Manila the men protected their ears with cotton, and consequently no such injuries were reported.

Richards¹² reports a case of traumatic rupture of the drum caused by a stream of water from a fire hose.

Tuttle¹³ saw a peculiar case in which a hair-pin had been accidentally forced into the ear of a sleeping patient.

ANESTHESIA OF THE DRUM.

Gray¹⁴ has used cocaine in equal parts of alcohol and anilin oil for the relief of pain in doing paracentesis. The formula he employed consisted of five parts cocaine with fifty parts each of the solvents. He reports very good results from the use of this local anesthetic. (This solution has been tried repeatedly in the writer's clinic with absolutely negative results.—Ed.)

AURICULAR CATAPHORESIS.

Ferreri⁹ conducted a series of experiments with a current of five milliamperes, one pole covered with felt being introduced into the meatus, the other being applied over the mastoid of the same side. Various solutions were used in the canals, and the results carefully noted. Regarding his observations, the author says: "In conclusion, the various experiments referred to have not demonstrated that, under the action of an electric current, the medicaments applied (either in solution or in gelatine discs) to the tympanic membrane and to the mucous membrane of the cavity are absorbed. The results demonstrate that auricular therapy cannot count galvanic cataphoresis among its efficacious resources."

ACUTE MIDDLE EAR DISEASES.

Würdemann,¹⁵ in an article on "Otitis Media in Children and its Treatment," deplores the general ignorance of the medical profession in regard to recognizing the seriousness of inflammations of the middle ear. Many physicians never look at a sick child's ears, and it is common practice to allow trouble to develop there without any attempt at examination until the ear ruptures of itself. Otitis media is mainly a disease of early life. "If properly treated and seen early enough, acute inflammation of the middle ear seldom or never results in chronic suppuration, and I state with all the emphasis in my power that chronic suppuration of the middle ear is positively the result of either neglect, improper or insufficient treatment."

Barth¹ found, in 600 infants ill with various affections, 80% with a lesion of the middle ear. Many of these cases escape detection during life; the middle ear may be full of pus, yet present no other physical change than a slight convexity of the drum, injection being absent.

Ponfick's well-known tables show that as a result of 100 consecutive autopsies of infants there were only 9 with normal ears.

Randall¹⁶ points out that it is not absolutely necessary to have many instruments for the examination of the middle ear, but that it is the eye and hand of the observer that is all important. He also calls attention to the fact that nearly all experts are on record as to the small value of the watch as a test, and recommends the whisper and voice tests as more practical and satisfactory.

Bishop¹⁷ recommends the use of hot tobacco smoke in the treatment of acute inflammation of the middle ear.

Einis¹⁸ uses glycerine and carbolic acid in the auditory canal as soon as the membrane shows redness.

Boucher¹⁹ is opposed to the hasty performance of paracentesis in acute catarrhal otitis media. When it is done it should be under strict asepsis, and the meatus should be packed gently with a strip of iodoform gauze.

Halsted,²⁰ in discussing the significance of earache in children, finds that:

(1) Earache in children is generally caused by acute inflammation of the middle ear, suppurative or catarrhal.

(2) Infants and young children may have suppuration in the middle ear without giving satisfactory evidence of pain or without rupture of the drum.

(3) In the absence of other known cause for pain, from which a child is evidently suffering, the first cause to be thought of should be acute otitis media, and this calls for an examination of the drum membrane.

(4) It has been shown by examination of the middle ear during life and post mortem that purulent otitis media is nearly always present in acute infectious diseases of the gastro-intestinal and respiratory tracts in young children, especially in gastro-enteritis and bronchopneumonia, to which diseases it probably stands in a causative relation.

(5) The cause of death in many acute and chronic infectious diseases, in meningitis and in the exanthemata, is the result of unrecognized and untreated abscess of the middle ear.

(6) Repeated earaches in children are ordinarily but a sign of acute exacerbations of a chronic otitis media resulting from adenoids.

(7) In adult life, so-called catarrhal or progressive deafness is often but a final stage of otitis media, which had its beginning in early childhood, when it was due to adenoids, and practically curable.

Leutert-Konigsberg,²² in a series of bacteriological examinations in cases of mastoid infection following acute otitis media, found pathogenic organisms in the following order of frequency: Streptococcus, pneumococcus, staphylococcus, pyogenes albus and tubercle bacillus. In sinus thrombosis the streptococcus was usually found alone.

CHRONIC NON-SUPPURATIVE OTITIS MEDIA.

Bonnier²¹ has noticed that even before a patient is aware that any hearing has been lost, he will hear better by bone conduction.

Luca²² still believes that many cases are benefitted by means of his pressure probe, especially where the disease has not existed too long.

Leavitt²³ has devised an instrument for the use of hot air in the treatment of middle ear catarrh.

Fischerich²⁴ uses a 2% aqueous solution of pilocarpine injected into the tympanic cavity through the Eustachian tube. This treatment is continued daily for a month, and he considers the results surprisingly good in cases of long-standing sclerosis.

Burnett⁹ has removed the incus for the relief of vertigo with complete success in 27 cases. His theory is that the dizziness is caused by an increase of the labyrinthine pressure due to impaction of the stapes in the oval window, without corresponding outward movement of the membranes of the round window.

McCaskey¹⁶ calls attention to the fact that vertigo may be of gastric origin and reports a case

in which, through lavage, etc., the patient made a complete recovery.

Ballenger²⁰ advocates tenotomy of the tensor tympani muscle for the relief of deafness and tinnitus in certain cases. He gives these three indications for operation: (1) Retraction of the drumhead due alone to shortening of the tendon of the tensor tympani. This is rare; (2) if the focusing or selecting power of the ear is intact, and there is retraction of the drumhead, it is more probable that the operation will be successful than if the focusing power is lost; (3) politzerization, followed by relief of short duration, is sometimes a favorable indication. If the tendon is shortened the drumhead is so forcibly retracted that the air is soon forced from the tympanum — perhaps in a few seconds or minutes. Unfortunately, there are other conditions that will cause the inflation to last but a few seconds; namely, adhesive bands and shrinkage of the ligaments and mucous folds arising in the superior and outer wall of the tympanum, and attached to the head of the malleus and body of the incus. It is not always easy to determine whether the retraction is thus complicated in its origin.

CHRONIC SUPPURATIVE OTITIS MEDIA.

Felt²⁶ says a suppuration of the middle ear not kept up by necrosis, polypus or a foreign body, is usually chronic because (1) the tissues are lowered in vitality; (2) the septic material is active; and (3) the drainage is poor. When the discharge is profuse he believes in frequent syringing.

Barbee²⁷ states that a chronic suppuration is always the result of neglect or of improper treatment during the acute stage.

Oaks²⁸ states that cholesteatomatous masses may be prevented from accumulating by the instillation of boracic and salicylic acids in alcohol. When the mastoid is involved, the earlier it is operated on the better.

Richards²⁹ believes in capillary drainage in the treatment of both acute and chronic suppurations of the middle ear. In case the patient cannot be brought to the office sufficiently often for this treatment to be administered by the physician, he directs some member of the family to use dry treatment for the ear. He prefers gauze to absorbent cotton, and is not in favor of having the ear syringed at home.

Phillips³⁰ advocates the use of pure carbolic acid in the treatment of chronic suppurative otitis media, and in cases where purulent processes have involved the mastoid. He leaves the acid in contact with the tissues from thirty to sixty seconds, and then applies alcohol as an antiseptic.

Fleming³ reports a case in which a growth filling the external canal was treated for six weeks without materially altering its condition. Microscopic examination showed the mass to be a true fibroma, and the patient finally consented to enter the hospital for its removal. After making a post-aural incision, the growth was snared out and the base cauterized. In about two weeks free

granulation tissue began to develop in the tympanic cavity, necessitating further curettement.

MASTOID.

McKernon,¹² after a comparative test of the value of heat and cold to abort inflammation of the mastoid, has concluded that cold is by far the better. His usual method of treatment is to leave the cold against the mastoid for twenty-four hours, and then if the tenderness has not entirely disappeared it is reapplied for another twelve hours. If there is still no improvement he operates without further delay.

Dench³¹ advises early operation in all suspected cases of mastoiditis, and lays stress on the fact that operation is absolutely harmless.

H. Knapp³² states that mastoiditis is quite frequent in children, and that it is much more difficult to obtain a successful result following operation than in adults.

Oppenheimer¹⁵ finds that percussion of the acutely inflamed mastoid is of no value as an aid to diagnosis, because light percussion does not produce any sounds that can be compared with the normal side, and when deep percussion is tried the pain is too great. Furthermore, dullness does not indicate the presence of pus, as the same sound may be obtained when edema or sclerosis are present.

Among recent operative procedures on the mastoid is that of Küster,³³ whose method is as follows: An incision is made downward behind the auricle, continued posteriorly across the tip of the mastoid, and then upwards as far as the top of the original incision, giving a U-shaped cut. The periosteum is pushed aside slightly, and with a small chisel and mallet the same outline made in the bone, which is then pried up, leaving the outer shell of the mastoid attached to the superficial tissues. After opening the antrum, this is turned down again, a small notch being made in the lower part for drainage. It is claimed that the superiority of this method lies in the fact of its giving quicker healing, and resulting in a smaller deformity.

Grunert and Zeroni³⁴ have both observed the frequency with which mastoiditis is caused by the use of the nasal douche.

Ballance,³⁵ in the treatment of acute cases, believes that only the antrum and any cells which may be suppurating should be opened, but that the tympanum and meatus should be left undisturbed. On the other hand, in operations for the cure of chronic otorrhea, the simple opening of the antrum can be of little value.

SINUS THROMBOSIS.

McKernon³⁶ has presented during the past year an exhaustive study of this subject, together with the report of seven cases. In all cases he believes in thoroughly exposing the sinus, and then in aspirating, to determine the presence or absence of fluid blood.

Viereck¹ believes that ligation of the internal jugular vein should always be done before opening

the sinus, as it is much more certain to prevent pyemic infection.

Randall³⁷ is inclined to believe that ligation is not necessary in all cases, and urges the importance of rapid operating. He considers the diagnosis a most difficult one to make.

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Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. G. BALCH, M.D., SECRETARY.

REGULAR meeting, March 6, 1901, DR. F. S. WATSON in the chair.

DR. WATSON: It gives me much pleasure to present to the society a gentleman who has, as most of you know, done such admirable work in advancing our knowledge upon the subject of renal tuberculosis and tuberculosis of the genito-urinary organs in general—Dr. F. Tilden Brown, of New York.

DR. BROWN read a paper on the

DIAGNOSIS AND TREATMENT OF RENAL TUBERCULOSIS.¹

DR. ARTHUR T. CABOT: Dr. Brown's paper seems to me exactly the sort of paper that is called for in the present position of this subject. The time is still too early for us to adequately weigh the claims of surgical interference, to de-

cide on the kind of case in which surgical interference does the most good, and in which hygienic treatment may be tried. The cases of nephrectomy in early renal tuberculosis are certainly very encouraging as far as I have seen them in reports, and as far as I have known them in cases in this neighborhood. It is certainly true that the disease often attacks one kidney first, and for a considerable time remains confined to that organ, and only after it has really made great progress in that kidney, reaches over to the other. It seems, therefore, as if surgery probably had a very hopeful field in those cases of early tuberculosis in which, by the methods of accurate observation which Dr. Brown has described, the disease is discovered early. I think that the medical side of the subject should have also a great deal of careful observation, and is, perhaps, in danger of being neglected. A medical man sees a case of renal tuberculosis, sends the patient to some health resort, to the Adirondacks or Colorado, or into the country somewhere. He does not afterwards take the interest in that case that a man who had taken out the kidney would. He does not follow such cases with sufficient closeness to give us the real life history of those that are so treated, and yet it is very important that that life history should be known. We constantly see cases in which we feel that the disease has progressed so far as to make the operation of doubtful use. The disease may have already affected the bladder or the prostate in man; there may be doubt as to the other kidney; and to enable us to judge of the proper treatment of those cases, we ought to know exactly how much value there is in hygienic treatment. It is very important, then, that we should report our cases in this sort of way, illustrated by Dr. Brown this evening: the cases that are cured, and the cases that are not, and the cases in which different operations are done, whether they are successful or not. It is only in this way that we can accumulate the statistics on which we can form adequate judgment in this important subject—one of the very important subjects on the border line between medicine and surgery.

DR. BROWN, in one or two of his cases, spoke of the variations in size of the kidney, getting large, and then getting small again and less painful. This is seen not infrequently in connection with tuberculosis. In some cases, no doubt, a diminution in size is due to a tuberculous focus having opened into the pelvis, having obtained sufficient drainage to quiet down the inflammation which accompanied its formation. I think those cases where but one kidney is affected, and that kidney behaves in this way, are just the cases where we are perfectly clear of our diagnosis, and in which the operation has its best field, for such behavior shows the kidney to be very seriously diseased. With such a history, if the other organs have not yet shown evidence of disease, a nephrectomy is distinctly the operation which should be selected.

I think we must not be too dependent upon the demonstration of bacilli in making our diagnosis. As Dr. Brown has shown in his case, a kidney very

¹ See page 513 of the Journal.

decidedly diseased may deliver no bacilli in the urine. We must, therefore, often suspect the disease, even if we cannot prove it by the demonstration of the etiological factor. In such cases we have in the tuberculin test a valuable means of learning the nature of the disease. If the evidence from this test is positive as to the existence of tuberculosis somewhere, and yet leaves one in doubt whether the kidney is the seat of the disease, it is to be remembered that an exploratory incision down to the kidney is not a dangerous procedure, and is quite justifiable in a case of suspected disease, even if not proven.

I should like to ask Dr. Brown about the invagination of the ureter which he described; if he has seen that method used, and if it was a distinctly hopeful procedure. In the few cases where, after removal of the kidney, decided frequency of urination remained, it would be interesting to know if the prostate was absolutely free, and if the mucous membrane of the bladder showed any tuberculous involvement.

The catheterization of the ureter is an extremely valuable procedure, and helps us immensely in many cases. In the female the slight experience I have had with the Harris segregator has made me have a considerable feeling of confidence in that instrument, in giving us very good evidence of the relative condition of the two kidneys. It is easily used in the female, and I have thought that method was a useful one. We can apply it to cases with much less difficulty, and with less discomfort to the patient, than the catheterization of the ureters. I am inclined to reserve catheterization for the cases in which the evidence from the separator has not been very conclusive.

I have been very much interested in the paper, and it seems to me an excellent example of the kind of reports we ought to have from men having many cases, and men having few cases, in order to learn the truth of this matter.

DR. ALFRED WORCESTER: I never was more aware of my ignorance and presumption in attempting any discussion than I am this minute. Those of us who have only a few such cases in a lifetime are not able to report them with anything like the thoroughness shown by the reader tonight in the report of his cases. We do not know enough to report cases in that way, and I do not suppose the general practitioner will ever be able to report his cases of renal tuberculosis in such shape that the surgeon will receive much benefit from his reports. I am, however, exceedingly interested in the general subject of tuberculosis, although I know almost nothing about the special subject of tuberculosis of the kidney. The few cases I have had I have blundered into. The first one where I attempted to do nephrectomy I got scared after having cut down upon the kidney. By the time I had made up my mind it was tuberculous, it came over me that probably the other kidney was also tuberculous, and that I better depend upon permanent drainage. The man with his sinus has for the last few years been earning his living and supporting his family. I do not

know whether he would be better had I taken that kidney out.

I never shall be able to catheterize the ureters in the male patient. It is the height of my ambition to be able to do it in the female. It needs a man with special opportunities and tremendous application in that special direction to be able to catheterize the male ureter.

I have been particularly delighted to hear Dr. Brown's mention of the use of tuberculin in establishing the diagnosis of tuberculosis. I remember a few years ago insisting on the reasonableness of that procedure, and I also remember how chilly and terribly still the meeting became. I have employed that measure in cases of suspected tuberculosis, and am perfectly convinced it is a sensible, reasonable thing to do. Any practitioner is able to do that. It sometimes is an immense relief, and especially in eliminating suspected tuberculosis. There is nothing I have ever been able to do in my practice that has given me anything like the satisfaction I have had in giving tuberculin to patients with suspected tuberculosis and after so finding they had not tuberculosis, in seeing their general symptoms improve as soon as they were assured they had not the disease which specialists had told them they probably did have. What I want to bring particularly to the front is the danger of considering tuberculosis merely a local disease. Tuberculosis of a joint, kidney, bladder, lung, is so apt to mislead the practitioner into thinking all he has to deal with is a local lesion, whereas tuberculosis is essentially a general disease, seldom existing solely in one particular part of the body. Instead of there being any predisposition to tuberculosis, I wish we could feel that predisposition to tuberculosis *is* tuberculosis, and that the disease generally begins very early, and at different ages there are different manifestations of it. Just as soon as we get into our heads the idea that in tuberculosis of the larynx, lungs, kidney, bladder, joints or lymphatic glands what we have present is but the local manifestation of a general disease, then we shall come nearer to the desired pulling together of the lung specialist and throat specialist and anurist and genito-urinary specialist and the orthopedist. The poor, distracted family now has to go first to one and then to another specialist, instead of having from the first, as soon as the evidence of tuberculosis was discovered, some general treatment directed to the extermination of the disease. I am sick and tired of the much-vaunted hygienic treatment of tuberculosis, as if that were all that ought to be provided. Hygienic treatment means nothing more than is necessary in the treatment of any disease,—good food, fresh air and rest and exercise and all that sort of thing. Of course we need hygienic treatment, but we need something more. I am perfectly satisfied that we shall find the proper remedy for tuberculosis in some of the tuberculin derivatives. I have, perhaps, been unduly enthusiastic; but there are some things certainly true about it. Tuberculin is an absolutely reliable diagnostic test of the presence of

tuberculosis. That is a fact, and something that as yet general practitioners do not avail themselves of. We know that the early recognition of tuberculosis is of immense importance, and yet only one general practitioner here and there will avail himself of that certain test. It is equally true that a patient suffering from tuberculosis can be immunized to tuberculin. A patient who reacts to tuberculin at first will not react to the same dose of tuberculin, nor to ten times that dose if treated steadily with slowly increasing doses of tuberculin. Now those of us who have immunized patients in this way believe that we have seen them improve as they would not have improved under merely negative hygienic treatment. I believe that that is the right way of attacking cases of tuberculosis; and all the different sanitariums, all the different hospitals, all the different dispensaries where the hygienic treatment alone is depended upon, are to my mind just wasting time. I still believe that in the wards of the *Charité* the best work on earth is being done against tuberculosis. There are a good many reasons why the use of tuberculin meets its present disfavor; one of the reasons, however, is unworthy of the profession, and that reason is the ignorance of the profession with regard to the proper use of tuberculin. The profession grabbed at it, used it wrongly, and then condemned it, and has never yet been willing to take up its intelligent use. It is a very different thing to use it properly. The profession used to give ten or even one hundred times the proper dose, and indeed until Prof. Theobald Smith discovered how to standardize tuberculosis, no one could be sure of what dose he was giving. Another reason which has lately been made apparent to the profession why tuberculin should have given such discouragement in its early use, is found in the fact that there are different kinds of tubercle bacilli.

We are again indebted to Professor Smith for this discovery. Until recently, Koch himself thought that the bovine tubercle bacilli were the same as the human tubercle bacilli; but now we are told that there are at least four different varieties of the tubercle bacilli easily distinguishable; and there is considerable doubt whether there was ever a case of human tuberculosis contracted from either milk or beef, for there is such a difference between the bovine tuberculosis and the human tuberculosis as to make it at least very questionable if the disease is ever communicable from man to cattle or from cattle to man; and, moreover, the tuberculin derived from these different varieties of tubercle bacilli is very different in its effect upon the human subject. The tuberculin derived from the bovine tubercle bacilli has a very different effect upon the tuberculous patient from tuberculin derived from cultures of the human tubercle bacilli; so all the early experimentation with tuberculin is in the very foundation at fault, because we did not know with which tuberculin the experiments were made. Now it is possible to obtain tuberculin from the

human tubercle bacilli or from the bovine tubercle bacilli, and you can use one or the other, and you can, in using first one and then the other, produce reactions in the human patient quite as distinct and different as smallpox is different from vaccination. Experimentation on animals has proved that a small amount of tubercle bacilli of the bovine form will kill a strong steer, whereas, ten times the dose of human bacilli will hardly hurt a weak calf. Of course we cannot try the counter-experiment of the deadliness of the bacilli of the two varieties on the human patient, but I have not the faintest doubt if we could try that experiment we should find similar results. I can hardly expect surgeons to be interested in such reflections. I am, however, quite unable to understand the apathy of my brother practitioners in medicine; and I cannot help thinking that there never will be a real forward step taken in the treatment of tuberculosis of any special form, renal tuberculosis, for instance, until the profession, as a whole, is willing to stand fairly facing the fact that tuberculosis is never a local disease, but always a general disease; and that the proper treatment of it, while, of course, the surgical evacuation of an abscess is necessary and the curettage of the tuberculous ulcer is necessary, — the real fundamental treatment of tuberculosis is, of necessity, medical now and always.

DR. PAUL THORNDIKE: It is interesting to come to a meeting of the surgical section and to hear what is commonly considered a surgical topic discussed so largely from the medical aspects of the case. Most of us who have been surgically educated have been brought up in the belief that tuberculosis is a disease for the surgeon to palliate, but not to cure; that the surgeon needs a surgical indication before he interferes. Of late years, with good cystoscopic work, with Dr. Brown's work on ureteral catheterization, with the constantly increasing accuracy and ease for making an early diagnosis, we are constantly confronted with the reports of cases where kidneys have been removed because they were tuberculous, although other surgical indication was often lacking. The diagnosis of the disease resulted in the operation. We make, occasionally, an early diagnosis of tuberculosis of the kidney, and are inevitably confronted with that diagnosis and its possible consequences, as the only indication for operation. That happens to all of us, I am sure. What we want to know is, what is the alternative if we do not operate? What we want to know is, what is tuberculin going to offer us; what is hygienic treatment going to offer us? What can we do for our patient if we do not operate? That is renal tuberculosis today as it looks to me.

DR. OTIS: I have had but trifling experience in renal tuberculosis. My studies in tuberculosis have been in another direction. There are two questions, however, I should like to ask Dr. Brown: (1) Through what channels the tuberculous infection is conveyed to the kidneys; and (2) by what means he thinks climatic treatment

benefits renal tuberculosis—in any special way, or only by the general effect? I suppose in many cases there is coincident pulmonary tuberculosis, and by the beneficial effect of climate upon the latter, the renal tuberculosis is also favorably influenced.

DR. RICHARDSON: I have been very much surprised to hear two things said here tonight: one, that tuberculosis is a constitutional disease, and the other that the surgical treatment of localized tuberculosis is palliative. I have always supposed (1) that tuberculosis in many of its forms, at least, is a purely local disease, its only constitutional manifestation being due to the absorption of toxins; and (2) that the removal of its focus by surgical means will in many forms effect an immediate, complete and permanent cure. I have been very much interested in this paper, especially in the cases. It has always seemed to me extraordinary that tuberculosis of the epididymis, for example, of the urinary tract generally, outside the kidney, is so obstinate—indeed, almost invariably fatal, even after most thorough operation—when the most extensively disseminated miliary tuberculosis of the peritoneum will, after trifling incision, result in permanent cure in at least half the cases; that tuberculosis of the larynx is so obstinate, while removal of a tuberculous gland in the neck ensures, in most cases, immediate and permanent recovery.

I can add but little to this discussion from my own experience. I can add three cases of renal tuberculosis operated upon and one not operated upon. All these cases have followed the usual course of renal tuberculosis, which—like tuberculosis affecting the testicles, the vesiculae seminales and the bladder—is a very unpromising disease, whether operated on or not. I have never seen the least benefit come from operation. I have removed three kidneys for tuberculosis, as demonstrated by Whitney, Wright and others. No good whatever was done. One patient died as the result of the operation. In another case I was able, after first removing tubercular Fallopian tubes, to palpate both kidneys, and get a very good idea indeed of their outline and condition. I removed the left kidney and the left ureter. The tubercular process extended downward as far as I could go. The patient recovered well from the operation, but died in the course of a few months of pulmonary tuberculosis. A few months ago I removed a kidney, in which case there was ascending tuberculosis of the kidney. The patient had frequent and painful micturition. The operation was in itself very successful, and there was great temporary improvement. I hear now that the frequent micturition which was benefited apparently by the operation has returned, and the patient is now going down hill. I should welcome any means of earlier diagnosis in renal tuberculosis. I believe, with Dr. Cabot, that exploration of the kidney is easy and safe. I have explored a number of kidneys in this way, some by nephrotomy, some by digital exploration previous to nephrectomy, and I have been much im-

pressed by the facility, safety and efficacy of the procedure.

DR. ELLIOT: I have here a drawing of an early case of tuberculosis of the kidney which I will show, as it serves the purpose of what I am about to speak of. This case was of a girl nineteen years old, and the operation was done six months after the first symptoms. (The water-colored drawing showed a kidney in the early stages of tuberculosis.) We surgeons have to come down in our present knowledge from the constitutional treatment which *should* cure the patient to taking care of a degenerating localized lesion, of an abscess cavity. When you look at that drawing and see not one cavity only, but other centers, little cheesy patches breaking down, it seems to me very improbable that either the tuberculin or any other treatment will relieve surgeons of attacking the tuberculous kidney. I think this subject is a very important part of surgery, and Dr. Brown has given us the very latest and most advanced ideas on the subject. I have profited much from what he said, and am delighted to have been present. I believe that exploratory incisions will be made less frequently in the future. As these methods Dr. Brown is practicing become more generally understood and more generally practiced the necessity for exploratory incisions will be less, although probably not wholly done away with. Dr. Brown has spoken of the value of catheterizing the ureters, and I have no doubt it is great. He also showed us a specimen which clearly shows that in that particular case catheterization of the ureters alone would have led to a wrong supposition of the state of affairs. I have recently had a case in which it was very difficult and very puzzling to know what to do on account of the result of the catheterization of the ureters. Both ureters were catheterized, and there was pus in both urines and tubercle bacilli in both urines; the animal inoculation was positive from both kidneys. That result put me off from doing nephrectomy. The patient was treated hygienically and improved so much, looked so well, that it seemed wise to take out the kidney, which was evidently enlarged. A nephrectomy was done with a very good result, and the other kidney has worked very well since the operation. We may meet either of the two following conditions: You may find from your catheterization tubercle bacilli in both kidneys. You then have to decide if your patient will be benefited by removing the kidney most diseased. You may not get the bacilli in the early stages of the disease, because the tuberculosis does not begin in the pelvis of the kidney, it begins in the substance of the kidney, and the abscess may not have broken through; considering both these situations, it seems to me we are in danger of overvaluing the results of catheterization of the ureter. For after all, it usually comes down to the fact that if you have an enlarged kidney on one side, with pus in the urine and tubercle bacilli, that kidney is probably the origin of the disease. If the other kidney cannot be felt, and if you make a cystoscopic examination and find the ure-

ter of that side puffy and with a little ulceration about it, the evidence becomes overwhelming without catheterization of the ureters. I myself believe, in spite of all the enthusiasts say, that it is not a good procedure to catheterize the ureters of a patient about to have nephrectomy done. I believe, from what we know about the difficulties we have following manipulations of the genito-urinary tract, that catheterizing the ureters should not be done without a very good reason for it, not be done unless something hinges on it, certainly not done for curiosity. It seems to me the practical value we are going to get out of it is beginning to narrow itself down. I do not mean to say it is not invaluable in a good many cases, but I do say it ought not to be done simply as routine.

DR. MUNRO: With Dr. Brown's deductions I am heartily in accord. I would like to emphasize, however, the climatological side, because I think it is important. A number of years ago I corresponded with all the members of the Climatological Association, and since then I have talked with a good share of them on the subject of their clinical experience in the treatment of genito-urinary tuberculosis climatologically. My deductions have been stronger and stronger every year that those men see most excellent, most complete, results in the treatment of genito-urinary tuberculosis climatologically. I absolutely dissent from Dr. Worcester's statement that climatological treatment is primitive and an old-fashioned method. I believe it is the most important form of treatment we have outside of surgical treatment where surgical treatment is applicable. There is one other thing that ought to be emphasized, and that is, that climatological treatment does not mean simply sending a patient at random out West or to some health climate for one or two or six months, but to a well-selected climate and to a physician who understands the treatment of tuberculosis from the beginning and follows up the patient day after day and week after week throughout his entire treatment; who regulates his rising in the morning, his going to bed, diet, exercise, everything, and has as complete control over him as over his cases of pulmonary tuberculosis. Furthermore, cases that go for climatic treatment ought not to come back in one or two months. They should go for a year or five years or more if necessary, and should never come back to an unhealthy climate until the physician in charge is absolutely satisfied that they can come back tentatively for a summer and then perhaps for a summer and winter, etc. I believe that is the part of the treatment in which we are more apt to make mistakes; namely, the proper and thorough and really scientific treatment of these genito-urinary cases by climatic methods.

DR. CRAIG: I have the permission of Dr. Baker to report a case of his very recently operated upon, and whose life history as regarding the tuberculosis is just at its beginning. The patient, a girl of sixteen, was referred to him by a suburban physician about nine months ago, with a very intractable cystitis. Cystoscopic examina-

tion showed an open ulcer just within the bladder, near the urethra; and after local treatment failing entirely, the bladder was opened through the vagina, and the area, including the ulcer, was excised and a vesicovaginal opening was left, and through that opening the bladder was treated regularly, with the result that all bladder complication, so far as any objective signs went, was cleared up. She had no pain, never manifested lumbar pain. She had not gained beyond a certain point, and on certain nights, showing no particular regularity, there was an evening temperature. She returned to the hospital and the ureters were catheterized, as renal tuberculosis was feared. The urine from the left kidney proved negative. The urine from the right kidney showed pus and bacilli. Two weeks ago the kidney was removed. The ureter was removed down to the bladder, by making a series of incisions through the peritoneum and over the course of the ureter, the ureter being drawn under the peritoneum, and it was removed down to the bladder and was there cut off. In regard to the removal of the ureter, I have not heard Dr. Brown's answer to Dr. Cabot's question as to whether he has tried the inversion of the ureter, but I cannot conceive of the inversion of this ureter having been possible, because the upper end of the ureter was not particularly sacculated, but extremely thick and cord-like and very rigid; whereas, as we approached the bladder, got below where the ureter crossed the vessels, the ureter became practically its normal size; and it would have seemed to me to have been impossible to have invaginated the thickened portion by any means into the normal part and turned it out through the bladder. The patient is sitting up today for the first time.

DR. WATSON: I am entirely in accord with what Dr. Cabot and Dr. Munro have said as to the desirability of a conservative judgment with regard to the operative treatment of renal tuberculosis. The testimony with respect to the results of non-operative treatment offered by physicians is meagre, because of the difficulty of following the cases for sufficient periods to allow of a sound judgment. Moreover, if I may judge from my personal experience, it is safe to say that the majority of medical men—a large majority—do not know what is meant by early recognition, and properly carried out conservative treatment, in the sense of hygiene, climate, diet, etc. So far as I have had the opportunity to note its results, I have received the same impression as Dr. Munro; that they are much more favorable than we as surgeons are inclined to believe; and while in no wise wishing to minimize the successes of surgical intervention, I think the conservative views expressed here are well taken and timely. I cannot agree with what Dr. Cabot said as to the value of a lumbar exploratory operation in cases in which the diagnosis is obscure, for mere palpation and inspection of the kidney will very rarely give us information that we cannot better obtain by the cystoscope, and ureteral catheterization

used in connection with it after the method employed by our guest, Dr. Brown.

It does not seem to me that Dr. Elliot's assertion is justified, in which he maintained that it was useless to look for any benefit from means other than surgical in such a case as that which he described, for we know that tuberculous lesions which are of equal or greater extent elsewhere in the body are capable of arrest under non-surgical treatment, and it is too much to assume that the same may not be true of the renal lesion which he referred to.

Two statements made by Dr. Worcester should, I think, be modified somewhat. They are: "That tuberculin treatment was not employed in sanitariums," and "That tuberculin as a diagnostic test is infallible." At the Adirondack Sanitarium of Dr. Trudeau, treatment of selected cases—afebrile and well-nourished patients—by modified tuberculin is employed systematically in a number of cases—in the last annual report there were 19. With regard to the diagnostic infallibility of the tuberculin test, we know that several diseases other than tuberculosis may give the same reaction that is supposed to be characteristic of the latter malady, and also that there are instances of tuberculosis in which the test is not followed by the reaction. Yet one cannot but cherish the hope that by means of tuberculin, in one or another of its modifications or varieties, there will yet be found a specific remedy for this most widespread of all the diseases that we know in our part of the world, the step to actual discovery seems to be but so little removed and the results of the study already are so very suggestive of the possibility of success.

The paper of Dr. Brown to which we have listened furnishes another example of thorough, well-considered bits of work for which he has been conspicuous in this and other fields of surgery, and is a vindication—if one be needed—of the specialist, to whom alone we are indebted for such advance in our knowledge and the ability to practically apply it. I wish to express the thanks of the society to Dr. Brown for his kindness in coming here, and for the valuable and interesting paper to which we have had the pleasure of listening.

DR. F. TILDEN BROWN: As to the management of the ureter brought up by Dr. Cabot and referred to by several other members. It is my idea in nephrectomy to remove as much of the ureter with the kidney as the particular wound will permit of, whether the ureter is at fault or not; if we can appreciate—we usually can—by the finger that the ureter is diseased, we will extend the incision downward and secure as much ureter attached to the kidney as possible. It has been my idea, and I am not ready to give it up, that the diseased ureter left goes into a kind of functionless decline, and that it is no longer so much of a menace in spreading disease to the bladder, and also probably less of a menace in disseminating disease by the blood to other parts. However, all of the diseased ureter which

is available should be taken out at the same time that the kidney is removed.

As to the disease being limited to the upper part of the ureter, I am not prepared to say. My limited experience rather supports that view. Where cases show a marked hyperemia or even ulceration at the ureteral mouth in the bladder, I am not prepared to believe that it indicates a continuous tuberculous ureter from the kidney down to that point. I have an idea that there may be a great deal of intervening ureter in a practically normal condition.

As to the passage of the ureteral catheter with chronic gut in it before operation, with the hope of fixing the upper end of the ureter for invagination, it is unnecessary to say that there is no reason to think that this would be available in a great number of the cases for getting rid of the ureter. There are, however, some cases where we may infer from previous ureteral catheterization that this canal is unusually patulous, and in which it would be roomy enough to permit of invagination. In one case, the picture of which I pass, where the kidney was removed with seven inches of ureter attached, I think the remainder could have been managed in this way; for, although lined with tubercles and dilated, it was perfectly flaccid and soft. I have only suggested the process as a possible means, in some cases, of saving what seems a tremendous wound for a somewhat questionable end.

As to the persistence of frequency in two of our cases of nephrectomy, Dr. Cabot asked about involvement of the prostate. One of these patients was a woman. In the case of the man I cannot answer the question. These curtailed notes contain nothing as to his prostate; but as I recall it, he had no such involvement.

Dr. Worcester's intimation that catheterization of the ureters in the male is a difficult procedure, I would say that in the majority of cases it is not, when done with a systematic degree of patience. Of course, everything must be right at hand, and all the details must be prearranged; but, as far as the difficulty of introducing the catheter into the mouth of the ureter, it is generally simple, and it is a procedure that will be used more and more. At this moment I might skip a little, and in reply to Dr. Elliot's strictures upon the process, say that we agree with him that it is not a matter of overwhelming importance; but it is only one additional way of getting good evidence as to existing disease in one or the other kidney. So far as its being injurious, I have yet to see proof. It certainly is not to my mind as rough a procedure as the employment of a searcher in patients with symptoms of stone or enlarged prostate. The reaction following such examinations is often greater, and perhaps more dangerous, than the careful use of the cystoscope, and the introduction of ureter catheters, which, unless there is some reason for it, I never pass more than two and a half inches. I would say, while on this subject, that if we accomplish anything surgically in renal tuberculosis, it seems that it must be done during the

early stages of the disease. If we wait until the striking subjective and objective symptoms occur, we are very apt to have waited until the disease has passed pretty well into the ureter, the bladder, or posterior urethra. It does not appear to be advancing the subject to belittle any of the methods of getting at an early diagnosis, even if such a method is not always successful; and we certainly do not claim that it is so.

As to Dr. Worcester's theory, that tuberculosis is a general disease, I am quite in accord with what several of the speakers have said on this subject. I am much pleased by Dr. Worcester's statement, that he sees, from what tuberculin has shown in the past, hope that it will yet assume a form for successful treatment of the disease.

I was asked through what channel I thought tuberculosis disseminated. We all recognize the blood as one medium. I think this is the most common way by which the kidney becomes implicated originally. Of course, when the disease is far advanced, very commonly the other kidney is reached by a descending tuberculosis, in lymphatic continuity to the bladder, and up to the other kidney, as is seen in this illustration, although there is no reason why the second kidney should not receive a subsequent infection through the blood, just as the first one did some time previously. Again, superficial implantation by the descending bacilli must at times occur.

In what way is climatic influence supposed to be beneficial? This, I am not ready to answer, other than that it is due to a general systemic invigoration. We all know that some tuberculous patients will be greatly benefited by visiting a new place, and a while later they may begin to decline; then going to some different climate again, get a temporary brace, until that, in turn, ceases to benefit. With each move there is a noticeable gain, but if their whole record is reviewed for some years, it may show a decidedly total decline. Such are the cases that are marked for a fatal termination.

I was very much interested in the beautifully illustrated case of nephrectomy, reported by Dr. Elliot, of early renal tuberculosis, and think, from the picture, that it was just the kind in which a happy issue is to be expected from surgery, if from anything.

How much value to attach to the inoculation of animals; that is, how much value has a negative injection of urine, in which tubercle bacilli were believed to have been found? If it were voluntarily passed urine, I should be pretty positive that the bacilli were not tubercle bacilli. If, on the other hand, the bacilli seen by microscope had been collected by the ureter catheter directly from one kidney, I should be quite as positive that they were tubercle bacilli, and that, for some reason, the guinea pigs had not responded to this particular kind; because, although I have seen it stated by several authors, I am not prepared to believe that the smegma bacillus can be derived from the field of a pyelitis. If these authors mean that cases of tuberculous pyelitis are more apt than

healthy persons to have conditions about the glans, penis, or about the vulva, favorable for the excessive growth of smegma bacilli, that is another thing.

The Harris segregator I do not like to say much about, because I have not used it much. Of course, one is apt to favor what one uses most. In the Harris segregator one is certainly deprived of the great value which attaches to a visual inspection of the bladder. With the ureter cystoscope you can see the vesical conditions, and those existing around the ureteral openings, and see your catheter go into the ureter; and then, after collecting the renal excretions, see that the catheter comes out of the ureter, so make doubly sure that it has been where you supposed. I don't think there is much question that the ureter cystoscope invites a lesser traumatism than the Harris instrument. I do not use the Kelly method. My cystoscope is on the order of the old, original Brenner cystoscope. It has two barrels below the ocular apparatus. I have had so much satisfaction in the use of this double-barrel cystoscope, I am having another made with three channels, so that when a catheter is in each ureter, the third channel can be utilized in some cases to wash out the bladder, in order to get a specimen for examination; and in all cases, to let off the distending fluid when the catheters are in place.

The ureter catheters I generally use are known as Kelly's, and sold by Kuy-Scheever Co. They are short, and so flexible, that the mouth of the ureter is not put to any tension when the cystoscope is turned towards the other ureter to pass the second catheter; whereas, the European catheters are so stiff, that they would involve a considerable leverage on the ureter in doing this.

ASSOCIATION OF AMERICAN PHYSICIANS.

ABSTRACT REPORT OF THE SIXTEENTH ANNUAL MEETING, HELD AT WASHINGTON, D. C., APRIL 30, MAY 1 AND 2, 1901.

FIRST DAY.

THE meeting was called to order by the president, DR. WM. H. WELCH, at 11 o'clock.

In his opening address he said that, as this was the first meeting of the association in the present century, he felt tempted to review of the past and to forecast that of the future, but the limited time at his disposal precluded the possibility of entering upon such a broad field. He devoted a short time to a consideration of the opportunities at present afforded in this country to those who take up one of the medical sciences as their life work, such as anatomy, physiology or pathology, as compared to the opportunities open to those who desire to fit themselves for the higher positions in clinical medicine or surgery. He thought that we now possess in this country, while far from enough, still, a fair number of well-equipped laboratories representative of each of the fundamental medical sciences in which the training compares favorably with that to be found anywhere in the

world. Laboratory training has in a few years advanced from the weakest to the strongest point in our curriculum. The young man who chooses for his career one of the scientific subjects can find plenty of opportunity in this country for study, and after he wins his spurs can look forward to securing a teaching position or the directorship of a laboratory within a reasonable time, which is a gratifying advance over former conditions; but corresponding opportunities are not offered to those who take up clinical medicine and surgery. The only path open to them is through family practice or dispensary work, and while the desired end may be reached, Dr. Welch thought it was not a method adapted to securing the best results. The contrast was shown in considering two particular points, namely, that there is not the same opportunity for prolonged training under competent supervision; and secondly, that there is little chance that the man who has acquired a high reputation in one place will be called to another while the present organization of schools and hospitals continues to prevail.

In considering the question of the present membership of the association and the fact that it has about reached the limit, Dr. Welch recalled and endorsed the suggestion once made by Dr. Da Costa that a free use of the honorary membership should be made so as to transfer to that list some of those who are now on the active list, but who are prevented for some reason attending the meetings regularly and contributing to the scientific work of the society. Dr. Welch then paid fitting tributes of respect and loving memory to those members who had died within the year, a list which includes the names of Drs. Whittaker, Da Costa, Bussey and Draper, all founders of the association and three former presidents.

DR. H. A. HARE, of Philadelphia, read a paper entitled

AN UNDESCRIBED CARDIAC SOUND.

He said it seemed impossible that any heart sound had gone undescribed, and yet he could find no reference in the literature to the one he was about to speak of. It consisted of "a peculiar vibrating sound occurring with the systole, and heard best in the area extending from one inch to the right of the sternum to one inch to the left of the nipple, on the nipple level, and which is sometimes so dry, if I may use such a term, that I have at times considered it somewhat like the pericardial friction sound heard in pericarditis near the base." He was convinced that it was not a friction sound and believed it to be due to the vibrations in the cordæ tendonæ produced by imperfect contraction of their muscular attachments, as he had never met with it except in cases of general debility with feeble, irritable heart. He had found it frequently in early cases of pulmonary tuberculosis and also in the general systemic and cardiac feebleness of influenza convalescence. He compared it with the sounds that this description might suggest, and determined that it was not like any of the known, described sounds.

Dr. OSLER said that he did not know that he had ever heard the sound Dr. Hare referred to, unless it was one of those peculiar heart sounds that had sometimes both worried and puzzled him.

Dr. W. S. THAYER, of Baltimore, described the

FREQUENCY AND THE DIAGNOSIS OF THE FLINT MURMUR IN AORTIC INSUFFICIENCY.

"In 1862 Flint called attention to the occasional occurrence in uncomplicated aortic insufficiency of a presystolic murmur limited to the region of the cardiac apex; the sound was loud and blubbery, and had all the characteristics of a mitral presystolic murmur. His explanation was, that in cases of considerable aortic insufficiency, the left ventricle is rapidly filled with blood flowing back from the aorta as well as from the auricle before the auricular contraction takes place. The distension of the ventricle is such that the mitral curtains are brought into coaptation, and when the auricular contraction takes place the mitral direct current passing between the curtains throws them into vibration and produces the murmur." It appears that the majority who have recognized the Flint murmur have agreed in considering it of unusual occurrence, Guiteras alone expressing the belief that "Obstructive functional mitral murmurs are of frequent occurrence in aortic regurgitation."

In view of this and of the fact that he had seen a good many cases with Flint murmur in the Hopkins Hospital, Dr. Thayer thought it advisable to analyze the clinical and pathological records of all cases of aortic insufficiency that had come to autopsy in order to reach some conclusion in regard to the frequency of the murmur and its diagnostic features. In 74 cases that have come to autopsy since May, 1889, the records show in 45 a murmur exactly similar to that characteristic of mitral stenosis, at some time during the observation of the case. In 12 of these there existed a mitral stenosis in connection with an aortic lesion. In 33 cases in which the Flint murmur was observed, the condition of the mitral valve, beyond the dilation of the orifice usual, as a rule, in well marked aortic insufficiencies, was absolutely normal in 17 instances; that is, the majority of the uncomplicated cases of aortic insufficiency showed a Flint murmur.

As to the character of the diagnostic features, certain clinical differences were found between the Flint murmur cases and those complicated with mitral stenosis. The Flint murmur is never as rasping and intense as that in stenosis; the presystolic thrill is less frequent, less intense, and in but few instances does the apex impulse have the tapping character so significant of true mitral stenosis; the snapping valvular first sound is also rare; the absence of history of acute infectious processes is also of assistance in making the distinction.

Dr. CANNON said that a review of the post-mortem records at the Massachusetts Hospital had confirmed in detail practically all that Dr. Thayer had said. In the last 100 cases of aortic regurgi-

tation, which he had examined in the same way that Dr. Thayer did, he had found the Flint murmur in something over 50 of them.

DR. ALFRED STENGEL, of Philadelphia, read a paper on

THE CAUSES AND CLINICAL FEATURES OF CARDIAC HYDROTHORAX.

He referred to the cases of unilateral pleural dropsy reported by Steele, which he had observed with the latter, and called attention to the fact that most writers have stated that effusion in heart disease is always bilateral. He had frequently found it unilateral, and when single it was always right sided. He analyzed 100 consecutive cases of cardiac disease that had been under his observation, and in which sufficient clinical and pathological information was preserved to make the notes valuable. Of these 17 showed evidences of hydrothorax, of which 5 were right sided only, 3 left sided, but in 2 of these the right pleura was found at autopsy obliterated. Nine had bilateral effusion at some stage; 2 of these were first right sided and then double, and in the other 7 the right side was more affected than the left. He said it was sometimes difficult to determine whether an effusion was dropical or inflammatory, but the former could occur unilaterally.

He considered at some length the anatomical conditions that might permit or cause a one-sided effusion through obstruction to the circulation, and found support for the clinical evidence that the chances for such an effusion to occur are better on the right than on the left side.

DR. OSLER thought the history of these cases pointed to a local cause, and said that the three interesting points about all of them were: (1) The extraordinary chronicity of the cases; (2) the sudden onset of the hydrothorax; and (3) the almost invariable fact that these cases are mitral and the right side is chiefly involved.

DR. WILSON thought that the mechanical conditions should be taken into consideration in explaining the disparity in the amount of fluid on the two sides. Referring to the two pleural cavities as closed sacs, and the right one being occupied by compressible lung tissue, he found the left to contain such tissue, but to be occupied also to a large extent by an enlarged incompressible heart, which would prevent the rapid transudation of fluid on that side.

DR. HARE considered the movements of the heart to be another important factor, and believed it possible that the diastole and systole of the heart might urge on the fluids on that side without influencing the other.

DR. A. JACOBI, of New York, presented a paper entitled

(To be continued.)

PLAGUE IN SOUTH AFRICA.—The total number of plague cases reported up to May 28 has been 651, and the deaths from the disease 300. Rats at Port Elizabeth are still said to be dying of plague. The conditions on the whole, however, are improving.

THE BOSTON
Medical and Surgical Journal.

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SOME RELATIONS OF MEDICINE AND
SURGERY.

THERE is little reason to doubt that what we now broadly speak of as medicine and surgery will, as time goes on, show an increasing tendency to invade each other's domain. In fact, apart from mere operative technique, very many surgical problems are primarily medical, and certainly many medical problems become surgical as the underlying disease progresses. The generally recognized separation of medicine and surgery depends finally upon the comparatively superficial basis of operative skill, the whole field of diagnosis occupying a common ground. However keen the surgeon's desire may be to accomplish definite results through operative means, the fact remains that by far the larger portion of his professional work is taken up with a consideration of the primarily important matter of diagnosis, of the determination of the advisability of operation—a strictly medical matter. The ease with which operations may now be performed has in the past and will, no doubt, in the future, lead, on the part of certain men, to a lack of discrimination in determining as exactly possible the underlying condition for which the operation is undertaken. We still hear much, though possibly less than formerly, of exploratory operations, justified unquestionably in certain cases, but bad in principle, if there is the slightest opportunity of determining pre-existent conditions. What we look for now in the really successful surgeon is discrimination, another word for conservatism, and fortunately this tendency is everywhere visible. With modern methods, courage more often lies in refraining from operation than in operating. In general, we see about us a growth of the tendency to look more broadly and deeply at medical matters, to use our reasons more and our impulses less; and this applies peculiarly to sur-

gical procedures. The medical side of surgery, diagnosis, pathological anatomy and the causes of disease, are coming to occupy their proper place. This clearly is a necessity if surgery is to keep pace with the scientific tendencies of medical knowledge in general.

As a type of the failure to clearly recognize the interrelation of medical diagnosis and surgical interference, there is probably no better example than operations on the spine for traumatic injuries of the cord. In this matter, on the part of certain writers, there is a persistent disregard of the palpable fact that the question at issue is almost invariably a medical one, and only secondarily surgical. The essential matter to determine is, how much the cord is injured, rather than whether or not laminectomy may be safely undertaken. And yet we see, from time to time, papers appearing with reports of cases in which no discussion of the medical side of the question is made, or of the pathological anatomy of the condition, or of the possibility of improvement without operation. For example: At the recent meeting of the American Surgical Association, Dr. Stephen H. Weeks read a paper on "Fractures and Dislocations of the Spine," in the course of which he said: "I believe the surgeon should perform laminectomy in every case, if the condition of the patient is such as to justify any operation, regarding the operation in the first instance as an exploratory one." Following this are various details regarding the dangers of the operation, and a warning that every precaution must be taken to avoid the attending shock. Unlike others, Dr. Weeks admits the gravity of the operation in itself, and yet without further statements regarding the medical side of the question, advises an exploratory operation in all cases, provided the condition of the patient is such as to justify any interference. What we object to, is the lack of discrimination, arising, we are forced to believe, from a too strictly operative point of view. Nothing is more firmly established than that a crushed or injured cord does not recover. If operation is to be attempted at all, it should only be after a most careful study of the symptoms of each individual case, remembering, too, that many cases reported as improved after operation might have improved without interference.

The only point, however, which we wish to make here, is that general statements regarding serious operations are out of place, and not in accord with the spirit of modern surgery, unless accompanied by the medical bearings of the subject under discussion. Laminectomy, as a procedure in operative surgery, is no doubt indicated in a limited number of cases, but even then its justification depends wholly upon other consider-

ations than comparative operative safety. In general, it is certainly safe to say, as we implied at the outset, that the surgeon of the future must devote an increasing share of attention to the conditions which underlie surgical complications. By this means, no doubt, some of the artificial barriers between two subjects, which are in reality one, may in time be broken down, to the decided advantage of medicine at large.

A HOSPITAL CORPS GRADUATION AT MANILA.

A RECENT graduation of nineteen men of the so-called Company of Instruction from one of the Reserve Hospitals at Manila was made an occasion of considerable dignity by the presence of the commanding general and chief surgeon of the division. The object of the affair was to lay more stress upon the importance of this arm of the service than is ordinarily done. Various men, prominent in the army, spoke, describing the work of the Hospital Corps, and its possibilities for the future. General McArthur addressed the graduating class, and presented each member with his diploma. Colonel Greenleaf gave an interesting sketch of the development of the Hospital Corps from the Civil War down to the present. The remarks of the valedictorian of the class, Homer C. Lawson, were received with much enthusiasm. Among other things he said: "In no department of the United States Army is there as much responsibility resting upon an individual as there is upon the soldier of the Hospital Corps. Upon his prompt action and coolness in danger often depend the lives of his comrades. How many soldiers, wounded in battle and far from medical assistance, are saved by first aid treatment? And in the time of trying need, when a whole army may be threatened by the invasion of disease, how often is the danger averted by the timely and discreet action of the sanitary soldier. In the very beginning, I wish to emphasize and impress the fact that above all things a Corps man is a soldier. What constitutes a soldier in the true sense of the term? All honor to our comrades behind the gun, but it does not necessarily follow that he alone is a soldier, or that bravery and loyalty cannot be shown in an equally effectual though different manner. We wish to prove that a trained Corps man is of equal value with his brother of the line in battle, in camp or in garrison. In the field a Corps man faces every danger that is encountered and risks his life equally as often as the man behind the gun."

These are simple enough facts, told in a simple way, and we hope that their reiteration will do something toward the better recognition of the

medical service in all its departments. In general, it must be taken as a good sign that these graduating exercises were given an importance usually not accorded to them, due mainly to the efforts of the commanding officers, Major Kulp and Lieutenant Lyster.

BOSTON'S ICE.

It is unfortunate for our complete peace of mind that, year by year, new menaces to health arise. A recent addition to the list is the quality of the water supplies from which our ice is obtained. It is self-evident that the sources of contamination increase in proportion to the growth of population in the neighborhood of ponds from which ice is cut. Not long since, Alderman Norris, of the city government, advocated the appointment of a chemist to investigate the ice sold in Boston, with relation to impurities of various sorts inimical to health. It appears that about a year ago Dr. Hill of the Bacteriological Laboratory, at the instigation of the Board of Health, studied the whole subject, as a result of which certain regulations were adopted, which dealers in ice were expected to obey. Were these regulations carried out, which demanded exact information from the dealers regarding the source, character and means of transportation of their ice, there is small reason to fear the origin or spread of disease from this cause, inasmuch as it is perfectly well known to the Board of Health that certain ponds, through proximity to sources of pollution, are unsafe. It is also clear that with the still greater growth of the city and its environs, the disposal of sewage will be more adequately provided for, thereby decreasing materially what now in certain instances might be a positive source of danger.

MEDICAL NOTES.

AN EXAMPLE OF NEWSPAPER SURGERY.—The following paragraph, reported apparently in good faith by a daily contemporary, is not likely to spread accurate medical knowledge, however much it may redound to the credit of surgery in the popular mind. "Perry Taylor is one of the few human beings from whom doctors have successfully removed an entire lung. The patient, who is twenty-six years of age, was stricken about four years ago with what he believed was galloping consumption and was treated accordingly by the physicians consulted. Fully 240 cysts were removed in one operation, and then it was decided that the whole lung would have to come out. The operation was successfully performed. Taylor seems to have recovered his strength and is in the best of spirits."

DEATH OF MARIE J. MERGLER, M.D.—The death of Dr. Marie J. Mergler, of Chicago, is announced from California, where she had gone for her health. She was one of Chicago's most prominent women physicians and held during her life many positions of trust and responsibility connected with her profession.

TESTIMONIAL TO G. ARMAUER HANSEN.—It is proposed to honor Dr. G. Armauer Hansen, of Bergen, distinguished for his services in the scientific study of leprosy, by a bust, for which contributions are sought from various countries. Subscriptions ranging from \$2.50 to \$5.00 may be sent to Dr. Sandberg, Bergen, Norway.

DIPHTHERIA NOT SUBJECT TO QUARANTINE.—The steamer "Rhyndland," which arrived at Philadelphia May 12th with three cases of diphtheria on board, was, according to the *Medical News*, passed by both Federal and State quarantines. A list of the passengers who were to stop in Philadelphia was furnished the Board of Health, and the three persons afflicted were removed to the municipal hospital.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, May 28, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: diphtheria 77, scarlatina 24, measles 204, typhoid fever 8, smallpox 4.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending May 25th was 213, as against 200 the corresponding week last year, showing an increase of 13 deaths, and making the death rate for the week 19.8. The deaths from consumption were 24, pneumonia 18, whooping cough 1, heart disease 15, bronchitis 10, marasmus 4. There were 12 deaths from violent causes. The number of children who died under one year was 36, under five years 54, persons more than sixty years 50; deaths in public institutions, 53.

HOSPITAL NOT LIABLE FOR ALLEGED INJURY TO PATIENT.—The United States Circuit Court of Appeals has affirmed the judgment of the Circuit Court which was for the defendant in the case of a patient against the Massachusetts Homeopathic Hospital. This was a suit brought to recover damages for an injury alleged to have been sustained by the negligence of a nurse in the hospital in the use of a hot-water bottle. The plaintiff was at the time paying for her care, a fact which her counsel attempted to make use of. The court ruled: "Commonly, and in the case at bar quite manifestly, this payment does not make full pecuniary compensation for the services rendered.

The pay is generally calculated upon the patient's ability to pay rather than upon the whole cost of the treatment he receives. That such a hospital in its treatment of a rich patient shall be held to a greater degree of care than in its treatment of a pauper is not to be tolerated."

SMALLPOX AT MARLBORO AND DEDHAM, MASS.—

The first case of smallpox for eight years in the town of Marlboro has recently been reported to the Board of Health. It is reported that a case of smallpox has appeared in Dedham, Mass., said to be the first for fifty years. The patient is a young woman who had been employed in Boston.

NEW YORK.

CONVICTION OF A FOLLOWER OF DOWIE.—J.

Luther Pierson, a resident of Valhalla, a nearby village, has been convicted in the Westchester County Court, at White Plains, of violation of Section 288 of the Penal Code in neglecting to provide medical attendance for a child, two years old, which died recently from pneumonia. The offense is characterized in the law as a misdemeanor, and the sentence of the court was that he should pay a fine of \$500, and, failing to do this, to stand committed to the county jail for one day for each dollar of the fine. Pierson, who is a member of the "Christian Catholic Church, of Chicago" (or follower of Dowie), stated during the trial that while he admitted the existence of disease, he believed that it came from the devil, and could be cured only by prayer and faith, without the use of material agencies.

LIBRARY OF THE MEDICAL SOCIETY OF THE COUNTY OF KINGS, NEW YORK.—The Library of the Medical Society of the County of Kings was founded in 1845. On May 19, 1900, the library of over 30,000 volumes, 15,000 pamphlets, and some 500 current medical periodicals was thrown open free to the public. In addition to the very latest publications, the collection is especially rich in classics. The earliest printed volume is a folio published A.D. 1474. The first donation to the permanent invested endowment was the "Dr. John Lloyd Zabriskie Memorial Library Fund," presented in 1899 by Mrs. Zabriskie as a memorial of her husband, the late Dr. John Lloyd Zabriskie.

CARELESSNESS IN GUARDING AGAINST SPREAD OF SMALLPOX.—Recently a trained nurse who was taken ill, after having been in attendance on a patient who proved to have smallpox, was admitted to Harlem Hospital, and, with an extraordinary lack of precaution, was placed in a ward with sixteen other patients. When she herself developed the disease there was consternation in the institution. The patient was removed to the Willard Parker Hospital, the ward was placed in

quarantine, and the Medical Board ordered the vaccination, for the seventh time during the present season, of the entire medical and nursing staff of the hospital.

Miscellany.

THE ADIRONDACK COTTAGE SANITARIUM.

In the sixteenth annual report of the Adirondack Cottage Sanitarium, for the year 1900, the president and physician in charge, Dr. E. L. Trudeau, states that the accommodations at the infirmary, which has only six beds, are now at times entirely inadequate, and a new and larger infirmary building is greatly needed for the proper care of the more acutely ill patients. The rapidly growing recognition by the public and the profession, of the value of sanitarium methods wherever they have been adopted, is shown by the fact that applications for admission to the institution from Massachusetts—the first and as yet the only State in which a State Sanitarium for Consumptives exists—have more than doubled since the adoption of this method of treatment there under State control. The number of patients admitted from the different States during the past year was as follows: New York, 136; Massachusetts, 22; New Jersey, 18; Canada, 18; Maryland, 14; Connecticut, 9; Ohio, 8; Pennsylvania, 8; Vermont, 5; Virginia, 5; District of Columbia, 4; Rhode Island, 4; Maine, 3; Michigan, 2; Missouri, 1; Illinois, 1; Iowa, 1; Kentucky, 1; England, 1; Germany, 1.

The work done by the sanitarium during the past year may, therefore, be summed up briefly as follows: 262 patients have been treated. To 224 of these the institution has furnished the best possible means of restoration to health at a nominal price, and to 38 entirely free of cost to them.

Correspondence.

SALSOMAGGIORE (PARMA).

GRAND HOTEL DES THERMES,
May 14, 1901.

MR. EDITOR:—Italy has numerous spas of various kinds, but lack of enterprise has thus far prevented their merits becoming known to medical men of other nationalities. The best of them, so far as the natural properties of its waters are concerned, is Salsomaggiore, a little place of 1,500 inhabitants in the Province of Parma. It is a quaint and rather picturesque village, connected by a steam tramway with Borgo San Donnino, which is a station on the main line between Rome and Milan (via Florence); so that there is nothing left to desire in the way of accessibility. It can be easily reached in thirty hours from either London or Paris, and for Americans who land at Genoa it is no more than a half day's easy journey.

For many centuries the waters have been used for the manufacture of salt, and it was not until 1830 that Berzieri, the village doctor, tested their effects in cases of syphilis and scrofula. His successor continued these researches and went so far as to build a couple of baths in his own house for the treatment of his patients.

From these small beginnings have sprung into existence three large and well-installed *stabilimenti*, each with its own well driven to a depth varying from 400 to 700 metres. The waters are used in every possible way for the treatment of all diseases where resolution and absorption are the potent factors in obtaining a cure; immersion, inhalation, douches, and every conceivable form of outward and inward use aside from drinking, for which the water is unsuitable, as shown by the analysis, which proves each kilogramme to contain the following number of grammes: Sodium, 153.990; lithium, .735; ammonium, .037; calcium, 15.848; strontium, .255; magnesium, 5.584; iron, .033; aluminum, .059; manganese, .005; magnesium bromide, .303; magnesium iodide, .006; magnesium borat, .011; ferrum bicarbonate, .077; strontium sulphate, .603. The natural temperature is 14° C. (57° F.) and the density 15°—16° Baumé. The water, as discharged in intermittent jets from the wells, is clear, but quickly turns brown from oxidation, and leaves a deposit on the sides of the tanks and pipes. Before it is allowed to reach the enormous receptacles used for its storage, it undergoes a straining process, and the mud thus extracted is employed in the way of ordinary "fango" baths. It differs, however, in color from the usual "fango" so much used at Dax and throughout Germany, and is strongly impregnated with the salts which the water contains. After reaching the tanks a thick scum of greenish-black petroleum quickly appears on the surface of the water, and this is skimmed off and subsequently refined. There is also a large amount of natural gas discharged from the wells, which is stored and used for heating and lighting purposes. Nature's laboratory certainly appears to turn out a varied assortment in this instance.

As a by-product, resulting from the extraction of chloride of sodium by evaporation, comes the *acqua madre* ("mother water") in which, of course, the percentage of the other salts is enormously increased. This condensation, modified in various degrees, is used for inhalation, and has proved very effective in cases of chronic laryngeal and bronchial affections, as well as in obtaining very rapid absorption of iodine, etc., as is easily proved by examining the urine after a single treatment. One may take the inhalations by direct atomization (Pierri's) or by the Jannigen and Beiselein's method, breathing the air of a large room which is filled with a white mist of the finely pulverized water. I have personally known of a case of most troublesome cough from which an old gentleman had suffered for fifteen years, where almost complete relief was obtained after a few days' treatment.

As ordinarily employed, the "cure" consists of twenty-one baths of the natural water from which the "fango" and petroleum have been removed. At the commencement of the treatment the specific gravity is 4° Baumé, and this is gradually increased to 9° or at the most 12°. At the last named density the patient is as "helpless as a jellyfish," and special measures are necessary to prevent his "floating like a toy duck."

The source of the drinking water supply is above suspicion and the village is clean and orderly. The people of the place, whether employés of the baths or not, seem to be a quiet and civil lot, among whom beggars are very rare. The village lies in a pretty little valley at the foot of the Apennines, at an elevation of a little over 500 feet above the sea and surrounded by rather low cultivated hills on which are vineyards, gardens and occasional olive groves. Aside from excursions to three or four ruined castles (Bargone, Vigoleno, etc.), there is but little to do in the way of amusement in the near neighborhood; but fortunately it is a short ride to Parma by rail and but little more than a couple of hours to Milan; so that a fairly able-bodied invalid can easily find entertainment on such "off days" as his cure may permit.

This year a small theatre, or rather *café chantant* has been opened, and light operas (chorus particularly robust) are given every evening. Shops of the better kind are beginning to appear, and as the place attracts

the notice which it certainly deserves, all the usual accompaniments of a fashionable spa will follow.

The baths and inhalations are remarkably well done, and everything about the *stabilimenti* is bright and clean. Disinfectants are regularly employed to insure safety; and there is no lack of system (so painfully in evidence at many other places) in carrying out the treatment.

Of the three establishments, the *Therme Magnaghi* is the newest; but the pleasantest way to take the "cure" is to live at the new *Hotel des Thermes* in which the water is brought directly from the well onto each floor, and one has but to walk along the corridor to find clean bath rooms and good attendance.

To those who have been jolted about in *chaises à porteurs* after a hot *douche* in other continental resorts, this will prove a grateful change.

Another advantage of *Salsomaggiore* is the reasonable rate at which one may live while taking the baths.

So far as medical attendance is concerned, aside from the regularly salaried physicians at the establishments there are Dr. Ceccherelli, professor of clinical surgery in the University of Parma (who has been in the habit of sending patients to *Salsomaggiore* for many years, and has written a number of monographs on the therapeutic properties of the waters) and Dr. J. J. Eyre who practices in Rome in winter and is the translator of Celli's book on malaria and Montis (prize) essay on pathology.

The list of diseases in which the waters have achieved good results includes scrofula and other forms of tuberculosis, rickets, chronic affections of the larynx and bronchi, chronic gout and rheumatism, chronic rheumatoid arthritis, pelvic troubles in women and syphilis.

To what extent the salts are absorbed by the skin remains an open question; but it certainly seems that a spa whose waters contain something more than a stench of sulphuretted hydrogen and table salt is worthy of the notice of the profession. Such rheumatic cases as I have had an opportunity of observing, have certainly improved after the first ten baths, and the quick relief afforded in two cases of asthma within my personal knowledge, have impressed me with the efficacy of the inhalations. In summer the hotels are crowded with Italians, and the weather is too hot for comfort; but May, early June, September and October are all pleasant and the rainfall usually slight. The place is healthy, and is destined to prove a powerful rival to the best known baths in Europe within the next few years.

Very truly yours,

F. GORDON MORRILL, M.D.

METEOROLOGICAL RECORD.

For the week ending May 18th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches.
	Daily mean.	Daily maximum.	Daily mean.	Daily minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	Daily minimum.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S. 12	29.72	63	71	55	91	33	S	W	12	6	O.	C.	T.
M. 13	29.62	58	66	50	83	43	S	W	8	6	R.	C.	25
T. 14	30.06	69	69	49	54	46	S	W	12	15	R.	C.	0
W. 15	30.12	60	66	54	56	65	S	W	9	12	O.	C.	0
T. 16	30.14	56	64	49	59	64	S	W	4	9	C.	C.	0
F. 17	30.03	63	82	56	66	66	E	E	6	12	C.	C.	0
S. 18	29.91	51	64	48	86	90	E	E	6	12	C.	C.	24
Mean	29.97	66	61			65							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
Mean for week.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, MAY 18, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Measles.	Diphtheria and croup.	
New York . . .	3,437,592	1,216	413	26.07	12.25	4.85	58	3.21	
Chicago . . .	1,698,075	—	—	—	—	—	—	—	
Philadelphia . .	1,293,497	—	—	—	—	—	—	—	
St. Louis . . .	575,238	—	—	—	—	—	—	—	
Baltimore . . .	608,957	171	44	19.88	15.79	—	—	2.92	
Cleveland . . .	351,708	—	—	—	—	—	—	—	
Buffalo . . .	352,887	—	—	—	—	—	—	—	
Cincinnati . . .	325,902	—	—	—	—	—	—	—	
Pittsburg . . .	321,616	109	53	27.32	13.76	1.83	92	—	
Washington . . .	275,718	—	—	—	—	—	—	—	
Milwaukee . . .	285,315	—	—	—	—	—	—	—	
Providence . . .	175,597	67	13	14.92	19.40	1.49	—	1.49	
Boston . . .	569,892	193	54	25.96	16.96	3.63	1.55	1.55	
Worcester . . .	118,421	27	10	7.40	22.22	—	—	—	
Fall River . . .	104,863	33	10	21.21	9.09	—	—	—	
Lowell . . .	94,969	41	14	17.08	21.40	—	2.44	4.88	
Cambridge . . .	91,886	21	6	19.04	4.76	4.76	—	9.52	
Lynn . . .	68,315	17	8	24.49	5.88	—	—	5.88	
Lawrence . . .	62,559	14	9	—	21.43	—	—	—	
New Bedford . .	62,442	17	2	23.52	5.88	—	—	—	
Springfield . . .	62,659	16	4	—	18.75	—	—	—	
Somerville . . .	61,543	10	5	25.00	6.25	—	—	6.25	
Holyoke . . .	45,712	16	4	—	12.50	—	—	—	
Brookton . . .	40,063	7	1	28.60	—	—	—	—	
Haverhill . . .	37,175	8	3	37.50	—	—	—	—	
Salem . . .	35,866	11	2	—	—	—	—	—	
Chelsea . . .	34,072	8	1	—	—	—	—	—	
Malden . . .	33,691	12	3	16.67	25.00	—	—	—	
Newton . . .	33,587	7	2	14.30	14.30	—	—	—	
Fitchburg . . .	31,531	9	2	—	11.11	—	—	—	
Taunton . . .	31,036	12	2	16.67	8.33	—	—	—	
Gloucester . . .	26,121	6	1	—	—	—	—	—	
Everett . . .	24,536	7	2	28.60	—	—	—	—	
North Adams . .	24,200	6	1	33.33	—	—	—	—	
Quincy . . .	23,899	6	1	—	—	—	—	—	
Waltham . . .	23,481	4	1	25.00	25.25	—	—	—	
Pittsfield . . .	21,756	2	1	50.00	—	—	—	—	
Brookline . . .	19,555	10	2	—	—	—	—	—	
Chicopee . . .	19,167	6	7	36.00	—	—	—	16.00	
Medford . . .	18,244	5	2	20.00	40.00	—	20.00	—	
Newburyport . .	14,478	1	—	—	—	—	—	—	
Melrose . . .	12,862	—	—	—	—	—	—	—	

Deaths reported 2,120; under five years of age 679; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 500, acute lung diseases 277, consumption 231, scarlet fever 70, influenza 2, erysipelas 6, typhoid fever 16, whooping cough 13, measles 13, cerebro-spinal meningitis 14, smallpox 13.

From whooping cough, New York 2, Pittsburg 10, Cambridge 1. From cerebro-spinal meningitis, New York 3, Baltimore 1, Pittsburg 4, Lynn 3, Boston, Brockton and Haverhill 1 each. From scarlet fever, New York 39, Pittsburg 2, Providence 1, Boston 7, Cambridge 1. From typhoid fever, New York 4, Baltimore 2, Pittsburg 5, Boston 2, Worcester, New Bedford and Weymouth 1 each. From erysipelas, New York 5, Baltimore 1. From smallpox, New York 13.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,783,669, for the week ending May 14th, the death rate was 17.5. Deaths reported, 3,790; acute diseases of the respiratory organs (London) 251, whooping cough 133, diphtheria 55, measles 107, fever 20, scarlet fever 34.

The death rate ranged from 9.7 in Croydon to 26.5 in Swansea; Birkenhead 15.9, Birmingham 18.0, Blackburn 20.0, Bolton 21.6, Bradford 16.5, Brighton 11.3, Bristol 15.2, Burnley 16.1, Cardiff 13.9, Derby 17.2, Glasgow 21.1, Halifax 18.5, Huddersfield 15.9, Hull 15.5, Leeds 18.0, Leicester 11.5, Liverpool 20.7, London 16.7, Manchester 18.5, Newcastle-on-Tyne 19.4, Norwich 16.3, Nottingham 19.3, Oldham 15.6, Plymouth 11.5, Portsmouth 16.7, Preston 18.5, Salford 20.5, Sheffield 18.6, Sunderland 21.3, West Ham 13.2, Wolverhampton 12.7.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, WEEK ENDING MAY 18, 1901.

J. C. WISE, medical director, appointed member of Examining Board, Annapolis, Md., for examination of candidates for cadets.

W. B. GROVE, passed assistant surgeon, orders as member of Examining Board, Naval Academy, revoked.

G. BIDDLE, surgeon, detached from navy yard, Philadelphia, and ordered to the Indiana.
O. DIEHL, surgeon, detached from the Indiana, and ordered to the Philadelphia Navy Yard.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MAY 23, 1901.

PECKHAM, C. T., surgeon. Granted leave of absence for thirty days from April 19th on account of sickness. May 16, 1901. Granted thirty days' extension of leave of absence on account of sickness from May 20. May 21, 1901.
GLENNAN, A. H., surgeon. To rejoin station at Habana. May 21, 1901.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Meridian, Miss., for special temporary duty. May 18, 1901.

GREENE, J. B., passed assistant surgeon. Granted five days' extension of leave of absence. May 19, 1901.

DECKER, C. E., assistant surgeon. Granted leave of absence for ten days from May 11th, on account of sickness. May 20, 1901.

CLARK, TALIAFERRO, assistant surgeon. Granted leave of absence for thirty days from May 22d. May 22, 1901.

CORPUS, G. M., assistant surgeon. To proceed to South Atlantic. May 16, 1901. Granted leave of absence for one month. May 16, 1901.

RODMAN, J. C., acting assistant surgeon. Granted leave of absence for four days. May 18, 1901.

SLAUGHTER, A. W., acting assistant surgeon. Granted leave of absence for four days from June 4. May 22, 1901.

BOARD CONVENED.

Board convened to meet at Washington, D. C., May 20, 1901, for the purpose of making physical examination of applicants for cadetship in the Revenue Cutter Service. Detail for the Board: Surgeon L. L. Williams, chairman; Assistant Surgeon B. S. Warren, recorder.

SOCIETY NOTICES.

MAINE MEDICAL ASSOCIATION.—The forty-ninth annual meeting of the Maine Medical Association will be held in Portland, Me., Wednesday, Thursday and Friday, June 12, 13 and 14, 1901.

ROENTGEN SOCIETY OF THE UNITED STATES.—The second regular meeting of the Roentgen Society of the United States will be held in Buffalo, N. Y., at the University of Buffalo, September 10 and 11, 1901.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The fifty-seventh annual meeting of the American Medico-Psychological Association will be held at Milwaukee, Wis., June 11, 12, 13 and 14, 1901. There will be reduced railroad rates as far as St. Paul.

RECENT DEATHS.

GEORGE STONE OSBORNE, M.D., M.M.S.S., died in Salem, May 25, 1901, aged sixty-two years.

ALLEN MELANCHTHON SUMNER, M.D., M.M.S.S., died in Boston, May 25, 1901, aged fifty-seven years.

THOMAS ALBERT O'CALLAGHAN, M.D., M.M.S.S., died in Worcester, April 13, 1901, aged forty-six years.

EPHRAIM LEWIS WARREN, M.D., M.M.S.S., died in Melrose, April 28, 1901, aged seventy-eight years.

HARRIS ORLANDO PALMER, M.D., M.M.S.S., died in Hubbardston, February 17, 1901, aged fifty-nine years.

DR. JOHN A. WELLS, a prominent physician of Englewood, N. J., died from pneumonia on May 21st, at the age of forty-five.

DR. HENRY D. WHITEHEAD, who had practiced for nearly forty years in Syracuse, N. Y., died in the hospital of the Soldiers' Home at Bath on May 21st. During the Civil War he served in the 38th Regiment, New York Infantry.

DR. CONRAD WEINGART, of Jersey City, N. J., died on May 23d, at the age of fifty-two, from multiple neuritis. He was a native of Charleston, S. C., and was educated at Carroll University. He was graduated from the College of Physicians and Surgeons, New York, in 1883.

BOOKS AND PAMPHLETS RECEIVED.

Clinical Experience with Adrenalin. By Emil Mayer, M.D., New York City. Reprint. 1901.

A Treatise on Orthopedic Surgery. By Royal Whitman, M.D. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1901.

Address.

THE VALUE OF CLINICAL MICROSCOPY, BACTERIOLOGY AND CHEMISTRY IN SURGICAL PRACTICE.¹

BY JOHN M. WYETH, M.D., NEW YORK.

For many years, almost without exception, my predecessors in the address on surgery have devoted their labors to the exposition of some general or special subject in the domain of operative surgery, and while I would in no measure detract from the value of a thorough technical knowledge, we should not, in our attention to the *art*, fall short of a proper appreciation of the *science* of surgery.

The experienced surgeon soon learns that it requires more than asepsis and the rapid and skilful performance of an operation to achieve the fullest measure of success; that, although a thorough practical knowledge of regional anatomy is essential in the highest degree to the conscientious fulfillment of the professional obligation, it is equally important that there be called into requisition the invaluable aid which laboratory research alone can give in determining an accurate diagnosis; in indicating the most rational measures of treatment not only in the preparation of a patient for an operation, and in the selection of the safest anesthetic, but for the post-operative management of the case, and in removing as far as possible all doubts as to the prognosis.

Chemical analysis of the normal and abnormal secretions and excretions of the body, *clinical microscopy* and *bacteriology* should form a part of the educational requirement of every surgeon. I do not insist that the busy practitioner should attempt to master all the intricate processes of the laboratory, for this is only possible to one who devotes years of patient labor in the fascinating department of science, but he should possess that practical knowledge of the chemistry of the body in health and disease, and of clinical microscopy and bacteriology which any diligent student, under a competent teacher, and in a properly equipped laboratory, should be able to acquire in a three months' course of study.

The instances are exceptional in practice where this knowledge cannot be applied with great benefit to the patient and with satisfaction to the surgeon. It is naturally of greatest value in the cases where no emergency for immediate operation exists; but its advantages are not wanting in these rarer cases, since it comes to his aid in the post-operative period.

Laboratory research, especially in the department of bacteriology, has placed not only the medical profession, but the entire human family under lasting obligations for the great benefits which have already been derived from its discoveries, and it may be safely said that it has done more than all else in accomplishing the revolution

in surgical thought and practice which has taken place within the last two decades. One of the most notable illustrations of this great advance is the triumph which has been achieved over that once fatal disease, diphtheria.

The discovery by Klebs, in 1883, and the isolation and cultivation, in 1884, by Loeffler of the bacillus of diphtheria, had its logical sequence in Behring's invaluable discovery (subsequently elaborated by Roux) that the blood of animals, especially that of the horse, rendered immune to diphtheria by inoculation, first with attenuated, and then with more virulent organisms, contained a substance capable of neutralizing the effects of the bacilli or their *toxin* when simultaneously or subsequently inoculated in non-protected animals.

This antitoxin serum in its dose of 10 cc. of either the 600, 1,000 or 1,500 *immunizing units* is potent not only to arrest the destructive processes which formerly characterized this disease, but to prevent the infection of those who have been exposed to the contagion. How great is the importance of the knowledge that these bacilli are not only always present in the throat of a patient suffering from diphtheria, but that they are frequently found on the nasopharyngeal surfaces and tonsils of persons free from systemic infection, and as shown by Biggs, Parke and Beebe, of New York, they may remain as long as five weeks after the membrane has been discharged from infected subjects, all of which points to the necessity for the isolation of the infected individual, and the careful disinfection of the throats of those who have been about diphtheria cases. (McFarland.)

The statistics of Professor Welch, of Johns Hopkins University, show that the ratio of mortality as a result of these discoveries has been reduced more than 55%, and that in 115 cases, in which by reason of an early diagnosis, the treatment of serum antitoxin was begun within the first three days of the disease, the mortality was only 8.5%. In 546 cases, in which the remedy was begun after the third day of the disease, the mortality was 27.8%, the ratio of mortality increasing with fatal precision as treatment was delayed.

To the surgeon, one of the most gratifying results of this great triumph of the laboratory is the fact that he is now rarely called upon to perform the operation of tracheotomy which was formerly distressingly frequent; nor to witness the sufferings associated with intubation of the larynx. A professional friend in the department of diseases of children informed me recently that, whereas a few years ago he had from 10 to 20 intubations of the larynx on account of diphtheria in every month, he now, since the serum therapy was practised, averaged only 1 or 2.

I believe that what is true of this disease is true of all infectious processes, and that as our knowledge expands, a safe immunizing serum will be discovered for each special toxemia. Even now it would seem that this proposition is proved in other infections in which, like diphtheria in patho-

¹ Oration on Surgery before the Fifty-Second Annual Meeting of the American Medical Association at St. Paul, Minn., June 4-7, 1901.

genie organisms, are localized at the seat of infection, their toxic products alone entering the tissues through the circulation.

Of this type is the spirillum or "comma" bacillus, discovered by Koch in 1884 in the intestinal contents of patients suffering from Asiatic cholera. These germs are not found in the deeper organs, the morbid changes in the tissues being due to their toxin. Immunizing injections of cholera cultures have already been experimentally and successfully employed, and promise rich results.

In this same group, bacteriologists claim a place for the diplococcus micrococcus lanceolatus of Fränkel, the *pneumococcus*. Sternberg and Pasteur isolated this germ in 1880, and in 1884 Fränkel demonstrated it as the prevailing organism found in the sputum of croupous pneumonia. Very late investigations give encouragement to the hope that serum therapy will soon be applied in the early arrest of the invasion of this most painful and fatal malady. Though pneumonia is strictly a medical disease, its early recognition as a surgical complication, or in view of an anticipated operation, is of very great importance. In a recent case which came under my observation at our laboratory, a specimen of sputum was sent in for bacteriological study. It was not blood-stained or "brick-dust," but yellowish-white in color, like the ordinary sputum of bronchitis, and was supposed to be "grippe," or tuberculosis. The bacillus of tuberculosis was not present, but numerous micrococci lanceolati were discovered, and the laboratory diagnosis was made and confirmed within twenty-four hours by the well-recognized symptoms of consolidation with the "brick-dust" expectoration of this disease which supervened.

Tetanus toxemia, or "lock-jaw," the organism producing which was discovered by Nicolaier in 1894, and which for years has baffled the most strenuous efforts of the bacteriologist and clinician, seems at last to be classified with the controllable infections. Professor Osler, in the last edition of his "Practice of Medicine," says the immunizing serum of Tizzoni has been successfully and encouragingly employed in doses of 2.25 gms. for the first dose, and .6 gms. for subsequent doses. Of 113 cases treated by this method, 63% recovered.

It was not until the discovery of the bacillus of typhoid by Eberth in 1880, and the pure cultures of this germ secured by Gaffky in 1884, that there was made possible in the vast majority of cases of typhoid fever a positive diagnosis.

The demonstration of Widal that when 10 drops of a twenty-four hour bouillon culture of the bacilli typhi were added and thoroughly mixed with 1 or 2 drops of serum from the blood of a typhoid patient, the bacilli lose their motility and become agglutinated in masses, was one of the most brilliant advances in clinical bacteriology, and of great value in surgical diagnosis.

In many of the lesions of the abdominal viscera, and especially in those located in that battle ground of surgery, the right iliac fossa, where the

physical signs and the febrile movement may suggest either beginning typhoid, intestinal toxemia or a pyogenic sepsis, an early diagnosis may be determined in no other way than by the aid of the laboratory.

The practitioner who has not called into requisition the invaluable aid which bacteriology affords in the differentiation of those too often obscure intraperitoneal lesions, can not appreciate the satisfaction which this practical application affords. How often the safety of a patient hangs upon even a few hours' time, and, alas, how often this precious time is wasted in the uncertainties of diagnosis, when a resort to the demonstration of science, available to all, would have plainly indicated the proper method of procedure. We know too well the fallacy of relying upon the ordinary subjective symptoms, and even some of the objective symptoms afford us no accurate clue to the pathological process which may exist. The pulse and the temperature of commencing typhoid may well be mistaken for the pulse and the temperature of an appendicitis. The pain and muscular resistance over the right iliac and the right abdominal region are in many instances practically alike. The nausea, the vomiting and the general sense of uneasiness point neither directly to the one or to the other disease, but in a crucial test by Widal's reaction, with the blood count pointing to the presence or absence of a leucocytosis, the question is quickly settled. I have seen all the symptoms of appendicitis present in cases in which the blood count contradicted a pyogenic sepsis, and in which Widal's reaction told the story of typhoid. On the contrary, I have dealt with cases which ordinarily would have been most perplexing, in which all the symptoms of typhoid prevailed at a period when it was too early to recognize this disease by Widal's test, and a leucocytosis of from 15,000 to 21,000 proved at the earliest possible moment that the case was one for immediate operation.²

The discovery by Bollinger in 1877 made the diagnosis of that comparatively rare affection, acti-

²Two of the cases occurring in my own work within the last few months may emphasize the great value of this technique. A man of thirty was seized with quite violent pains which were confined to the region of the cecum and appendix. Upon palpation there was well-marked resistance in the muscles immediately over these organs which was not observed in any other part of the abdominal wall. He had vomited on one or two occasions, and the temperature ranged from 101° to 102° F. on the second day of this attack. The questions which were presented to the consultants were whether this temperature could be accounted for by intestinal toxemia, by appendicitis or incipient typhoid. Although it was too early in the history of a typhoid case to encourage the belief that Widal's reaction would be present, this was made, and with negative results. On the following day, the symptoms still pointing toward typhoid fever, a careful blood count was made, and the leucocytes did not count over 7,000. Assured from this that no dangerous pyogenic process was present, the idea of operation, even exploratory, was abandoned until the examination might be repeated on the fifth or sixth day. A second careful blood count showed no leucocytosis, and on the fourth day, although Widal's reaction was still absent, the case was declared to be typhoid, and the subsequent history proved the diagnosis to be correct, since a few days later the reaction of typhoid was present, and the patient went through the regular stages of this fever. In a second case, a male patient, forty-five years of age, there was a typical typhoid tongue, temperature ranged from 100° to 102° F., tenderness and muscular resistance in the right iliac fossa and loose discharges from the bowels not unlike those frequently met with in typhoid. Widal's reaction was tried with negative results on three successive days. The blood count on the fifth day showed the leukocyte numbers 21,000, justifying a diagnosis which excluded typhoid, and confirmed the suspicion of pyogenic sepsis.

nomycosis, clear. In examining the yellow granules and accompanying pus discharged from an infected area he recognized the ray fungus or actinomycetes. More recent researches have shown this fungus to be composed of bacilli in various stages of development, some being spores and some more perfectly developed organisms.

In another fortunately rare disease, malignant pustule, caused by the lodgment in an abrasion of the bacillus anthracis, we are indebted to the laboratory for our knowledge of its etiology. The anthrax bacillus, discovered by Devaine in 1863, is not usually found in the blood except in the most malignant cases and in the last stages of fatal infection, but they can be demonstrated in the pustule of inoculation with the microscope or by cultures.

Roux and Chamberland, according to McFarland, have found that filtered cultures will produce immunity when properly introduced into animals, and we reasonably hope from these experiments that the serum treatment will before long be made applicable to infected human beings.

Another rare organism is the bacillus of malignant edema, which was discovered by Pasteur in 1875 and called by him *vibrio septique*. There are only 2 cases of this disease so far reported in man, and they were subjects of abnormally low resistance infected by the hypodermatic administration of a product of musk.

The bacillus pestis or bubonic plague organism was discovered in 1894 simultaneously by Yersin and Kitasato, in blood drawn from the finger tips of infected individuals, and in the broken-down lymph glands, and is described by Kitasato as greatly resembling the micro-organism of chicken cholera.

Bacteriological research has robbed the puerperal state of much of the anxiety and dread which formerly attended this ordeal, not only in preventing sepsis, but in recognizing the infections already established in time to prevent a general peritonitis or septicemia. The puerperal uterus of this organ, when the seat of non-puerperal endometritis, offers an ideal field for bacterial proliferation and invasion, since septic organisms entering the cavity may rapidly penetrate the endometrium and enter the lymph channels, whence they pass into the venous sinuses and lymphatics of the pelvis.

Prof. W. R. Pryor, in a paper read before the New York State Medical Association in 1900, says, "Puerperal sepsis, if not rapidly fatal, almost always produces lesions which seriously damage the pelvic organs or the viscera," and that "time is in this serious condition an important element." He recommends the early employment of the Döderlein tube, which, after sterilization, is passed into the uterus, being protected from contact until the fundus is reached. From the serum and debris thus obtained cultures are made, and the character of the operation—either curettage or hysterectomy—determined by the result of bacteriological investigation.

Not only does the laboratory come to our assistance in the diagnosis of certain obscure surgical lesions of the stomach, but it is still more valuable as an aid in arriving at the exact condition of the digestive functions of this organ, any derangement of which it is at times exceedingly important to correct in order to bring a patient into suitable condition to stand an operation. Thus it is important to determine in certain instances whether or not free hydrochloric acid exists in this organ; and while the total quantity poured into the stomach in the digestive process can not be accurately measured, clinical chemistry can closely estimate the total quantity found at a given moment during digestion. The acid-combining power of the proteids is known, and by certain tests it is feasible to estimate sufficiently close for a satisfactory diagnosis the quantity of hydrochloric acid secreted. The small quantity of hydrochloric acid which combines with ingested inorganic elements is lost to gastric digestion, serving as it does its function in this process in the intestines.

It is clear, as stated by Van Valzah and Nisbit, that the hydrochloric acid which combines with the proteids, and that which remains free, together roughly represent the activity of acid secretion. It is logical then to conclude that the quantity of hydrochloric acid loosely combined with albumin, together with the quantity remaining free in the contents withdrawn at the end of a particular time after eating a particular meal, is a practical and clinical measure of the secretory activity of the peptic glands, and of the digestive work of the stomach. All of this is made sufficiently exact for practical purposes by the laboratory method of analysis after the simple test breakfast of Ewald and Boas, or the more elaborate test meal as recommended by Germain-Sée.³

The presence of lactic acid in the stomach contents, as shown by Kelling's test,⁴ has a distinct diagnostic value, since it takes place in comparatively rare conditions, and since these conditions

³ The simplest method is that known as the test breakfast of Ewald and Boas in which on an empty stomach, usually in the early morning, a breakfast roll which contains about 5 gm. of proteids, 39 gm. of carbohydrates, 1.5 gm. of fat, 3.4 gm. of gum, and weighs 70 gm., and 350 cc. of water (about a glass and a half) are taken. The bread should be thoroughly chewed and insalivated before being swallowed with the water. Usually in one hour's time a tube is introduced and the contents of the stomach withdrawn, usually by expression or by siphonage, and then filtered. An estimate of the acidity of the filtered contents is made by using a decinormal solution of potash or soda. The number of cc. of this solution which will neutralize 100 cc. of the filtered contents of the stomach expresses in figures the acidity of the fluid withdrawn. At the end of an hour, under approximately normal conditions of digestion, the total acidity should be 50 to 60, the hydrochloric acid albumin 30 to 40, the free hydrochloric acid 10 to 20. Any departure from this rule shows the abnormal absence or excess of this important agent. The test meal of Germain-Sée is at times preferable, since it contains a larger quantity of proteids than the test breakfast of Ewald and Boas. But, given, but the method of procedure is practically the same. The presence of hydrochloric acid can be recognized by (Gunsberg's reagent which is composed of: Phloroglucin, 2 gr.; vanillin, 1 gr.; alcohol (absolute), 30 gr. By spreading three or four drops of this reagent in a porcelain crucible, adding upon this the same quantity of the filtered contents, and slowly warming the crucible, after several seconds a red color appears, and at times the red crystals of free hydrochloric acid are seen. Or the simpler method of employing a filtered paper, which has been soaked in a 5% alcoholic solution of diamethylamidoazo-benzol and dried. This, in the presence of a trace of free hydrochloric acid, turns a dirty red. Kelling's test consists of 5 cc. of the filtrate diluted to 50 cc. with distilled water, to which one or two drops of official 5% solution of the perchlorid of iron are added. The yellowish-green tinge indicates the presence of lactic acid.

are seldom fulfilled except when carcinoma is present.

Lactic acid is dependent upon the presence of a special bacillus which thrives in the stomach under abnormal conditions, and is capable of converting glucose and lactose into lactic and carbonic acid. Boas goes so far as to insist that the persistent presence of lactic acid in noteworthy quantity during the digestion of a saucer of oatmeal, chemically free from lactic acid, is a specific sign of carcinoma of the stomach.

While the stomach may under varying conditions contain hosts of various bacteria in addition to the one just considered, there are only three others that are of importance as pathogenic organisms. First, the *sarcine ventriculi* (in their usual cube arrangement) which when found indicate insufficiency of the stomach muscle due to non-malignant obstruction. They are not found in carcinoma, since they perish in the presence of lactic acid, which, as we have just shown, is so common in malignant diseases of this organ. Another micro-organism is the *yeast plant*, also found when motor insufficiency exists. It may be present when the stomach contents are alkaline, neutral or acid. The *bacillus geniculatus* is present under the same conditions which produce the lactic acid organism, and is considered also to be suggestive of carcinoma.

When the presence of blood is suspected in the stomach, and is not clearly defined by the microscope, chemistry comes to our aid in its recognition by the glacial acetic acid and ether test.⁵

A study of the discharges from the rectum is as yet of little value to the surgeon. Beyond the recognition of blood or pus, or cast-off cell elements in certain malignant neoplasms, there is but a single organism which is of real diagnostic value, namely, the ameba of dysentery, described by Lamb in 1859, which is a motile mass of protoplasm about 20 mm. in diameter, containing a single nucleus, and one or several vacuoles.

In the differentiation between the pathogenic organisms of specific and non-specific urethritis, microscopy and bacteriology are our only infallible guides. They teach us to eliminate the various bacteria found in the external genital and urinary passages, not bearing directly upon the etiology of urethritis, and to recognize distinctly the two forms of diplococcus, the gonococcus of Neisser, and the pseudodiplococcus, which, while not morphologically different from the specific disease-producing organism, can be readily distinguished by special modes of staining as well as by cultures. In the daily routine of practice the exact nature of every suspicious urethral discharge should be subjected to careful scrutiny. The patient is entitled to the satisfaction of a negative result, which is easily demonstrated by staining the smear with methylene blue, which

clearly defines both organisms. If no cocci are revealed all anxiety is put at rest; but if there are present both varieties of these organisms, occupying as they do, the protoplasm of the pus corpuscles, a further research and the differentiation of the true form from the false diplococcus is imperative. The pseudococcus retains the violet color of the aniline-gentian water violet stain, while with careful laboratory technique the addition of the Bismarck brown brings out the gonococcus, the protoplasm of a single pus corpuscle showing at times both the blue stain of the pseudococcus and the diplococcus of Neisser which retains the brown color.⁶

Bearing in mind the fact that the gonococcus of Neisser may remain dormant in these passages for months, and, as maintained by some observers, for years, incapable of a further inoculation of the seemingly immunized patient, but capable of exciting the most acute and injurious inflammation in an innocent victim, it becomes a matter of the greatest importance to subject to most careful study the external genito-urinary passages where an infection has once existed. It has been demonstrated that an artificial urethritis, as that which nitrate of silver produces, will develop the dormant gonococci and cause their presence in the discharge.

Keys and Chetwood, in their excellent volume on venereal diseases, place well-deserved emphasis upon the value of the Gram test for recognizing these organisms. They properly insist that the diplococci should be of the recognized size, and have within the protoplasm of the pus corpuscle their proper shape and arrangement, and remain negative to Gram's staining. Even when cultures are made to demonstrate the specific organisms beyond all doubt, resort should still be had to the Gram staining as a final means of identification.

In cases of pyelitis, many of the difficulties which formerly stood in the way of differential diagnosis between renal calculi, simple pyogenic pyelitis or the presence of tubercular disease in this organ are now overcome by the careful methods of the laboratory.

The presence of the bacilli of tuberculosis in one or both kidneys, even when they are exceedingly infrequent in the discharge, can be demonstrated in urine drawn by urethral catheterization, or by the more simple process of bladder segregation, when the suspected organisms are with other detritus thrown down by the centrifuge. The carbol-fuchsin stain, decolorized with

⁵ To 10 cc. of the filtered contents add 3 cc. of glacial acetic acid, and extract the coloring matter of the blood by shaking with 5 cc. of ether. This turns the ether extract brown. When this decoloration does not take place there is no blood. To carry the demonstration further, to the brownish decanted ether extract, 10 drops of fresh tincture of guaiac with a few drops of peroxid of hydrogen are added. After vigorously shaking, the mixture becomes clear blue if blood is present.

⁶ Dr. Jeffreys, the director of the laboratory in the New York Polytechnic, employs the following differential stain: Use Gram's stain followed by a contrast stain, such as Bismarck brown. To prepare this stain proceed as follows: Prepare aniline water by emulsifying 8 drops of aniline oil in about 10 cc. of water. Filter through a wet filter. To this aniline water, add about one-tenth its bulk of a saturated alcoholic solution of gentian violet. Stain smear with this "aniline water-gentian violet" one or two minutes. Wash in warm water, and then immerse in Gram's solution for one minute. The formula for this solution is as follows: Iodine, 1 gm.; iodide of potash, 2 gm.; water, 20 cc. Thoroughly wash in 3% alcohol until no more blue appears; then wash in water. Counterstain for one minute with a saturated solution of Bismarck brown in 3% aqueous solution of carbolic acid. Wash, dry, and mount in balsam. After this treatment pseudogonococci should be stained violet, and gonococci should be brown.

5% sulphuric acid, brings out in brilliant red the outlines of the bacilli of tuberculosis, while the addition of 95% alcohol decolorizes the smegma bacillus, and thus eliminates this possible source of error to any but the more expert laboratory workers.⁷

In the effort to arrive at the general condition of a patient, the chemical, microscopical and bacteriological study of the urine is only second in importance to that of the blood; and when we consider the additional and exact information which can thus be obtained concerning any pathological process at any point in the urinary tract, the value of this analysis is very materially increased. A careful study of the urine is always indicated before determining what anesthetic it is safest to employ in the operation to be undertaken. When there is no important lesion of the heart, either in its valvular mechanism or in the blood supply and nutrition of its muscular walls, few surgeons, I hold, would employ ether in a protracted operation in which there was any suggestion of an acute nephritis, or in certain chronic forms of Bright's disease.

It is commendable practice to study through several days the quantity of urine passed, keeping accurate measurement, as well as making a qualitative analysis of that which is passed under conditions as near as possible similar to those to which the patient had been subjected before coming under observation, and then under conditions of rest, with proper alimentation and the free opening of the alimentary canal with calomel and Carlsbad salts (which agents in my experience most readily do away with fermentation and the production of gases in the bowels) to note the changes which occur in excretion.

The presence of oxyuria is in my opinion a contra-indication to a serious surgical operation, for the reason that it is pathognomonic of a disturbed nutrition due to insufficiency of the digestive fluids, and to fermentative processes in the intestinal tract.

An excess of *uric acid*, evident in the rosettes or rhombic or quadrate crystals (one-sixth objective), found in the urine *which has not been passed* more than three or four hours, has also a pathological significance scarcely less than that of oxyuria. It indicates a condition of defective nutrition which is part of the gouty or rheumatic diathesis, predisposes to chronic nephritis, and is one of the symptoms of various acute inflammatory processes, of leukemia, cirrhosis of the liver, gastro-intestinal catarrh, and is often present in diabetes mellitus.

The chemistry and microscopy of the urine further informs us when ammoniacal decomposition of the urine is taking place within the bladder,

⁷The following process is used at the Polyclinic Laboratory in determining the presence of the tubercular bacillus in the urine and feces. The sediment is thrown down in the centrifuge, the smear dried slowly over the Bunsen burner and stained with carbol-fuchsin, which is then warmed over the Bunsen burner for three or four minutes without being dried. Then wash with water and decolorize with 5% sulphuric acid, and again wash with water. After this add 95% alcohol, which decolorizes the smegma bacillus, and again wash in water, counterstain with methylene blue, and dry. With the 1:12 oil immersion, the clusters of tubercular bacilli are readily seen.

suggesting insufficiency of this organ due to obstruction of the urethra or to atony of the bladder muscle. The large rhombic masses or stellate and cross-shaped rosettes of the triple phosphates only exist in these abnormal conditions of the bladder, and, with the brownish-colored, thorn-like crystals or urate of ammonia, are important aids to diagnosis.

The presence of epithelia from the various portions of the urinary or genito-urinary tract, of spermatozoa and various bacteria chiefly pyogenic in character, are further and well-recognized evidence of the value of the microscope in surgical diagnosis. In rarer instances, the hooklets of echinococcus, the embryos of filaria and the ova of hemotobium Bilharzii are thus discovered in the urine. The writer has been able once to demonstrate the presence of the eggs of the last-named parasite in the bloody urine of a missionary in Africa, where he had by long residence acquired the disease.

From the laboratory we are taught the well-known tests for albumin and sugar, by which all sources of error may be eliminated in determining not only their presence but the quantitative analysis as well. The pathological conditions in which these substances are excreted are at times exceedingly grave, and it is of vital importance that their presence be discovered, so that timely and judicious treatment may be instituted, or operation avoided which under such unfortunate conditions would be invariably fatal.⁸

In glycosuria the surgeon must know whether he is dealing with what Pavy designates as alimentary diabetes, in which the sugar eliminated by the urine is derived solely from the food as result of defective carbohydrate assimilation; or whether that almost hopeless condition of composite diabetes, in which abnormal disintegration is taking place, is present.

No less important is the estimate of the amount of urea which is being eliminated in a given quantity of urine. Employing the simple apparatus of Doremus with the sodium hypobromite solution,⁹ within a few minutes' time, by the evolution of nitrogen gas in the presence of this, the amount of urea which is being carried off by the kidneys is readily demonstrable.

Non-parasitic chyluria (that form not due to the presence of filaria) is a rare affection, but it does exist, the fluid coagulating almost like jelly. In these conditions the microscope shows little

⁸To determine the presence of albumin, the nitric acid and heat test is classical and reliable. The simplest quantitative analysis, as recommended by Hare, is to fill the tube for the centrifuge to the 10 cc. mark with urine, to which is added 2-12 cc. of potassium ferrocyanide solution (one part to ten); 1-2 cc. of acetic acid is also added. After mixing the fluids well the centrifuge is rotated until the albumin is precipitated. Every 1-10 cc. mark on the tube represents 1% by bulk of albumin; that is, if the albumin extends up to the 3-12 cc. mark, the albumin amounts to 35%. Febling's test in the demonstration of sugar and the quantitative analysis by means of yeast fermentation is another important laboratory process, without recourse to which the surgeon in a certain group of cases can not satisfactorily work.

⁹Solution A, bromin and sodium bromite each 125 gm., water 1,000 cc. Solution B, sodium hydrate 400 gm., water 1,000 cc. Take of A and B each 1 part, water 3 parts. They are only to be mixed when needed for use. After the tube has been filled with the solution the pipette is filled with urine to the 1 cc., and the point carefully introduced beyond the bend. The urine in the pipette is then expelled by compression of the bulb, care being taken not to force any air into the tube.

that is pathological excepting some minute granules and oil droplets similar to those in milk. (Osler.)

The presence of blood in the urine, even in the most minute quantities, can in almost all cases be recognized by the microscope, and in those exceptional instances of hemoglobinuria in which the corpuscles have disappeared, the blood crystals of Teichmann may be recognized by the addition of a drop of strong acetic acid to a few drops of urine placed upon a watch glass. For this condition of blood pigment in the urine in which the blood cells are absent, Osler suggests the name methemoglobin. He further states that when granular pigment or darkly-pigmented urates or fragments of blood disks do not point clearly to the presence of blood, the two absorption bands of oxyhemoglobin, and more commonly the three absorption bands of methemoglobin, of which the one in the red near G is characteristic, may be determined by the spectroscope. In general, however, the red and white blood corpuscles and filaments of clot are clearly recognizable with the one-sixth objective. Even without the microscope the presence of a very minute quantity of blood distributed through the urine can be recognized by Heller's test of adding a few cc. of urine to a drop or two of strong solution of caustic soda and boiling the mixture. If blood is present a bottle-green color is produced, and the phosphates fall to the bottom of the test tube in fine flakes, tinged brownish red by the coloring matter of the blood. (Hare.)

When blood is found in the urine as a complication of papilloma of the bladder, particles of the broken-down tumor are very frequently found in the urine, and under the microscope the epithelial elements of this neoplasm are easily recognized and point clearly to the source of the hemorrhage. In hemorrhage from the kidney substance blood casts tell unmistakably of its source.

Chemistry demonstrates in the urine the presence of indican or indoxyl sulphate of potassium, a product resulting from the decomposition of albuminous products in the intestinal tract under the influence of bacteria. It is always suggestive of persistent constipation, is found in obstruction of the intestinal canal, carcinoma of the liver or stomach, in peritonitis, and is one of the symptoms of pernicious anemia. Urine containing this substance, if treated with two or three times its volume of hydrochloric acid, turns a violet color.

A careful analysis of the various casts found in the urine under different conditions is of inestimable value. Blood casts indicating not only hemorrhage from the kidney, but acute inflammatory conditions, and casts composed of pus corpuscles and studded with micrococci suggesting pyelonephritis, are most valuable results in laboratory research. It also tells us of the existence of granular casts which indicate a chronic or sub-acute inflammatory process in the substance of the kidney, which is accentuated when fatty casts are found, and that hyaline casts have a grave signifi-

cance, as they are most frequently associated with chronic interstitial nephritis, and that the waxy variety is very common in chronic suppurative processes, usually in the bones and joints.

Today one of the most attractive subjects of laboratory research is the blood, and although hematology is practically in its infancy, many valuable discoveries have already been made, and in the proper study of a patient a knowledge of the blood is as essential as that of the urine. It may throw no light upon many cases, but the reward will be tenfold in that particular instance where the diagnosis is made definite and clear. It is necessary to know the normal blood thoroughly by constant practice in order to recognize the abnormal changes which may be present in a given case, and I can think of no more useful way of spending the time not taken up by practice than by going over these important features of laboratory technique.

A knowledge of hematology enables the surgeon to detect any form of anemia and to determine whether it is a type of blood impoverishment which can be corrected, or whether it is of the graver or more pernicious forms which would either preclude an operation or, if this were absolutely necessary, would enable him to announce to those entitled to information the gravity of the outlook. In ordinary practice it is not always essential to differentiate between a pernicious anemia or a leukemia, or whether this latter condition is present in the lymphatic or splenic-myelogenous form, for the reason that all of these graver varieties call a halt to operative measures when these can be avoided. But the anemia which comes from malnutrition, or malaria, or chlorosis can be positively diagnosed by a study of the blood.

The richness of the hemoglobin may in a fair measure be determined by the comparative color test of the blood in proper solution, as observed through von Fleischl's hemometer. When a low percentage of hemoglobin is present, it is an indication to avoid any operative shock until the impoverished condition of the blood can be corrected by proper nourishment, by rest or by medication, when this is positively indicated. This also suggests the aid of the microscope in a further investigation as to the condition of the corpuscular elements of the blood. It is advised by Miculick never to operate when the register of the hemometer shows less than 35, and it would probably be safer to place the standard 10 or 15 points higher. Even in the simple forms of anemia, the degenerative changes in the blood elements, especially in the red cells, are easily recognized, and are full of valuable suggestions.

When the red cells are near the normal count (about 6,000,000 to the cc.) they may still show certain characteristic deformities of individual cells (poikilocytosis) as well as variations in size in the presence of microcytes and macrocytes which appear in the field, and which are not seen in the normal blood. If the red cells are paler in color than normal, if they undergo crenation or

breaking at the edges, and do not form rouleaux, it is evident that anemia is present.¹⁰ The danger signals are still further in evidence when nucleated red cells (normoblasts) appear, and when there is added to these either the giant red cells (megablasts) or abnormally small microblasts, the condition is still more serious, since these corpuscles never exist in the normal blood.¹¹

Hematology further enables us to differentiate with reasonable precision between chlorosis and pernicious anemia. In the former, though pale in color, the blood coagulates rapidly, while in the latter coagulation takes place slowly, and the red corpuscles do not tend to the formation of rouleaux. The red cells in chlorosis (which are smaller and paler than normal and are frequently deformed) vary from 4,000,000 to 2,000,000, rarely falling as low as 1,000,000, while in pernicious anemia in which the average diameter of the red cells is increased, the count rarely rises above 1,000,000, and often below this. Cabot gives 1,000,000 as the average number per cmm. The white cells are also diminished, varying from 4,200 to as low as 500, with lymphocytosis as a prominent feature. Megablasts are found in both conditions; but, while plentiful in pernicious anemia, are rarely noticed in the milder disease, chlorosis. The more megablasts in pernicious anemia, the more hopeless the case.

The surgeon would be extremely unfortunate to fail in the recognition of these often obscure lesions, and, if possible, to correct them before subjecting his patient to the severe ordeal of an operation. In the early recognition of septic processes—chiefly pyogenic—surgery can no longer disregard the value of the blood count, especially the estimation of the leucocytes.

The relative number of leucocytes in a given quantity of blood, or their proportion to the red corpuscles, can be readily determined by the use of the Thoma-Zeiss apparatus which, is as well known, consists of two pipettes, one for the red and one for the white, with a well-outlined and peculiarly constructed slide or counting apparatus, and employed with the ordinary one-sixth laboratory objective. The differentiation by the use of the Daland hematocrit is not considered sufficiently exact to be satisfactory in the hands of the majority of hematologists. It is essential in making these differentiations to bear in mind the normal conditions that at the sea level the average number of red cells per cmm. is 5,000,000 in men, and 4,500,000 in women, and 6,000,000 in the young and more vigorous adults, while the white cells average about 7,500 per cmm. for each sex.

Certain conditions not considered normal, influence the number of leucocytes since in the latter months of pregnancy they are moderately increased, and after parturition, and during the early weeks of lactation, a leucocytosis may be present, without pathological significance. After hemorrhage the leucocyte count is increased, and

in diphtheria, erysipelas, trichiniasis, all extensive forms of endometritis and all acute pyogenic processes, leucocytosis exists except in those cases where the vitality of the individual has been overwhelmed by the severity of the septic process, under which condition the leucocytes no longer respond to the demand for the protection of the tissues, and are not present in the superficial blood in even normal proportions. It is probable that the application of this knowledge is more profitable at present in a study of the various lesions of the abdominal and thoracic organs. We know that in a certain proportion of cases of infection, temperature does not always indicate the increasing gravity of the lesion, while the degree of sepsis can be in great measure determined by the leucocyte count. In impaction of feces, extrauterine pregnancy, floating kidney, gall-stone colic, renal colic, ovarian neuralgia, intussusception, volvulus, internal hernia, twisted pedicle, etc., there is no leucocytosis unless complicated with an acute septic process. In abscess of the liver the leucocyte count ranges from 12,000 to 48,000, while there is a well-marked increase in all the septic pyogenic processes of the lungs and the pleura.

In osteomyelitis the leucocyte count ranges as a rule from 15,000 to 25,000, and at times higher. Since in the early stages of this disease it is at times difficult by subjective symptoms to differentiate between rheumatism or gout, the leucocyte count is invaluable in demonstrating at once the pyogenic process.

In that very rare disease, trichiniasis, the leucocytes register sometimes as high as 30,000, but the special feature is the presence of a large number of eosinophile cells, sometimes as high as 50%, and in rare cases 67% of the total number of leucocytes being this form of corpuscle. A very considerable number of cases have been reported within the last year, in which the diagnosis had been determined by the presence of eosinophiles.

Not only can the presence of the plasmodium malarie be recognized in the red blood cells, but hematology is already able to determine between the different varieties of the malarial parasite. It has been shown that the tertian organism takes forty-eight hours to develop and undergo sporulation; the quartan seventy-two; while the estivo-autumnal passes through irregular phases, varying from forty-eight hours to several days.

We are enabled to demonstrate also the presence of the spirochete of relapsing fever discovered by Obermeier in 1873. Although the cork screw or spiral threads are rarely seen unless the blood is examined in the height of the fever paroxysm, diplococcus-shaped bodies, believed to be the spores of this organism, are found in the periods of remission.

The time allotted has permitted hardly more than a suggestion of the methods of laboratory research, applicable in the daily routine of surgical practice. To me the moral of the lesson is that the science and art of surgery are inseparable.

¹⁰ The average red corpuscle (normal) is 7 mm. in diameter.

¹¹ A normoblast is a nucleated red cell not over 10 mm. in diameter, with a nucleus not more than one-half the diameter of the same.

Original Articles.

THE SURGICAL TREATMENT OF GASTRIC ULCER, WITH REPORT OF CASES.¹

BY F. B. LUND, M.D., BOSTON.

I. PERFORATING ULCER.

In November, 1899, I had the pleasure of presenting to the Surgical Section of the Suffolk District Medical Society a patient upon whom I had operated in June of the same year for perforating gastric ulcer, the operation having been done sixteen hours after perforation, and in the presence of a general peritonitis. In view of the subsequent history of the case, a few details as to the operation are worth recalling.

The ulcer was situated upon the anterior surface of the stomach, close to the pylorus, and was infolded and sutured in a direction transverse to the long axis of the stomach, so as to avoid stricture. Owing to the extensive general peritonitis, it was necessary to drain both flanks through the wound in the epigastrium, and owing to the presence of pus in the pelvis a second incision was made below the umbilicus, and a tube and gauze passed into the pelvis. The man, when presented at the Surgical Section in November, 1899, was in good health, was engaged in hard labor and had no hernia. He continued at hard labor and in good health until early last month, and had had much better digestion than before his operation, and gained considerably in weight.

On February 14, 1901, he was overcome by gas while working in a manhole, but was resuscitated and reanesthetized. An attack of vomiting ensued later; the same day he was seized with agonizing abdominal pain, and on the fourth day after this attack (to omit details) I operated upon him for acute intestinal obstruction by a band. On opening the abdomen found the stomach normal in size and entirely healthy in appearance. The pylorus was adherent to the under surface of the liver by firm adhesions. The bands which caused the obstruction ran from the lower or pelvic incision to the jejunum, which at the point of attachment of the second band was sharply kinked and completely obstructed. The bowel above the band was dark purple in color, greatly distended, and its muscular coat so far paralyzed that it did not contract sufficiently to pass its contents on into the collapsed ileum on relieving the obstruction. It was, therefore, necessary to open the dilated bowel by a short incision, and empty out a large quantity of liquid feces. As soon as the pressure was relieved by this maneuver the patient began to vomit large quantities of feces, which he was prevented from inhaling by inverting the table. He became very cyanotic, and his condition was extremely serious. The bowel and abdomen were quickly washed and sutured while he was struggling violently and vomiting, as it had been necessary to take off the ether when the

fecal vomiting began. He stopped vomiting at about six o'clock that night, his bowels moved the next morning, and he is now having a very satisfactory convalescence.

The case is reported for its interest as to the following points: (1) The perfect health and normal digestion of the man for the year and eight months following the operation; (2) the normal appearance of the stomach found at the second operation; (3) the fact that the band which caused the obstruction was not caused by any operative procedure directed to the stomach ulcer, but by the incision in the lower part of the abdomen, which was made necessary in order to drain the pelvis on account of the general peritonitis. The case, therefore, cannot be used as an argument against operating on the stomach owing to the danger of subsequent obstruction by bands. The danger of such bands is much less in the upper part of the abdomen, where the stomach is situated; and in the now quite extensive literature on the surgery of stomach ulcer, perforating and otherwise, I have found few reports of obstruction by bands following operations on the stomach. The rarity of obstruction by bands, considering the enormous number of operations upon the appendix and pelvic organs which are nowadays performed, seems to me truly remarkable, and the danger from this cause can hardly, it seems to me, be employed as an argument against operating upon gastric ulcer.

At the time this case was reported, in November, 1899, I was able to collect 181 cases operated for perforation in gastric ulcer, since Mienliekz performed the first operation in 1880, with 45% of recoveries. In the last 40 cases, which I had collected since 1897, there were 70% of recoveries. Of the 14 of these 40 cases which were operated within twelve hours, 12 recovered, or 86%.

Tinker, in his collection of 232 cases, published in July, 1899, found that of 16 cases operated within twelve hours of the perforation in the three years since 1896, only 3 died, giving a recovery percentage of 82.36.

In June, 1901, Finney, in an able report to the American Surgical Association on the subject of perforating gastric ulcer, by adding to Tinker's list 15 cases from my tables, and 21 collected from current literature, made up a general total of 268 cases, with a mortality of 48%. In the 21 most recent cases the mortality was 38%, and these were operated upon at varying times up to sixty hours after the perforation. Of the 10 of these 21 cases operated upon within twelve hours 7 or 70% recovered.

Although the criticism is just, that the published statistics of gastric ulcer may be too favorable, owing to the fact that certain operators are more apt to publish successful than unsuccessful cases, even allowing for this fact, the low mortality can hardly be other than surprising, considering the nature of the emergency. On the other hand, it must be remembered that the cases are collected from all sorts of writers under all possible conditions, and that certain series by operators of

¹ Read before the Boston Society for Medical Improvement, March 1, 1901, and the New Hampshire Medical Society, June 17, 1901.

special skill under the most favorable conditions might give even more favorable results. However, there can be no question that the mortality of the cases operated promptly; that is, within twelve or twenty-four hours of the perforation, is and will be remarkably low. The importance of such early operation cannot but be obvious on comparing perforating ulcer of the stomach with appendicitis. We are coming more and more to realize the importance of early operation on a perforation of the appendix, the perforation of which does not in the majority of cases mean a direct opening between the lumen of the intestine and the abdominal cavity, as the little organ has to be tightly closed by inflammatory swelling so that it cannot drain into the bowel before there is any danger of its perforating at all. How much more essential, then, is early operation in the perforation of a large hollow viscus, capable of flooding the abdominal cavity almost at once with septic fluid contents.

As bearing in an interesting manner upon the diagnosis of perforation, the relation of gastric ulcer to chlorosis, and the happy results of early operation, I am able to report the case of a young woman upon whom I had the privilege of operating for perforating gastric ulcer, during my service as assistant to Dr. Munro at the City Hospital last fall.

PERFORATING GASTRIC ULCER.

Emily J., age seventeen, single, a mulatto girl, born in Virginia, and occupied in housework, was admitted to the City Hospital on October 3d.

The history was that she had had "stomach trouble" for four or five years, consisting of distress after eating, frequent vomiting of acid fluid and much belching. Had marked constipation. Did not menstruate until sixteen, when she menstruated once, and not again for six months. After that menstruated regularly until time of present illness. Menstruation scanty but not painful. For the past year had had dyspnea and palpitation. For the past year the stomach symptoms had been worse, and the pain was always aggravated by food. For a week before entrance the pain got gradually worse, and she noted tenderness in the epigastrium and headache. The day before entrance the pain was at times so severe that she could not sit up straight. During the week she ate little because it aggravated the pain. She had kept at work all this time, and on October 3d was dressing to go out, when, shortly after 1 p.m., the pain suddenly became so intense that it doubled her up, and she was unable to move. She waited three hours for somebody to come and put her to bed. Half an hour after the onset of the pain she vomited. The vomitus was dark, like coffee-grounds. No coffee-ground vomiting previously. Felt cold but had no chill. No subsequent vomiting. The pain continuing, a physician was called, and she was sent to the City Hospital, where I saw her at 11 p.m., or ten hours after the visit of the pain which probably signaled the perforation.

Examination showed a slight, anemic-looking mulatto girl, in great pain. Gums and conjunctivæ pale. Tongue clean and moist. Heart showed a soft systolic murmur at second right interspace and apex. Pulmonic sound accentuated. Temperature 102.6°, pulse 104 and of good quality. Abdomen slightly distended. Slight general spasm, but very marked tenderness in epigastrium. Less marked tenderness over whole abdomen. Tympanitic everywhere.

Operation.—Under ether. Incision 1½ inches long, median line, half way between umbilicus and ensiform cartilage. Turbid serum free in peritoneal cavity. Incision then prolonged downwards for 3 inches. Flakes of fibrin found on anterior surface of the stomach. On drawing the stomach down and out, on the anterior surface near the cardia, lightly adherent to the liver, was found an indurated area 1½ inches in diameter, in the centre of which was a minute perforation, through which gastric contents escaped. The stomach was then folded on itself parallel to the long axis, so as to include the perforation, and fastened by two rows of fine silk sutures. General abdominal cavity thoroughly washed out, and a gauze wick passed down to the line of suture in the stomach. The greater part of the abdominal wound was closed by sutures.

After the operation the young woman had no serious symptoms, and on the following day we felt justified in giving a good prognosis, in view of the slight spread of the peritonitis found at the operation, and the favorable statistics of these cases when operated upon early. The patient bore rectal feeding so well, and her condition was generally so satisfactory, that she was given nothing but a little hot water by mouth for ten days, when she got rather weak and developed a left femoral phlebitis. Nourishment by mouth was begun at once, and the attack, which was a slight one, quickly subsided. She left the hospital in five weeks. Since then her diet has been under supervision, she has gained in weight and strength, and her digestion has been excellent.

The chief points of interest in this case seem to me to be:

(1) The excellent history of chlorosis with delayed menstruation.

(2) The history of the gradual aggravation of the symptoms of the ulcer during the week preceding perforation, which extension probably coincided with a gradual increase in the depth and extent of the ulcer, and possibly with the formation of light fibrin deposits upon the peritoneum covering it. These symptoms were sufficiently marked, it would seem, in case they had been observed by a physician to suggest a "preperforative stage." In case such an ulcer could be operated upon when threatening to perforate, but before actual perforation had taken place, as would seem possible in such a case as this, ideal results ought to be attained.

(3) The fact that the aggravation of the symptoms, by lessening the ingestion of food, probably caused the stomach to contain little food at the

perforation, a condition which, with the small size of the perforation, probably accounted for the slight extent of the surrounding peritonitis.

In regard to the operation, it was a remarkably easy one, and could not be compared in difficulty with the complicated dissection which is often required in the removal of an appendix buried in adhesions. To draw the stomach out through an abdominal wound, infold and suture an ulcer on an easily accessible portion of its anterior surface, cannot be considered a difficult procedure, and seems to be one which, in the absence of a general peritonitis, — which condition can only be secured by early operation, — ought to be almost uniformly successful.

It is fortunate for the surgeon that, although a vastly larger number of ulcers of the stomach are situated upon the posterior than the anterior wall, perforation of the ulcers of the anterior wall is much more frequent than those of the posterior. This fact is undoubtedly due to the greater fixedness of the posterior wall, affording more frequent opportunity for the formation of adhesions which prevent perforation. According to Pariser and Lindner, quoted by Finney, of 200 cases of gastric ulcer, 190 will be on the posterior wall and 10 on the anterior wall; of the 190, 4 will perforate; of the 10, $8\frac{1}{2}$ will perforate.

II. OPERATIVE TREATMENT OF CHRONIC OR INTRACTABLE ULCER OF THE STOMACH.

There can be no question that a large proportion of gastric ulcers recover temporarily, at least, under medical treatment; consisting of rest in bed, rectal alimentation, careful feeding by the stomach, regulation of the bowels, etc. According to the most favorable set of statistics, — those presented by Leube at the German Surgical Congress in 1897, — 74% got well under five to six weeks of medical treatment. These statistics were based on the unusually large number of 556 cases personally treated by Leube, and may be said to represent the most favorable results of medical treatment. Of the 36% of cases which did not recover, 93, or 21.9%, were improved; 7, or 1.6%, were unaffected by treatment; and 10, or 2.4%, died. According to the most favorable view of the results of medical treatment, then, there are 25% of the cases in which the surgeon may legitimately interest himself in regard to whether he can afford by operative measures any better promise of relief or cure.

The percentage of cases which do not yield to medical treatment is likely, in fact, to be somewhat greater than these statistics indicate, for the reason that in view of the fact that in the absence of hemorrhage an absolute diagnosis of ulcer cannot be made, a fact which was pointed out by Mienlieckz as affecting the value of Leube's statistics. Of Leube's cases only 19.5% presented the symptoms of hemorrhage either before or after the beginning of treatment. It is, therefore, possible that a variable number of the cases reported as cured were not actually cases of gastric ulcer.

In regard to the actual final results of the medical treatment of gastric ulcer, the results obtained by Greenough and Joslin, in their investigation of 114 cases treated at the Massachusetts General Hospital between 1888 and 1898, are of great interest and value. They found that 80% of these 114 cases were discharged from the hospital cured or relieved, but that at the end of an average period of fourteen years only 40% remained well, and that the mortality in the same period was 20%. This mortality, and the failure to obtain a lasting cure in 60%, indicate that the statistics of medical treatment based on a longer interval of time are not nearly as favorable as those based on the time of discharge from hospital.

Now what can the surgeon do for these cases; namely, the chronic relapsing cases which do not yield to medical treatment? Can he at an operative risk of less than 20% afford a promise of permanent relief of more than 60%? Even Leube, whom Rodman characterizes as the most optimistic of medical men, states that if an ulcer does not yield to one period of four to six weeks' treatment it is not likely to be benefited by a second attempt.

The mortality from the chronic and intractable cases of gastric ulcer, which are the ones which would come legitimately into the hands of the surgeons, would probably be considerably higher than 20% or 25%, and therefore a surgical mortality of less than 20% would be a favorable showing.

The surgical measures which may be employed in these cases may be classified as follows:

(1) In favorable cases, that is, when the situation of the ulcer and the condition of the patient permit it, the surgeon may excise the ulcer and suture the defect in the stomach, thus getting rid of the diseased tissue and affording the most favorable conditions for healing.

(2) In cases where the ulcer is situated near the pylorus, he may combine excision of the ulcer with pyloroplasty, thus relieving the constant irritating spasm of the pylorus, which does so much to keep the ulcer in an active state.

(3) In cases where excision is difficult, from the situation of the ulcer or the condition of the patient, he may by the operation of gastro-enterostomy ensure a free passage of the stomach contents into the intestines with the minimum of work on the part of the stomach walls, and the maximum of rest, therefore, for the ulcerated surface and infiltrated surrounding tissue.

Now what is the mortality of these various procedures? Heidenreich estimates the mortality of gastro-enterostomy for ulcer at 16.4%, and Mienlieckz makes the forcible statement that the danger to life from gastric ulcer is at least not less, but probably far greater, than that from a complete modern operation.

In regard to the more radical operations of pylorotomy, partial gastrectomy and excision of the ulcer, the tables presented by Rodman at the meeting of the American Surgical Association

last June, make what seems a remarkably favorable showing. He had been able to collect from literature and extensive personal correspondence detailed reports of 40 pylorotomies, partial gastrectomies and excisions, with 6 deaths, or 15%; which, considering that it includes all the cases reported since 1881, when Rydygier performed the first operation of the kind, is extremely satisfactory. It is also to be remembered that this list includes several cases in which the operation was done for suspected malignant disease, so that rather extensive gastrectomy was done; a fact which renders the case still more favorable. We must also not forget that the majority of these cases were referred to the surgeon late in the disease, when repeated vomiting and long starvation had rendered the patients poor subjects for surgical intervention.

A most important contribution to this subject was made by Mayo Robson, who, in his recent Hunterian Lectures, reports 188 operations upon the stomach, with a mortality of 16.4% for gastric ulcer, excluding perforation and hemorrhage. He concludes his paper with a plea for earlier resort to surgical measures, to which his standing and experience give authority. "My own experience and a careful study of the subject," he says, "would lead me to say that the time has not yet come for a sweeping change to be made in the treatment of uncomplicated gastric ulcer, except in the way of more rigid and prolonged medical treatment; but that when the ulcers prove intractable, or when complications supervene, medical treatment should give place to surgical treatment at a much earlier stage than has hitherto been the custom. It is unfair to the surgeon to hand over to him moribund patients, as is at present so often done; and it is, in my mind, unjust to the patient to persist in dosing them with medicine, or otherwise treating palliatively cases that can be only benefited or cured by surgical means."

The statistics published by Miculickz in 1897, comprising the results of his own, Czerny's and Billroth's (von Hacker's) clinics, show in an instructive manner the decrease in the mortality from operations for benign stricture of the pylorus and uncomplicated stomach ulcer. Before 1890, in the three clinics, 27 of these operations had been performed, with a mortality of 13, or 42%. From 1891 to October, 1896, there were 38 operations, with 7 deaths, or 18.3%. Between October, 1896, and March, 1897, Miculickz performed 10 of these operations *with no mortality*. In cases collected from all sources, including the above, from 1895 to the beginning of 1897, there were 60 cases, with 6 deaths, a mortality of only 10%, while the total mortality of all cases, from the first reported up to 1897, 238 in number, was 21.8%.

To the literature of the excision of chronic ulcer of the stomach, in a case in which the character and severity of the symptoms lead to the suspicion of malignant disease, and therefore to early operation with most fortunate result to the patient, I am able to contribute the following case, which I had

the opportunity of operating upon, owing to the kindness of Dr. J. C. Munro, in his service at the City Hospital last autumn:

J. S., thirty-seven years of age, born in Ireland, and a coachman by occupation, was admitted to the hospital on November 21st. His history showed that for the past year he had suffered continually from indigestion, with occasional vomiting. He had had to be careful about his diet, a matter which was difficult, considering the character of the boarding-houses where he lived, and had had frequently to change his boarding-place. Numerous common articles of diet he could not keep on his stomach, and he was totally unable to digest meat which had any fat on it. For the two months before his entrance to the hospital he had been unable to eat, on account of pain and distress in the epigastrium caused by food, and had had frequent vomiting of bright blood and coffee-ground looking material. He had lost considerable weight. On physical examination he was found to be pale, emaciated and cachectic looking. During three days, in which he was restricted to a diet of beef-juice and predigested milk, he suffered from epigastric pain and occasional vomiting. A test breakfast showed the absence of hydrochloric acid from the stomach contents, and the presence of lactic acid. On November 26th, as the vomiting still continued, he was placed on rectal alimentation, under which treatment his condition somewhat improved and the vomiting ceased.

The diagnosis lay between ulcer of the stomach and malignant disease; and in favor of the latter were the man's appearance, cachexia, emaciation and the absence of hydrochloric acid from the stomach contents. At any rate, the probability of malignant disease was strong enough to indicate exploratory operation, in view of the slight danger of exploration, and the fact that if such disease were present, the very earliest operation alone could afford any hope of cure. Therefore on November 30th he was etherized, and a short median incision made above the umbilicus. With the finger a mass was felt in the lesser curvature of the stomach, whereupon the incision was prolonged five inches, the stomach drawn as far as possible outside the abdomen, and the surrounding area wallied off with gauze. On the lesser curvature was found an indurated mass about two inches in diameter, surrounded by a brawny, infiltrated area, which extended to within three-quarters of an inch of the pylorus, and two-thirds of the distance to the cardia. This infiltrated area extended further onto the anterior than the posterior surface of the stomach. The mass at its center could be felt to be an ulcer, with very thick indurated irregular edge, which felt exactly like a malignant growth.

Therefore excision was proceeded with by first tying the gastro-hepatic omentum with catgut, and then applying long clamps to the stomach wall well outside the indurated area, both above and below it, and excising the mass with scissors. The clamp on the cardiac side slipped, and the larger vessels

on that side had to be clamped separately. The very large gap left by removing the mass was closed in a longitudinal direction by two layers of silk sutures, the first layer consisting partly of Cushing continuous suture and partly of interrupted sutures, so placed as to control the bleeding vessels. This first layer included only the muscular and mucous coats. As the suture proceeded toward the pylorus it was found that so much of this narrower portion of the stomach had been excised, that the longitudinal suture would completely obliterate the lumen, so that the pyloric portion was brought up transversely across the end of the longitudinal suture, making a plastic, which restored the lumen excellently well, but left a T-shaped wound. The operation was finished by a continuous Cushing suture of the peritoneum along the whole line, infolding the layer, and fortified at the angle of the T by a few interrupted sutures. At the end of the operation the stomach was about the size and appearance of the upper part of the small intestine, its caliber being, perhaps, a little greater than that of the slightly dilated duodenum. Two enlarged glands were removed from the lesser omentum, close to the aorta. The operation was finished by suture of the abdominal wound, two gauze wicks being carried down to the suture line through its upper angle.

There was little or no shock attending these procedures, which lasted an hour and three-quarters. The pulse at the close was 90, full and regular. The stomach had been washed out the evening before and the morning of the operation. The convalescence was uneventful. He did not vomit even on coming out of ether. He was placed on rectal alimentation, and on the fourth day the administration of liquids by mouth was begun. On the seventh day the wicks were removed. There was a moderate discharge from the sinus after this, which for three or four days had the odor of gastric contents. This, however, soon ceased, and four weeks after the operation he was up and about, and his diet was extended to include soft solids.

Five weeks after the operation he was distinctly gaining in weight and general condition.

On January 16th he left the hospital. He was then eating three fair meals a day, and only had distress after eating an unusually large amount. His diet was carefully supervised in the Medical Out-patient Department. He has since been hard at work washing carriages. He has steadily gained in weight and general condition, and now feels well, works hard, and is able to digest fat meat and various foods, which he could not manage before the operation.

The ulcer, when excised, was found to be about one and one-half inches in diameter and three-eighths of an inch deep, with a gray sloughing base, and hard, indurated, grayish edge. Sections taken from various parts of its edge showed extensive growth of old fibrous tissue, infiltrated with leucocytes, and lymphoid and plasma cells. There was no evidence of malignant degeneration in any part of it.

We had to do with a large ulcer, which was evidently chronic, as shown by the amount of fibrous tissue in the walls, and which was situated so near the pylorus as to be evidently troublesome by causing spasm of that muscular ring. Its appearance and position showed that it was of a kind which would have proved rebellious to treatment, and the condition of the patient since the operation has left little to be desired. Therefore I cannot help but feel that, although the operation was performed under the probable diagnosis of malignant disease, it has resulted in ridding the man of a serious trouble more quickly, and perhaps, everything considered, more safely than any other way. For his condition at any time, either during or after the operation, did not suggest danger, and to my mind confirmed the statement of Miculickz, quoted above, that the danger to life from a complete modern surgical operation is less than that from the disease.

THE SURGICAL TREATMENT OF HEMORRHAGE FROM GASTRIC ULCER.

In the treatment of hemorrhage from gastric ulcer, we approach the most difficult, and yet the most interesting, subject connected with the surgery of this condition. Hemorrhage, which occurs as a symptom in 80% of cases of gastric ulcer, is fatal in only about 5% of these cases, its fatality being variously estimated at from 3% to 11%.

In about 50% of the fatal cases, death is due to grave anemia and exhaustion from frequently repeated slight hemorrhages; and heretofore, so great has been the confidence in medical treatment in this class of cases, that the patients have been, for the most part, brought under the surgeon's care when exhausted and emaciated to the last extreme. In this class of cases, namely, the small and frequently repeated hemorrhages, which is the one most amenable to surgical treatment, Rodman's tables give 31 operations, with 5 deaths, the low mortality of 16.1%. In 12 gastro-enterostomies for this condition there has been no mortality, which Rodman rightly characterizes as a most favorable showing, and one which should lead to more frequent operation in cases of this kind. Robson is also in agreement with Rodman, in advising surgical treatment in cases of this character, and it seems to me that, in view of these results, none of us would be justified in letting a patient sink into a critical condition from repeated gastric hemorrhage without resorting to surgical measures.

In regard to the treatment of the severe and copious hemorrhages, which reduce the patient at once to a condition of grave anemia, we have a more difficult question to deal with; and on examining the results of the surgical treatment of such cases, we find that the mortality has been high—64.2%, according to Robson; 37.5%, according to the more accurately analyzed tables of Rodman. Now, in view of the fact that death rarely results from a first hemorrhage, even if severe, these figures contra-indicate operation during the first attack of severe hemorrhage, and it would seem

as if the treatment should be limited to rest, opium and salt infusion, as in hemorrhage elsewhere.

When, however, a first copious hemorrhage has been recovered from and been followed by a second, is a policy of inaction justified? Rodman, on the basis of a careful examination of 60 reported cases, concludes, I think rightly, that it is not, and that a too long delay after the second hemorrhage is hazardous. He quotes the case of Elder, which was lost by a too long delayed operation, and those of Tubby and Michaux, which would, in all probability, have recovered had they been operated upon after the second hemorrhage. Successful operations, after the second hemorrhages, have been reported by Armstrong, Andrews and Hirsch, whose cases were all operated upon in a condition of extreme anemia, and the cases of Cazin, Robson and Roux recovered when operated upon after three severe hemorrhages. Rodman points out that the mortality of 37.5%, although high, is not a prohibitory one, when we consider that the cases so far operated upon have been extreme ones, and only turned over to the surgeon when death seemed inevitable without surgical intervention.

Another reason for intervention in hemorrhage is the frequency with which a bleeding ulcer subsequently perforates, and the fact that operations for hemorrhage generally cure the ulcer and accordingly prevent subsequent perforation.

In favor of an active, rather than a waiting, policy in the presence of acute hemorrhage from the stomach, may be cited the experience which we have all been through of recent years in connection with intra-abdominal hemorrhage from extra-uterine pregnancy. The policy formerly pursued in the most acute hemorrhages, when the surgeon found the patient pulseless, sweating, restless, and on the verge of dissolution, was to stimulate freely and await reaction before submitting the patient to the so-called shock of an abdominal operation. We all of us remember, in recent years, papers by some of our best surgeons advocating this policy; but we have since found that it is safer to stimulate a bleeding patient *after* rather than *before* a bleeding artery is tied; and that by the aid of copious infusions of salt solution, begun at the same time with the operation, we can spend the ten minutes required to open the abdomen, pull out, tie off and remove the tube and sew up again better than inactively allowing the bleeding to continue; and that, so far from there being any shock connected with the operation, the patient generally has a better pulse at its close than at its beginning, and that in a surprisingly large number of cases recovery ensues.

In spite of the greater complication of the measures required in dealing with a bleeding ulcer of the stomach as compared with a ruptured tube, I cannot but feel that, by the aid of salt infusion and stimulation, such as prove so successful in intra-abdominal hemorrhage from other causes, measures can be practiced which will save

from death a certain number of even the most desperate cases.

We must acknowledge that operation for hemorrhage from gastric ulcer is by no means as simple as that for removal of a ruptured Fallopian tube; yet exploratory operation will be sure to reveal a certain number of cases in which simple measures will suffice to stop hemorrhage; and in case the measures directed to the actual control of the bleeding artery would prove too long and tedious for the patient's strength, the surgeon may perform a gastro-enterostomy, thus aiming to control the hemorrhage by placing the stomach at rest, an operation which has been most successful in a majority of instances of gastric ulcer with and without bleeding.

The steps of an operation for hemorrhage from gastric ulcer, as far as they can be formulated from personal experience in operation for other complications of gastric ulcer (I have had no opportunity to operate for hemorrhage), and from a careful study of the measures adopted in the reported cases, would be: (1) Median laparotomy above the umbilicus; (2) drawing the stomach as far as possible out of the wound, and a careful examination for any area of discoloration or induration which might point to the location of the ulcer. In case the ulcer were located in the anterior wall on the pylorus or the first part of the duodenum, it should be excised and the opening quickly sewn up; if near the pylorus, according to the Heinicke Miculickz pyloroplastic method, so as to prevent subsequent pyloric contraction. If on the posterior surface, the same procedure might be adopted, in case the ulcer could be readily exposed by drawing the stomach out and turning it upside down on the abdominal wall.

An ulcer on the posterior surface, not accessible in this manner, might be treated by making an incision through the anterior surface of the stomach, drawing the ulcer up into the shape of a cone and ligating *en masse*, and perhaps, after suture of the anterior opening, reinforcing the fold made at the base of the cone by two or three Lembert sutures. When the ulcer can not be easily reached, and directly dealt with, as when it is near the cardia on the posterior surface, or where extensive adhesions exist, it would seem much wiser to perform gastro-enterostomy as quickly as possible, and trust to the rest from muscular movement of the stomach to control the hemorrhage. This operation is also to be selected without question in multiple ulcers, or those cases, of which several have been reported, where it is impossible to find the bleeding point.

Measures directed to tying the artery *in situ* have proved lamentable failures, owing to the friability of the tissues rendering such procedures tedious and unsuccessful, and the use of the actual cautery has also proved a failure and been followed in one case by subsequent perforation.

A procedure which has suggested itself to me as worth consideration in a case where a patient was *in extremis*, and the indications were to stop

the bleeding and stimulate, and, where the ulcer could be reached, would consist in opening the abdomen and placing clamps on either side and below the ulcer, or drawing it up into a cone and ligating *en masse*, leaving the clamps *in situ*, the ligature in position. Then, after twenty-four or forty-eight hours of stimulation, if the heart responded and the condition made it possible, the wound could be reopened and the conditions dealt with as found. In view of our experience with extra-uterine pregnancy, it would seem at least possible that a desperate case might in this manner be occasionally saved.

To conclude with a brief summary of the indications for surgical treatment of gastric ulcer, I would say:

(1) That in perforation immediate operation is absolutely indicated.

(2) That in cases in which the symptoms fail to yield after medical treatment for a reasonable period, operation, consisting either of excision of the ulcer or gastro-enterostomy, should be performed, and this before the patient has become so exhausted as to render surgical intervention dangerous.

(3) In hemorrhage, when slight, frequently repeated bleeding promises to produce grave anemia or exhaustion, similar early operation should be done.

(4) Where a patient has suffered more than one copious hemorrhage, operation should be performed, and the extent and nature of the procedure should be decided upon according to the power of the patient to withstand operative manipulations, and the conditions found during the progress of the operation.

In this paper only active ulcer and its complications have been considered, and the after effects of ulcer, such as pyloric contractions, hour-glass contractions, and adhesions, which also furnish a wide and constantly increasing field for surgical intervention, have been purposely left out of account.

IDIOPATHIC ABSCESS OF THE KIDNEY.

BY A. T. CABOT, A.M., M.D., BOSTON.

Surgeon to the Massachusetts General Hospital.

Abscess formation in the kidney may come about in a variety of ways.

(1) It may be due to injury. When the injury is of a perforating character the infection may reach the kidney from without, or from some wounded coil of intestine. Occasionally an injury which does not open communication between the kidney and some infected area causes an abscess; and this comes about by the conveyance of infection through the blood channels. The injury, by bruising and lowering the vitality of the tissues, furnishes a nidus in which micro-organisms circulating in the blood may find an opportunity for growth.

(2) An abscess may be induced in the kidney by the direct extension of inflammation from contiguous parts.

(3) An inflammation in the pelvis of the kidney often extends through the urinary tubules into the substance of the organ, and in this way abscesses of greater or less size may arise. The pyelitis which in this way precedes a pyelonephritis may be a primary affection, or may be secondary to inflammations in the lower urinary tract. Such extensions of inflammatory processes through the urinary passages make an interesting chapter in the study of renal disease.

I pass over these three most common methods of origin of renal abscess with a mere mention, because I wish to devote this short paper to a consideration of the fourth method of kidney infection, namely, through the blood.

Suppurative inflammations induced in the kidney by organisms brought to that organ by the blood are extremely rare, if we except those abscesses which result from the action of tubercle bacilli. These also I leave at one side. For the subject of genito-urinary tuberculosis is a large one, and a consideration of it here would completely overshadow the subject to which I now especially wish to draw your attention, which is the acute idiopathic abscess of the kidney, dependent upon the action of some of the more properly pus-producing organisms.

The parasites that we have especially to consider in this connection are the streptococcus, the staphylococcus pyogenes aureus, the bacterium coli commune, the pneumococcus and the typhoid bacillus. All of these micro-organisms circulate freely in the blood, and probably most of them are eliminated in some degree by the kidneys. That this is the fact in regard to the typhoid bacillus has been abundantly shown. The infection of the kidney probably comes about as a so-called terminal infection, in which little capillary tufts are plugged by emboli containing the micro-organisms. The greater number of cases of this sort occur in the course of general infections, such as pyemia and septicemia, when abundant infective material is circulating through the vessels. Infections arising in this way usually occur towards the end of life, and both kidneys are usually involved. The depressant effect of the toxins in the blood diminishes the force of the circulation, and thus enfeebls the nutrition of the tissues and makes them less resistant to the invasion of micro-organisms. The functional activity of the kidneys is also interfered with, so that the bacteria are less rapidly eliminated through the capillary loops. Conditions are thus favorable for a clogging of fine vessels and an infection of the tissues about.

The direct implantation of infective material in the kidneys is made still more easy where the heart is involved in the septic process. An ulcerative endocarditis throws into the circulation little septic clots which are too large to pass vessels even larger than capillaries, and wherever these lodge an abscess is pretty sure to form.

¹ Read before the Boston Society for Medical Improvement, March 4, 1901.

In all of these forms of inflammation the renal suppuration is secondary, and a primary ulcerative process is to be sought for, from which the general infection has been started. It is usual in these cases to find abscesses in both kidneys, and not infrequently in other of the parenchymatous organs. As death usually results in such conditions, the pathological nature of the process has been thoroughly studied and is well understood.

While the above is an accurate statement of the usual course and character of these infective, metastatic processes in the kidney, it sometimes, though rarely, happens that an abscess or abscesses which are probably metastatic in origin occur in but one kidney. Instances of this sort are on record in which, death resulting, no source of infection could be found, and in which, therefore, it was once customary to regard the abscess as idiopathic in character.

The cases so interpreted, however, occurred at a time when pathological examinations were less searching than at present, and it is reasonable to suppose that small points of infection in the intestinal mucous membrane or elsewhere might well have been overlooked.

After having thus glanced over the pathology of such cases, I wish to report an observation of a patient affected by an extremely septic process of one kidney in which the infection was due to a pure culture of colon bacillus. The case is interesting, both on account of the rarity of the process, and also because it illustrates the occasional success of active surgical interference in such conditions.

R. A. R., thirty-one years of age, was seen by the writer on May 22, 1900, in consultation with Dr. W. O. Hunt, of Newtonville. The patient enjoyed good health up to the previous February, when he had a chill followed by moderate fever. He had at this time pain in the back, running down into the back of the left thigh. After two days spent in bed, the temperature became normal and the pain disappeared, and he was quickly in his usual state of health. On the 13th of May he was seized with pain in the back, mostly on the right side. This pain presently radiated down into the groin and testis. It was of a severity to require mild opiates for its relief. He had a moderate chill at this time, but was unaware of fever until the 17th of May, when he began to have high fever accompanied by vomiting. Dr. Hunt was now called, and he found the patient mildly delirious with frequently recurring chills, the temperature jumping from 97° F. to about 103.8° F. An examination of the urine showed it to contain albumin and pus in a moderate amount. For twenty-four hours before the consultation he had had no chills, but the ups and downs in temperature had continued. Upon examination, the right kidney was found to be enlarged and tender, the spot of acutest tenderness being in the back. Nothing abnormal could be detected elsewhere by physical examination. The diagnosis of an acute septic inflammation of the right kidney was made, and operation was advised. In order to carry out

this recommendation the patient was removed to the Massachusetts General Hospital.

Examination of the urine at this time showed it to have a specific gravity of 1.017, and to contain a considerable sediment of pus and some blood.

On May 23d the patient was etherized and an incision was made in the lumbar region over the point of greatest tenderness, just outside the quadratus lumborum muscle. On opening the fat capsule the tissues within were found to be edematous, and on reaching the kidney a prominent soft area was found, which being incised gave exit to considerable quantity of blood-stained pus. The finger introduced into this cavity broke through softened tissue into what appeared to be the pelvis of the kidney. Another similar abscess was found and opened in the upper part of the kidney. Drainage tubes were introduced into both cavities, and the wound was packed rather snugly to check the hemorrhage which was considerable.

Cultures taken during the operation showed the pus to contain a pure culture of bacillus coli communis. This operation was followed by immediate improvement, but the temperature remained irregular for almost a month. The patient showed but moderate powers of recuperation, and his recovery of strength was slow. On July 18th he reported at the hospital with the wound entirely healed, and his general condition greatly improved. No examination of the urine was obtained at this time, but had no symptoms indicating any persisting inflammatory condition.

He was heard from again in January, 1901, when his health was excellent.

The recovery of this patient precludes the possibility of knowing the precise manner in which the infection occurred. There was no evidence to indicate a probable primary source of infection. In the absence of any external lesion, through which micro-organisms might enter the circulation, it is plain that we must suspect the alimentary canal of having afforded somewhere a weak spot through which the colon bacilli effected an entrance into the blood vessels. Such an explanation is in accord with previously observed facts.

In regard to the treatment of such conditions there seems little or no room for difference of opinion. When the diagnosis of an acute septic process in the kidney is established, the evacuation of the pus should follow close upon the conviction of its existence.

In the presence of chills, high and variable temperature and delirium, together with the local symptoms of pain in the renal region, and with a swollen and very sensitive kidney to be felt, the diagnosis is not difficult. In most cases an examination of the urine gives confirmatory evidence by showing the presence of pus and a small amount of blood in the urinary sediment.

If an abscess has broken into the renal pelvis the amount of pus in the urine may be very great. The only conditions which may be confounded with this are: (1) An acute exacerbation of inflammation in a tuberculous kidney; (2) an acutely inflamed calculous kidney; and (3) a

congested and hydronephrotic kidney due to mobility.

In either of the first two conditions there is usually a history of long-standing trouble. We cannot, however, rely wholly on this probability, for renal tuberculosis and calculus may be very insidious in their early stages. It is, however, extremely rare to see them take on sudden exacerbations of inflammation unless instrumentation has introduced a mixed infection into the urinary passages.

It may occasionally happen that an extremely congested and swollen movable kidney gives rise to symptoms closely simulating the above without the formation of pus.

I have, in a number of instances, seen the kidney enlarged and painful with an accompanying fever, and with nausea and vomiting, where the condition was shown to be an intermittent hydronephrosis with acute congestion. In one such case, of which I have full notes, the fever was quite high for ten days, often reaching 103° F. at night. Finally aspiration of the kidney was done to clear up the diagnosis. About an ounce of urine came at first and then the needle drew only blood. This exploration was followed by an immediate improvement in symptoms, and convalescence was quickly established.

In every case of doubt it seems to me justifiable to explore the kidney by an incision. If an abscess is not found, but only a tense, congested kidney, an incision of the capsule along the convexity will afford, usually, great relief. If there is any question of the existence of a calculus the exploratory incision will afford opportunity for a thorough search and for removal of the stone if one is found. If the kidney is movable and suffering from congestion or intermittent hydronephrosis, induced by the twisting of the vessels and ureter, it can be drawn up and stitched in the loin.

Thus the operation offers promise of relief in each and every one of the conditions which is likely to give rise to similar symptoms. It has little or no danger attaching to it, and if an abscess is found, the operation done early will stand a far better chance of cutting short the septic process than it would if it were kept as a last resort.

THE EFFECTS OF TRAINING; SECOND PAPER.

BY EUGENE A. DARLING, M.D., CAMBRIDGE, MASS.

SINCE the summer of 1899, the investigation into the effects of training, instigated by the Harvard Athletic Committee, has been carried on in several directions. In the first place, during the autumn of 1899 an attempt was made to conduct a series of observations on the Harvard football squad, similar to those carried on with the crews and reported in a previous article. In the second place, a number of examinations were made during the year of the crew men who were under observation in the spring of 1899, to deter-

mine whether the abnormal conditions developed during that period of training were permanent. Finally, during the 1900 rowing season a further study was made of the university and freshmen crews, largely for the purpose of corroborating the results obtained in 1899. Furthermore, the assistance of Prof. W. O. Atwater and Dr. F. J. Benedict, of Middletown, Conn., were obtained, by whom an exhaustive dietary and digestive experiment was conducted, the results of which are given in a separate paper. Following is a brief summary of the results obtained along the various lines of study:

I. FOOT-BALL TRAINING.

Although a large number of examinations were made, the results as a whole were not satisfactory. It was not possible to follow the individual players with any degree of completeness, owing to the irregularity of their work and the many interruptions due to injuries. The constant excitement attending the practice and games, and the noisy conditions under which the examinations had to be made, were not conducive to accurate observations. A detailed account of the observations would be largely a repetition of those previously reported, so it will suffice merely to point out the more salient features. The routine examinations were made just before the afternoon practice, so as to eliminate as far as possible the immediate effects of the playing and to get the hearts at the supposedly most quiet period. Seventeen selected members of the squad were examined one or more times, chief attention being paid to the hearts and kidneys. It was not practicable to make extended observations on the fluctuations of weight, temperature, etc.

Hearts.—Of the 17 men examined, 14 showed no marked disturbance of the heart's action, although in all the heart was somewhat larger than the normal, and in several instances there appeared to be a noticeable reduction in its size as the season progressed. Several hearts showed some irregularity in rhythm, but without abnormal sounds; and in several the first sound was somewhat harsher than normal at the apex, but not sufficiently changed to be considered a murmur. In three hearts the changes were marked enough to warrant more detailed description. The most pronounced disturbance was in the case of a man who had been an athlete for several years and had had no history of heart trouble. His general condition was excellent throughout the period of training, though once disabled by injury. On October 4th, after about two weeks hard playing, his pulse was 72 and somewhat irregular. The apex beat was in the mammillary line and there was distinct epigastric pulsation. On auscultation a loud systolic murmur could be heard at the apex. This was propagated into the axilla and was audible, though less distinct, in the second, third and fourth intercostal spaces at the left border of the sternum. On October 27th the pulse was 57 and regular. The murmur was still distinct at the apex, but was not conducted. This

improvement was thought to be due to an enforced rest of two weeks, following an injury. On November 17th, just before the Yale game, the murmur could be heard clearly at the apex and very faintly at the left sternal border. In February, 1900, three months after stopping training, the pulse was 76, regular and normal. The apex beat was about half an inch inside the nipple line and there was no abnormal pulsation. The cardiac rhythm was normal, but a faint systolic murmur was still audible at the apex.

The abnormal signs in this case were so marked and persistent, that it seems probable that there was a slight organic lesion of the mitral valve. The condition was not unlike that of one of the crew in 1899, previously reported, and as in that instance, while the hard work of the first part of the training season disturbed the heart's action to a marked degree, there was a steady improvement as the season advanced. It is not to be denied that there is a risk in allowing men with such hearts to take part in contests involving such prolonged and violent efforts as foot ball and rowing, but in the light of these cases it is difficult to predict just what the result in any given instance is likely to be.

In the other two cases of well-marked cardiac disturbance the trouble was of a temporary nature. In one the first sound was always harsh and the action somewhat unsteady, but no murmur appeared until just before the Yale game, when a well-marked murmur was audible at the apex and left sternal border. In the third case the disturbance was marked only at the first examination. This man joined the squad late, and was examined after but two days of hard practice. The chief abnormal sign, beyond enlargement of the cardiac dulness, was a loud blowing systolic murmur at the left border of the sternum. At subsequent examinations this gradually became fainter, and after four weeks it disappeared entirely.

The condition of the heart immediately after playing a hard game was studied in a number of instances. The effects as a rule were like those observed after hard rowing; that is, an increase in the area of dulness, increased pulse rate up to 150 or even more, a roughening of the first sound at the apex, and very often a faint blowing systolic murmur heard most distinctly in the pulmonic area. In vigorous hearts these signs were of brief duration, and were interpreted as indicating merely a passing dilatation. The examinations were all made with the man first standing erect and then with him lying supine. In several instances, but not in all, lying down caused an immediate drop in the pulse rate. In one case, standing, it was 144; lying, it at once fell to 64; standing a second time it rose to 112, and again lying it fell to 68. The normal rate for this man was about 68, and his heart never showed any other disturbance. In a second case the pulse rate fell from 120 to 72 on lying down, and in a third case from 108 to 72. Other cases showed no marked effect from changes of position.

Kidneys.—The urines of 16 members of the squad were examined one or more times during the training season. In each instance the full twenty-four-hour amount was collected and measured, and the specific gravity, percentage of urea and total urea were determined. The specimen was then tested for albumin and the sediment examined microscopically. The average daily renal excretion was 1124 cc., specific gravity 1.027, urea percentage 3.30, and total urea elimination 36.2 gms. In 6 cases out of 16 albumin was present in small amount at one or more examinations and was always accompanied by hyalin and granular casts, an excess of leucocytes and occasionally by red blood corpuscles.

A number of additional examinations were made of urine passed immediately after hard playing, and in every instance considerable amounts of albumin were found (from $\frac{1}{16}$ % to $\frac{1}{15}$ % Esbach), together with many casts, and usually red blood corpuscles.

II. COMPARISON OF EFFECTS OF ROWING AND FOOT BALL.

On the whole, the effects of foot-ball training are not markedly different from those of rowing, though the departures from the normal are not as great. This is readily explained by the intermittent nature of the effort in foot ball. The game consists of a series of exertions, each one exhausting, but brief. The intervals of rest occupy a large portion of the time of play. This is in marked contrast to rowing, in which the periods of effort are far more prolonged, and the exertion, while less violent, is continuous. In both sports the effects of training appear to be to accustom the heart, kidneys and other organs to the extraordinary demands, so that as the season progresses they do their work more easily.

III. FURTHER OBSERVATIONS ON THE EFFECT OF ROWING.

During the 1900 rowing season a second series of examinations were undertaken, similar to that of the preceding year, with the object of verifying the facts then ascertained. The general effects on the weight, temperature, heart, kidneys, etc., were in all important points the same, and need not be described again at this time. Two events, however, occurring at the very end of the training season, were of great interest from the physiological point of view. One was the effect on the crew as a whole of the accident which deprived it of its stroke and captain four days before the race, and the other was the collapse of the substitute stroke during the race. On the Sunday preceding the Thursday of the race the captain twisted his right ankle, fracturing the lower end of the fibula. Up to this time the men, with a single possible exception, had been in excellent physical condition. There had been less than the usual disturbance of digestion and other untoward symptoms which are so common during the last part of a severe period of training. The accident necessitated the substitution of a new stroke, and a great

increase in the amount of rowing above that which had been planned for the remaining days, in order to accustom the men, as far as possible, to the new arrangement. The result was a marked change in the general tone of the men. The calmness and quiet determination which had characterized them hitherto was replaced by a nervousness and restlessness, and they attacked their work with a kind of desperation. Coincidentally, there was a temporary falling-off in the appetites, and in most cases some loss of sleep. The effect on the weights was striking. The men were not weighed on Sunday, the 24th, so comparison must be made with the Saturday weighings. For purposes of comparison let us take only the afternoon weights of the 7 men who were in the boat during all of the last fortnight. On June 14th, when the crew arrived at New London, the average weight of the 7 was 171.9 pounds. During the following week it fell to 169.6 pounds. It then rose once more and reached the former mark on June 23d, the day before the accident. After this it fell, on the average over 4 pounds per man, reaching 167.2 pounds just before the race. Allowance must be made for the loss of weight which always occurs before a contest. During the corresponding period in 1899 the average loss was a little over 2 pounds per man, most of this coming during the last twenty-four hours.

The excessive loss of weight may be attributed partly to indigestion, partly to insomnia, and partly to the increased work done. However, the condition of the men on the whole, just before the race, was thought to be fairly good, though not as good as it had been a week earlier. With the exception of the substitute stroke all finished the race in fair condition. One man, who was apparently all right at the finish, fainted about fifteen minutes after boarding the launch, but this was probably due largely to the fact that he lay down in the stern near the engine, where the air was close and hot. He revived after a short time, and showed no lasting ill effects.

The case of the substitute stroke deserves more detailed description. The sudden responsibility thrown upon his shoulders and the unavoidable hard work during the last three days before the race, had unquestionably affected him more seriously than any one else. He had lost about 5½ pounds and had been troubled a good deal with insomnia and indigestion. After rowing an exceedingly effective race for three miles he suddenly collapsed, and during the last mile was practically helpless and unconscious. After the race he remained in a semiconscious state for about an hour. He could be partially aroused with some difficulty, but wished to be let alone. He was then perspiring freely. His pulse was about 120 and rather weak, and respiration was rapid and sighing. The din of whistles and guns forbade a careful examination of the heart, but a superficial examination revealed nothing but a rapid, weak action. The temperature could not be accurately determined until an hour after the race, when it was 100.4° in the axilla. It was probably consid-

erably higher than this at first, as meantime he had been repeatedly doused with cold water and had perspired freely. After reaching the quarters he swallowed a cup of hot bouillon but immediately vomited it. During the afternoon he remained quiet and comfortable but complained of great drowsiness. In the evening he was able to retain some toast with hot water.

He passed from under the writer's observation at that time; but in a letter written four weeks later he stated that, while he recovered from the immediate effects within two or three days, he had not yet entirely regained his former vigor. The symptoms described were those of collapse due to overexertion when not in perfect condition, and in all probability greatly intensified by the heat. He said afterward that he remembered feeling unusually hot before the race. He had already had an attack of heat prostration several years before, which may have predisposed him to this. The occurrence was a very unfortunate one, but it is only fair to regard it as accidental because resulting from a combination of circumstances which could not have been foreseen.

IV. AFTER-EFFECTS OF TRAINING.

Between June, 1899, and the spring of 1900, examinations were made as occasion arose of the men comprising the rowing squad of 1899, to determine, as far as possible, the after-effects of training, and particularly to study the duration of the cardiac and renal disturbances. Eight of the twelve men comprising the squad were examined and the results were practically uniform. As pointed out in another place the heart during a period of training takes on a considerable degree of hypertrophy, while the immediate effect of a severe effort like a race is an acute dilatation. The latter condition is a temporary one, and seems to become less marked with each succeeding effort if the training is successful; that is, if the man remains in good condition. The hypertrophy, on the contrary, appears to be a more or less permanent change. In the case of the racing men it is to be remembered that they did not lapse into complete idleness after breaking training, but all kept up some kind of active exercise during the summer and autumn. This of course would to a certain extent prevent the return of the hearts to normal size.

It must not be supposed, however, that hypertrophy of the cardiac muscle from training is to be regarded as an undesirable thing any more than a corresponding hypertrophy of the biceps. It is conceivable that too frequent repetition of severe efforts might result in a permanent dilatation and loss of tone instead of in a true hypertrophy; but in these eight men there was no evidence that this had occurred. In every instance, save one, the pulse had a normal rate and rhythm, the heart sounds were normal, and no adventitious sounds could be detected; in fact, the only abnormal signs to be made out were an increase in the distance of the apex beat from the median line and a corresponding enlargement in the area of car-

diac dulness. These measurements differed but little from the corresponding measurements made in June just before the race.

The only exception was in the case of the man whose heart was profoundly disturbed during the period of training, as described in detail in an earlier paper. In March, 1900, nearly nine months after stopping training, examination of this man showed an irregular pulse rhythm. There was still a murmur, audible faintly but clearly at the apex and at the left sternal border. In this case, as pointed out before, there was probably an organic valvular lesion dating back to an early illness and not attributable to training.

Examination of the urine of these eight men showed in most cases an early disappearance of the albumin and casts. One man, examined July 17th and August 10th, still presented a trace of albumin but no casts. Further tests were impossible in this case, so the duration of the albuminuria is not known.

Beyond the cardiac and renal conditions the men presented little of importance. Several stated that they had suffered from indigestion shortly after stopping training, due probably to the fact that they unconsciously continued the habit of eating large amounts of food after they had ceased to need it. Otherwise they all claimed to be in perfect health, and their appearance did not belie their words. There was an increase in weight of from three to twenty pounds, not so much during the summer as during the following winter; but this may have been simply the natural increase in fat commonly seen in cold weather.

In summary, it may be said that no ill effects, which could reasonably be attributed to training, were to be discovered nine months after stopping the training.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

REGULAR meeting, March 4, 1901, DR. WALTER CHANNING in the chair.

DR. FRED B. LUND: In view of a case of transplantation of skin shown by Dr. C. B. Porter at the last meeting, I thought it would be of interest to present this case, showing that a favorable result sometimes may be obtained by the Tiersch method of skin grafting. This man had a skin flap taken off the back of the arm by a revolving electrical machine, the flap having the pedicle the wrong way from the blood supply. When put back in place it sloughed and left a raw surface. The only difference between this graft and the ordinary graft is that the slices of skin were cut as large as possible, and that grafting was done onto the surface of the ulna after chiselling off a necrotic layer. A graft was placed directly upon the bone, which took in very good shape. This graft was dressed not by being

covered with protective, but by dry dressing, the dressing removed at the end of the second day. It practically healed by first intention. This graft was done in October, and he has been at work since November.

DR. LUND then read a paper entitled

THE SURGICAL TREATMENT OF GASTRIC ULCER, WITH REPORT OF CASES.¹

DR. ARTHUR T. CABOT: I have been very much interested in the paper. It certainly presents a very important subject, and gives a great many points which are well worth thinking about. I have had but little experience in the treatment of gastric ulcer by surgery. I have had one case where the ulcer had perforated—I forget how many hours before. The case has been published—the perforation being a very small one, and the escape into the abdomen not of fluid contents, but of gas. The patient had been greatly troubled with flatulency, and when I saw her the most prominent physical evidence of perforation was the total disappearance of the liver dulness. The percussion note of tympany wholly covered the liver. In that case I turned in the ulcer in the way that Dr. Lund practised in his case, and with a perfectly good result. The patient made an excellent recovery.

In regard to the treatment of hemorrhages from these ulcers, I have had also but one experience. In that case the patient was transferred to my service from the medical wards after having had several very severe hemorrhages, and was in bad condition. The abdomen was opened. The site of the ulcer could be perfectly made out. It was on the lesser curvature, and, if the patient had been in decent condition, I think the operation of choice would undoubtedly have been to excise the ulcer in the manner that Dr. Lund practised in the chronic ulcer he described. The patient was not in good condition, and, as some quick operation had to be done, I tried the plan of throwing a ligature round the ulcer, taking a running stitch through the stomach wall all around the indurated area. In drawing up this stitch the ulcer was pushed inwards so that the peritoneal coat should be pulled together over it. In this way it was hoped that if there was sloughing in consequence of the strangulation of this bag-string stitch, the peritoneum should have a chance to glue together outside before the sloughing occurred. This operation was followed by several days of cessation of the bleeding which had been pretty constant before, and the patient began to get into a condition when it seemed to be possible to think of doing something more for the removal of the ulcer, when suddenly he had a tremendous hemorrhage when no surgeon was about, and died. The friable condition of the walls of the stomach in this case, and the difficulty of puckering them accurately for closing off the bleeding part, would lead me in the future, finding an equally indurated condition, to proceed to excision of the ulcer even at the expense of a considerably prolonged operation.

¹ See page 548 of the Journal.

DR. JOSLIN: I have been very much interested in Dr. Lund's paper, especially because, so far as I know, in the last two years nothing of importance has been contributed on the medical side to the treatment of gastric ulcer, and all we have to look for is in the improvement of the surgical methods.

The case Dr. Cabot spoke of I remember very well, because I was in the hospital at the time. Such a case now would, I think, be turned over to the surgeon many days, if not several weeks, earlier, because it was one of the cases of repeated hemorrhages, and statistics have shown that these cases are the dangerous ones.

In thinking of hemorrhage from gastric ulcer, it is well worth bearing in mind what Hood spoke of and what Dr. Greenough and I found to be true at the Massachusetts Hospital; namely, that women under the age of thirty do not die of hemorrhage from gastric ulcer. Of the cases of gastric ulcer at the Massachusetts Hospital, about 75% occurred in women under thirty years of age, and about 80% of these had hemorrhage. None died. In fact only one death occurred in a woman due to hemorrhage from gastric ulcer, and she was about forty-two, whereas of the 30 male patients, 4 died of hemorrhage.

DR. LUND: I was very much interested in what Dr. Joslin said in regard to young women under thirty not dying from hemorrhage from ulcer of the stomach. There is, I think, a very good pathological reason for this. Gastric ulcers fall into two types—the acute and the chronic. The acute ulcers occur in chlorotic young girls, and one finds an inflammatory infiltration of the ulcer and the surrounding tissue, not a formation of fibrous tissue. It is an acute inflammatory process, attended by rapid ulceration, and one which perfectly perforates. The majority of perforated ulcers will be found in young women; though hemorrhages are common, fatal hemorrhages will be rare. In the chronic variety, on the other hand, you get a deep indurated affair progressing slowly and forming adhesions. These ulcers get very deep, and if adhesions form, say, between the stomach and the pancreas, the latter will be invaded, and hemorrhage may take place from great arteries like the splenic artery. That is the reason those cases die of hemorrhage. It also makes it more unfavorable for surgical interference. Such ulcers have perforated into the aorta and into the heart. This difference in the kind of ulcer which is found in young women and middle-aged men is really the reason why perforation and moderately severe hemorrhage are common in young women, but not fatal hemorrhages, and why fatal hemorrhages occur more often in older patients and in men. Chronic ulcers are more generally situated on the lesser curvature near the pylorus where there are several large arteries—the coronary and the pancreaticoduodenal arteries.

DR. ARTHUR T. CABOT read a paper on

IDIOPATHIC ABSCESS OF THE KIDNEY.*

* See page 554 of the Journal.

DR. EDWARD M. GREENE: The symptoms and physical signs of abscess of the kidney are often so slight as to escape observation until the time for successful operation has passed. The real nature of the disease may not be settled until the post-mortem examination. Such a case has come under my observation, and seems to be of sufficient interest to justify a brief report.

The patient was a married man, aged thirty-four, a stationary engineer. He was a large man, of unusual health and strength, who had not been sick for the previous sixteen years. After getting overheated by a bicycle ride and cooling off suddenly, he had a mild chill, followed by fever and dull pain in the right lumbar region. Urine was scanty and high colored. These symptoms lasted only a few days, and he was not confined to bed. After a period of five weeks of slight malaise he had a second, more severe chill, followed by fever and pain in right lumbar region as before. He now lost his appetite, had occasional vomiting and considerable prostration, obliging him to take to bed. He presented a dull, mildly typhoidal aspect with thickly coated tongue, temperature of 103° and pulse of 90; there was moderate tenderness on pressure over the right kidney, but no tumor was felt, and there was no dullness on percussion. The twenty-four-hours amount of urine was 17 ounces, of high color, acid, 1,020, albumin, slight trace. The sediment showed a few red blood globules and a small amount of pus, but no casts. There were numerous bacteria in the fresh urine, but no tubercle bacilli. There were no bladder symptoms. No urethral discharge was present, and no stricture was found on examination. For the next two weeks he had normal morning temperature, but a rise of 2° to 3° every evening. He improved in strength sufficiently to be dressed and about his room. The dull pain near the right kidney continued, and was increased on moving about or sitting up. The urine had increased to one quart daily, but contained a little more pus, and a few hyaline casts appeared for the first time.

The next two weeks showed no change in these conditions; but during the following two weeks he steadily lost flesh and strength, became anemic, had night sweats and constant irregular fever. It was now ten weeks since the beginning of his illness, and I was able to persuade him to enter the Massachusetts General Hospital with a view to operation for suspected abscess of the kidney. There was still no tumor to be felt, although there was a small area of resistance to pressure and of dullness on percussion below the liver in the right hypochondrium. The blood count showed 20,500 white corpuscles.

He remained in a surgical ward for two weeks, when it was decided that "there was no definite indication for operation," and he was transferred to a medical ward. He had now lost 35 pounds in weight during his three months of illness, and was evidently in a septic condition. The tuberculin test was tried with negative result. Patient now began to have cough and shortness of breath

with pain in the right lumbar region, in the abdomen and in the back. After two weeks in the medical ward a fluctuating mass was made out just below the right costal margin, and he was returned to the surgical ward. An opening was made in the right hypochondrium, and a quantity of dirty brown, foul-smelling pus containing necrotic tissue was removed. There were no hooklets. It was thought at this time that there was an abscess of the liver. About two weeks later an opening was made in the ninth intercostal space, posterior axillary line, on account of signs of empyema, and nearly a quart of foul pus was removed. A finger introduced through the wound found an opening through the diaphragm about one inch from the chest wall. This was supposed to lead into the liver. The patient now suffered with severe dyspnea and died of exhaustion ten days after the last operation, and after an illness of fourteen weeks' duration.

At the post-mortem examination an empyema was found in the right pleural cavity, a perforation of the diaphragm; the liver, which was normal, was surrounded by collections of pus above and behind it; on the right side, in region of the kidney, a mass was found four or five inches in diameter, generally hard, but soft in places; the ureter ran from it. The mass proved to be the kidney, with pockets corresponding to the pelvis and calices, all full of pus. No evidence of tuberculosis was found. The left kidney was slightly enlarged and pale, but otherwise normal.

This case occurred in 1896. At the present time I feel sure that an early operation would have been done.

DR. LUND: It seems to me Dr. Cabot has presented a most interesting subject, the cases of idiopathic infection, infection without known cause corresponding to the cases of osteomyelitis occurring in apparently healthy children. The organisms must enter the blood presumably by the alimentary canal, or in these days the inhalation of dust; the organisms may get into the lung, and, perhaps, enter the blood through the respiratory tract. I would like to corroborate what Dr. Cabot has said about the ease and general usefulness of exploratory operations in doubtful swellings in the region of the kidney. Catheterization of the ureters, as far as we know, in the male is difficult and uncertain. The Harris instrument is uncertain, and catheterization of the ureters, in the female, often is distinctly contraindicated owing to risk of infection and for other reasons, but exploratory incision exposes the organ, allows a careful eliminative diagnosis to be made, and direct treatment to any of the conditions found, as Dr. Cabot has said, whether a calculus, hydronephrosis due to movable kidney, or abscess; and it is not uncommon to start with an exploratory incision upon the kidney and end with nephrectomy. Certainly the exploratory part of the operation is very simple and very safe, and results in the decision of a good many doubtful cases and the cure of a great many obscure conditions.

DR. ARTHUR T. CABOT: I was much interested in Dr. Greene's account of the extension of the abscess through the diaphragm. I have met with one such case where an abscess behind the kidney extended up posteriorly and made an empyema. I think that is rather a common direction for these kidney abscesses to extend if let alone.

ASSOCIATION OF AMERICAN PHYSICIANS.

ABSTRACT REPORT OF THE SIXTEENTH ANNUAL MEETING, HELD AT WASHINGTON, D. C., APRIL 30, MAY 1 AND 2, 1901.

(Continued from No. 22, p. 535.)

FIRST DAY.

DR. A. JACOBI, of New York, presented a paper entitled

UNCOMPLICATED HEMORRHAGE FROM THE PYOTHORAX.

M. C., seven years old, had been ill for about a month previous to admission to the hospital, complaining of a languid feeling, slight fever, lack of appetite, occasional cough, and some pain in the chest. There was marked dullness over the right lung and down to the fourth or fifth rib, with flatness over the base. Puncture yielded pus. The next day resection was done, and 500 cc. of inoffensive pus flowed out, unmixed with blood. Thiersch's solution was used for injection, and it returned with a little bloody pus, when all of a sudden it was followed by the flow of a large quantity of pure blood. The cavity was irrigated, and then it could be seen that the blood was oozing from disseminated tufts over the pulmonary pleura; some of these tufts were small, some quite large. The cavity was packed with gauze, and when it was removed two days later there was another slight hemorrhage, after which granulation went on in the usual way. Search for malignant tumor was negative, and there was no suspicion of tuberculosis. Dr. Jacobi said the case was unique in his experience, and furnished an additional cause for hemorrhage into the pleural cavity. A search of the literature had brought out no further information on the subject, no similar cases, and his surgeon friends had seen nothing of the kind.

DR. A. JACOBI, of New York, reported a case of

CYST OF THE OMENTUM.

The patient was a child seven years old when admitted to the Roosevelt Hospital. Four years previously the abdomen had begun to swell; the child lost flesh and failed in health. A paracentesis was performed and 2 litres of slightly bloody serum were drawn off. The child seemed to get perfectly well, but after two years the swelling recurred, was again tapped, and again the child improved. At the time of entrance to the hospital there was a second recurrence. Three hundred cubic centimetres of bloody serum was withdrawn this time, but the operation was cut short by the tube becoming obstructed, it was thought,

by a coil of intestine. The abdomen at once swelled again, and the child was transferred to the surgical side for laparotomy. A thin-walled multilobular cyst was found containing about 2 litres of straw-colored fluid, and it was found to be incorporated with and involving the greater omentum. It was easily removed, and the patient made a rapid and complete recovery. The cyst consisted of several tissues, unstriated muscle fibres, fat and fibrous tissue in layers of different thickness traversed by enlarged blood and lymph capillaries. It was lined both internally and externally by a layer of epithelial cells.

DR. CHARLES CARY, of Buffalo, N. Y., presented

A CASE OF PNEUMONIA COMPLICATED BY PSEUDOMEMBRANOUS EXUDATE ON THE MUCOUS MEMBRANES OF THE MOUTH, TONGUE, PHARYNX, NARES, CONJUNCTIVÆ, GLANS PENIS, ANUS, ETC., CAUSED BY DIPLOCOCCUS PNEUMONIE.

The case here reported is remarkable in one respect,—the occurrence during the course of an attack of acute lobar pneumonia in a boy of eleven years, of a profuse pseudomembranous exudate upon nearly all mucous surfaces of the body open to inspection. There was also evidence of extensive passive pleuritis and probably the involvement of the gastro-intestinal tract throughout its entire length. The affection terminated in recovery by lysis. The pneumococcus was obtained in pure culture from the heart's blood, the organs and the exudate.

DR. FRANK BILLINGS, of Chicago, gave a

REPORT OF THE PROGRESS OF CASES OF PERNICIOUS ANEMIA PRESENTED TO THE ASSOCIATION IN 1900, AND REPORT OF A CASE OF PERNICIOUS ANEMIA WITH DIFFUSE SPINAL CORD LESIONS WITH POST-MORTEM FINDINGS.

Of the 20 cases reported last year, only 10 were living at the time. Of this series, 4 have since died and 4 are still under observation. Of the 4 dying within the past year, only 1 was continuously under observation. This patient was on the decline when reported last May, and stayed in poor condition until October, when an improvement began which reached its height in December, and then the final decline commenced. During the period of improvement the white cell count kept pace with the improvement in the red cells and hemoglobin, and fell with the decline of the other elements just as was noted in the report of last year. The 4 cases now being observed are still on the upper curve of improvement, and the blood count and color is about normal. No mealeated cells have been found since January, 1900.

During the year 9 new cases have come under observation, all in well-to-do people, and no cause for the condition could be found. The condition noted last year, namely, that gastro-intestinal disturbance was a common accompaniment, was noted in all these cases. The history of the case with spinal cord lesions was detailed, together with the post-mortem findings. The diseased area was

found to affect particularly the posterior nerve root areas.

DR. PUTNAM raised the question whether the spinal cord changes found in these cases were really essential and peculiar to pernicious anemia, and inclined to the view that they were not due to the anemia as such. He said that the changes as a rule have been scattered, and have corresponded to vascular areas rather than to the nerve root areas.

DR. OSLER remarked upon the necessity for additional study of that group of pernicious anemias in which the anemia occurs subsequent to the onset of the spinal symptoms.

DR. MCPHEDRAN and DR. MUSSER each reported cases belonging to this group, and DR. SHATTUCK gave the history of a case of pernicious anemia that followed and seemed to be associated with a severe mental shock.

DR. D. D. STEWART, of Philadelphia, reported a case of

ACUTE MILIARY TUBERCULOSIS, PRIMARILY SPLENIC.

Presumed primary tuberculosis of the spleen, whether acute or chronic, is rare, but one instance of the former being on record. Dr. Stewart's case is that of a young woman who, while in attendance of tuberculosis, developed symptoms of an acute general infection. When admitted to the hospital the symptoms were rather high fever, debility and enlarged spleen. Miliary tuberculosis was the diagnosis made by exclusion. The patient died fifty-eight days later, and until near the termination of the case there were no symptoms of involvement of other organs. Necropsy showed a greatly enlarged spleen, about one-half of which had been converted into a caseous tubercular mass. There were small miliary tubercles also in the kidneys, liver, lungs and meninges of the brain.

DR. J. H. MUSSER, of Philadelphia, Pa., presented

NOTES ON THE RELAPSING FEVER OF HODGKIN'S DISEASE.

The literature was reviewed and attention called to the paper of Ebstein on chronic-recurring fever, or so-called Ebstein's fever, and to the article in Nothnagel's system on the same subject. Dr. Musser reported 2 cases, the characteristics of which were attacks of fever lasting from eight to twelve days, and alternating with periods of apyrexia. In both cases there was increase of the glandular swellings coincident with the fever, which would rise rapidly to a great height, 105° or 106°, and after ten days terminate by crisis. In the second case cultures and inoculations failed to disclose the nature of the disease, but the patient now has pulmonary tuberculosis. Dr. Musser concludes that this form of fever is in all probability an expression of the glandular form of tuberculosis to which Hodgkin's disease probably belongs.

DR. WELCH called attention to the fact that a considerable number of cases of Hodgkin's dis-

ease have now been shown to be of tuberculous origin, and said that experience at the Johns Hopkins Hospital, where all cases of this disease had been carefully studied, had shown that a surprisingly large proportion turned out to be tuberculous processes.

DRS. ALFRED STENGEL, C. Y. WHITE and WM. PEPPER, of Philadelphia, read papers on the

STUDY OF GRANULAR DEGENERATION OF THE RED BLOOD CORPUSCLES.

Granular degeneration of the erythrocyte is a condition in which this cell presents small granules, having a tendency to clump in one or more parts of the cellular protoplasm. The granules vary in size, some being as large as the granules of the eosinophilic leucocyte, others so minute as to be scarcely perceptible, and individual cells may show one or both varieties. The cell substance between these granules usually presents the normal staining properties of the erythrocyte. The granules have an affinity for basic stains and the intensity of staining is in direct proportion to the size of the granule. Attention has been called to these granules as a special degeneration only in the past few years, and Hamel and Behrendt were the first to demonstrate the frequency of this cellular change in the peripheral blood of patients poisoned by lead, and their study led Grawitz to study the blood in experimental intoxications, until he found that shortly after taking even very small doses these changes appeared.

With this in view, the writers of the paper undertook to study this granular degeneration in lead workers, and from the experimental standpoint. In animal experiments the blood was examined for some days previous to the administration of lead, which was given in small doses. The distinct granules appeared after the initial dose, usually in about three days, and indistinct granules were found after twenty-four hours. Their conclusions were: (1) That granules are a constant finding in cases of lead poison, and appear very early in cases under the influence of lead, long before subjective or other objective symptoms can be demonstrated; (2) that these granules disappear in cases of chronic lead poisoning as convalescence is established; (3) that apparently lead does not produce an immunity; (4) these granules may be produced experimentally in a very few days after the administration of lead salts.

DR. M. ALLEN STARR, of New York, read a paper on

THE TOXIC ORIGIN OF NEURASTHENIA AND MELANCHOLIA.

He classified neurasthenias into a variety of different types according to the predominant symptoms, and also according to the origin of the disease. Among the last was a class of cases that he believed to be distinctly toxic in their origin. They usually occur either in poorly nourished women or in men about the age of forty-five who had lived rather freely, had taken little care of their diet, had indulged in the use of alcohol and

tobacco, and had neglected exercise. The chief symptoms in this form of neurasthenia, dull pressure in the head and back of the neck, sensations of fullness in the head with inability to concentrate the attention, irritability of temper, irregularities of the circulation, and general disorders of the digestion, either of the nature of acid dyspepsia or of considerable evolution of gas, with irregular and offensive stools. In these cases the urine is irregular in quantity, but at all times contains large quantities of indican. A mild state of melancholia is frequently associated with the neurasthenia. Dr. Starr believed these cases resulted from some toxic agent which accumulates in the blood, and which is manufactured either in the intestines or in the stomach, but he did not know what the toxic agent was.

Treatment consisted in a carefully selected diet, the use of remedies to stimulate liver activity and to counteract the evolution of toxic agents in the intestines, a hot bath on rising, followed by a cool sponging to stimulate the general nutrition of the body, and a carefully regulated exercise and rest.

DR. PUTNAM thought that Dr. Starr had not proved his case in regard to the toxic origin of neurasthenias, and added that because a disease is cured by a certain remedy it does not follow that we have found the cause. The vicious circle in neurasthenia might be broken up by many things that had nothing to do with its formation.

DR. HERTER said that in studying the intestinal excreta he had found a definite relationship between the presence of ethereal sulphates and indican and the existence of mental depression; an increased amount of these substances in the excreta is accompanied by a greater degree of depression. He had not determined whether it was a case of cause and effect, but some of his experimental work had indicated that it might be. He attributed the good effect of such drugs as calomel to the fact that the free movements produced and diminished the excretion of the ethereal sulphates.

DR. C. A. HERTER, of New York, read a paper entitled

THE ACID INTOXICATION OF DIABETES AND ITS RELATION TO PROGNOSIS.

He spoke of the method of opposing the acids and bases as the best means of detecting the amount of acid in the urine. As a clinical help, the detection of the nitrogen of ammonia was of much value, but not absolutely reliable. He found that with the increase of organic acids, measured as oxybutyric acid, coma was imminent. Crotonic acid was always present, and there was an increase for days, weeks or even months before the onset of coma. Coma develops, if large amounts of oxybutyric acid persist, say quantities greater than 25 grammes per day. When the urine contains little or no trace of organic acids there is little prospect of coma, though other troubles may present themselves.

Dr. E. P. JOSLIN, of Boston, Mass., reported a case of

METABOLISM IN DIABETIC COMA WITH SPECIAL REFERENCE TO ACID INTOXICATION.

He related a case of fatal diabetic coma, and gave a detailed account of the chemical analysis of the urine from day to day, with special reference to the varying amount of organic acids.

Dr. VAUGHAN said that we do not yet know what the poisonous agent is in these so-called acid intoxications, but that we certainly know it is not oxybutyric acid nor acetone. He referred to the dietetic treatment of diabetes, and said that experimental work seemed to indicate that abstinence from carbohydrates and excessive nitrogenous feeding might often do much more harm than good.

Dr. HERTER agreed with this view of feeding such patients, and said that while he was not committed to the nature of the acid in the blood, yet such evidence as exists points to the oxybutyric acids more strongly than to the amido acids.

EVENING SESSION.

The evening session of the association was something of a novelty in its history, in that it was given up entirely to demonstrations.

Dr. CHAS. S. BOND, of Richmond, illustrated by stereopticon some features of photomicrography, and explained the method of constructing the apparatus best adapted to securing the most perfect results in this work.

Dr. W. T. COUNCILMAN, of Boston, gave a very beautiful and very instructive demonstration, with the stereopticon, of the renal lesions in diphtheria.

DRS. FLENNER and WELCH each exhibited a number of important pathological specimens.

SECOND DAY.

DRS. BARKER, NOVY and FLENNER demonstrated the

STUDY OF BUBONIC PLAGUE BASED UPON THE OUTBREAK IN SAN FRANCISCO.

Dr. BARKER opened the discussion with a consideration of the clinical aspects of plague, stating that it belonged to the group of septicemic infections or diseases in which the causative agent can in very susceptible individuals produce a general sepsis without local lesion, but which in more resistant individuals gives rise to a disease characterized by local reaction without general sepsis. The character of the epidemic in San Francisco was like that which has prevailed during the early stages of all other epidemics. Thirty-one cases were definitely proven to be plague, and 28 of these occurred among the Chinese. The ordinary cases of plague begin suddenly, usually with a chill, with fever that increases rapidly, but has a curve characterized by intermissions and irregularities; the patient is nauseated, severe nervous symptoms follow, and generally within twenty-four hours the bubo appears. The course of the disease is a continuous and progressive failure

until death occurs between the fourth and sixth days. The bubo develops differently from that accompanying venereal affections. The size varies, being sometimes as large as one's fist and occasionally so small that it can not be discovered by inspection or palpation. Buboes are most frequent in the groin, next in the neck, and then in the axilla.

The two principal types of plague are the bubonic and pneumonic forms; and a primary skin plague can probably be distinguished with a local lesion in the form of a carbuncle. In addition to these there is the plague septicemia, which may be divided into primary and secondary forms clinically. By the first is meant a septicemia produced by the entrance of the bacillus into the blood without the development of a bubo. In the secondary form there is a flooding of the blood by the plague bacillus, causing early death. In the early days of an epidemic, and again toward its close, there are usually found a number of mild cases, the patients not being sick enough to prevent their walking about. Such individuals are a source of great danger unless they can be isolated, for it has been proven that the urine and feces frequently contain the plague bacillus for as long as four or six weeks after apparent recovery. The pneumonic form of plague is characterized by a very bloody sputum containing immense numbers of the bacilli.

He referred to the great importance of recognizing the first case of plague, and said that he thought no disease was easier of diagnosis if one could take the proper steps. This should consist in a bacteriologic examination of the sputum, the blood, the splenic juices, and the bubo contents when present. Serum diagnosis is unreliable, except to show whether or not an individual has had the plague. He insisted upon the importance of regarding every case of fever occurring in a place where plague is suspected as being a case of plague, until it was proven to be something else, and furthermore the importance of believing at such times that every cadaver is one of plague until it has been bacteriologically examined.

As to treatment, he said that if he should contract the disease himself, he would promptly load up with the serum.

Dr. NOVY considered the bacteriology of bubonic plague, reporting in detail the work done by the Commission in San Francisco, to prove the nature of the disease seen there.

(To be continued.)

LEPROSY IN THE UNITED STATES.—It is said that there are about 275 reported cases of leprosy in the United States. The number would undoubtedly be much larger were all cases promptly recognized and reported to the proper authorities. Of those reported nearly all are foreigners, a large proportion of them being among Italians in New Orleans. In general the disease appears to be spreading most rapidly in Louisiana.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, JUNE 6, 1901.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

SUBSCRIPTION TERMS: \$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; \$6.50 per year for all foreign countries belonging to the Postal Union.

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All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal should be addressed to the undersigned.

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283 WASHINGTON STREET, BOSTON, MASS.

A MENACE TO BOSTON'S WATER SUPPLY.

FROM time to time there has been complaint of the danger of an overflow of sewage from the city of Marlboro into the general supply system of Boston. This danger, which exists at all times, is very materially increased by the excessive rainfall and accompanying freshets of the spring months. Owing to the exceptional amount of rain this year, the danger of pollution is greater than ever before, and it has become imperative that protective measures be adopted. It is said to be the opinion of the Metropolitan Water Board that the difficulty is due to a defect in the Marlboro sewage system. Under ordinary conditions the sewers are sufficient for the needs of the city, but they become inadequate when any unusual demand is made upon them, as, for example, during the heavy spring rains. As a consequence, a large amount of surface water has been introduced into the sewers, with the natural result that an overflow of surface water, mingled with filth, has occurred into the lowlands and into the Marlboro Brook filter beds, which are not constructed for the extra demand thereby put upon them. Impurities are apt to get into the Sudbury basin, and thence through water pipes to Boston. It is this state of affairs that is now demanding some radical solution. Negotiations are reported to be now under consideration, which have not yet been made public. It is apparent that the matter is of very vital importance to the health of the city, and, if the above statements are true to the facts, may prove a serious menace, unless the properly constituted authorities are immediately forced to act. A possible repetition of the experience with typhoid fever through which New Haven has just been passing should hasten action still more. If there is any one thing health officials should guard with the most unrelenting care, it is the absolute purity of a city's water supply.

Because the same conditions have prevailed for a number of years is absolutely no reason why any further delay should occur in remedying an evil which is so clearly remediable as this one appears to be. Moreover, the Boston Water Board early adopted the policy of encouraging the construction of works for the disposal of the sewage from such places. At Marlboro works were projected for disposing of the sewage within the watershed, and were changed so as to convey it a longer distance to a suitable place outside the watershed, and Boston paid \$62,000 towards the expense.

A ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.

It is announced that John D. Rockefeller has given the sum of \$200,000 for the foundation of what is to be known as the Rockefeller Institute for Medical Research. It is the object of the institute to maintain what is practically equivalent to scholarships in colleges where medical research is carried on, to enable those engaged in pathological, bacteriological, and other scientific work of the kind, to carry on their investigations with more adequate financial support. Dr. T. Mitchell Prudden, professor of pathology in the Medical Department of Columbia University, who has just been elected vice president of the Board of Directors of the Rockefeller Institute, while asserting that it was as yet too early to make a detailed announcement of what will be done even in the immediate future, has given out the following general statement: "This \$200,000 will enable us to go ahead with work that is highly important for the general welfare. Much work of an investigating kind has already been done in the colleges, but their principal object, after all, is to teach. The fund given by Mr. Rockefeller will make it possible for men who want to devote themselves to special lines of medical research to do so without being hampered in any way. The possibilities are, of course, large . . . This fund will provide a means for scientific research into the causes of various diseases, and it is hoped that both interesting and valuable results will follow."

Dr. William H. Welch, of Johns Hopkins Medical School, who will be the president of the Board of Directors, is reported as saying: "Medical research along the lines of preventive agencies is one of the most important matters occupying the minds of medical men today, and the study of antitoxins, serums and other preventives is now being pursued with zeal everywhere. It is to aid this research that Mr. Rockefeller has made his gift."

As we understand the terms of this gift, no money will be spent on buildings, but small sala-

ries will be paid a large number of investigators working in already established laboratories. For instance, in this neighborhood we understand there will be one such in connection with Dr. Councilman's department at the Harvard Medical School, and one in connection with Dr. Theobald Smith's department at the Bussey Institute. There are to be certain directors at large of the Institute, but the detailed investigations will be under the direct supervision of the heads of the various laboratories.

We understand Mr. Rockefeller's present proposition is to give \$10,000 a year for twenty years. It is not to be doubted that successful and satisfactory results of a positive character may lead to generous modifications of the present provisions. It seems to be a wise and hopeful scheme, conceived on a judicious basis and possessing large possibilities.

DIPHTHERIA AND BOARDS OF HEALTH.

THE experience of a citizen of a neighboring city with regard to diphtheria and the regulations of the Board of Health is worthy of comment from various points of view. The victim of the affair expresses his feelings graphically, and yet fairly, in a daily paper. The circumstances appear, in brief, to have been as follows: A man is taken ill with a somewhat insignificant sore throat, a physician is summoned, who makes light of the situation clinically but suggests that a culture be taken. This is done by the appointed authorities in the Board of Health, with the result that the diphtheria bacilli are found. According to law, the house where the patient lived is placarded, and he himself is quarantined. In the meantime the sore throat has wholly disappeared, and the patient feels perfectly well. Later cultures, however, remain positive, thereby rendering the person who harbored the bacilli a possible menace to others. Here is the dilemma, which clearly is likely to be looked at very differently by the laity and by the medical profession, whose duty it is to safeguard the public health, if necessary, at the expense of the individual. There is something to be said on both sides of such a question as this, which is likely to become more and more prominent as time goes on. The afflicted individual certainly is not to be blamed for an attitude which to him and to people at large is a wholly natural one. It will always be difficult to induce people to believe that their physical feelings are not a just criterion of their condition; hence, although we may not wholly agree with his conclusions, we can at least sympathize with a man who, so far as his standards go, is well, in spite of scientific evidence to the contrary. The complainant in the instance before us writes:

"Of course I know, everyone knows, that culture taking is productive of most beneficial results. It assists the diagnostician and safeguards the public at large. But should it not be applied with some reasonable discrimination? At present, in Cambridge at least, a person's liberty is placed in the discretion of one man, who is privileged to act in the most arbitrary manner and from whose decision there is no appeal. Who, after he has once played the monkey in a farce like this, will ever allow a physician to take another culture from his throat, or if he does get one will ever let him live to lug it away?"

Undoubtedly, if such cases as this were to be often repeated, they would lead to an evasion of the law, a difficulty with which boards of health always have to contend in greater or less degree. It is highly desirable that such evasion should be avoided; but we confess we have not forthwith a means to suggest, which will do justice, both to the individual and to society at large.

From the point of view of the Board of Health, we need hardly say that in the present state of our knowledge its action was absolutely justified. It acted as boards of health must always act, regardless of the individual, and with sole regard to the public at large. The solution of such a dilemma as this must ultimately lie in more knowledge of the virulence of the bacilli under varying condition, a subject upon which we are quite aware an enormous amount of work has already been done, but upon which still more remains to be accomplished. In the meantime, we must regret the occasional inconvenience to which the individual may be put, but not thereby neglect for a moment the large question at issue.

MEDICAL NOTES.

PRESIDENT OF JOHNS HOPKINS UNIVERSITY.—Prof. Ira C. Remsen has been elected president of Johns Hopkins University to succeed Mr. Gilman. He has been connected with that university as professor of chemistry since its foundation in 1876. He is 55 years of age and is a graduate of the College of Physicians and Surgeons of New York.

NORTH CAROLINA REFUSES A CHARTER TO A SO-CALLED SCIENCE COLLEGE.—It is reported that North Carolina, through its Secretary of State, has refused to charter a new college of science and mental healing, on the ground that its purposes conflict with the law governing the issuance of licenses to practise medicine.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, June 5, 1901, there were reported to the Board of Health of Boston

the following cases of acute infectious diseases: diphtheria 77, scarlatina 34, measles 273, typhoid fever 11, smallpox 1.

PRECAUTIONS AGAINST SMALLPOX IN QUINCY, MASS.—The recent discovery of a case of smallpox in Quincy has led to the careful quarantining of several suspected houses. A cottage will be built on the almshouse grounds by the Board of Health for the accommodation of several families which are known to have been exposed.

NEW YORK.

THE NEW MOUNT SINAI HOSPITAL.—The cornerstone of the new Mount Sinai Hospital, which is to occupy the block between Fifth and Madison Avenues and 100th and 101st Streets, was laid on May 22d in the presence of over three thousand persons. It bears the inscription, "Mount Sinai Hospital, Beth Chauline, Incorporated 5612-1852." Addresses were made by Isaac Stern, chairman of the building committee, Randolph Guggenheimer, president of the Municipal Council, Seth Low, president of Columbia University, Isaac Wallach, president of Mount Sinai Hospital, Dr. Abraham Jacobi, president of the Medical Board, and Edward Lauterbach, Esq. In the course of his remarks Mr. Low said: "I count it not the least of the hospital's services that none is asked whether he be Jew or Gentile, Catholic or Protestant; it is enough that he is a man"; and Mr. Lauterbach made the statement that the records show that Mount Sinai has cared for more free patients, considering its size and capacity, with a higher record of medical and surgical service and ability, than any other hospital in the United States.

MODIFIED HIPPOCRATIC OATH FOR NURSES.—The graduating exercises of the training-school for nurses at the City Hospital, Blackwell's Island, were held on June 1st. There were fifty-two graduates. On this occasion an innovation was made which met with hearty approval, and which will no doubt be adopted in other schools of the kind, in the administration of a modified Hippocratic oath to the class. It was administered by Mrs. Cadwalader Jones, chairwoman of the Advisory Board, and two of its clauses were the following: "That you will be loyal to the physicians under whom you serve, as a good soldier is loyal to his officers." "That whatsoever you shall see or hear of the lives of men and women, whether they be your patients or members of their households, you will keep inviolably secret, whether you are in other households or among your own friends."

PAYMENT OF LIFE INSURANCE PREMIUM WHILE IN QUARANTINE.—An interesting case regarding life insurance premiums and quarantine by the

health authorities is reported from Geneva, N. Y. A female patient, who had been quarantined for about six weeks on account of smallpox, notified the board of health that her life insurance policy was likely to lapse because she was unable, on account of her enforced seclusion, to procure the money to keep it up, and demanded that the sum due should be paid by the board. President McGuire decided that the board had a right to pay and had better do so, on the ground that if the policy lapsed on account of the quarantine regulations and the woman died, the city might be called upon to make good the amount of the policy.

THE CENTRAL PARK OSTRICH NOT TUBERCULOUS.—The death of an ostrich in the Central Park menagerie, apparently from tuberculosis, has excited considerable attention, from the fact that it has always been maintained that birds are never subject to this disease. On this account Dr. Edwin Reynolds, chief physician to the Brooklyn Home for Consumptives, was asked to make an autopsy. He reports that death was due, not to tuberculosis, but to abscess and inflammation of the left lung, caused by the lodgment of a kernel of corn in one of the bronchial tubes. Not a single tubercle bacillus was found in the lungs; but in order to test the matter finally, Dr. Reynolds proposes to inoculate healthy guinea pigs with serum from the diseased organ.

DIFFICULTIES OF THE KNEIPP CURE.—It is somewhat hazardous to carry out the Kneipp cure in the vicinity of Fishkill, N. Y. Recently an invalid who, it seems, had received a course of instruction at a Kneipp establishment at Poughkeepsie, was seen walking along the roadside without shoes or stockings, and as it was supposed on this account that he was a patient escaped from the neighboring State Hospital for Insane Criminals at Matteawan, he was, notwithstanding his protests, arrested and subjected to considerable inconvenience before he succeeded in convincing the authorities of the mistake that had been made. It appears that there is a standing reward of \$25 in the community for the capture of any inmate of the institution who escapes.

TWELVE THOUSAND DOLLARS FOR THE BROOKLYN HOME FOR CONSUMPTIVES.—A decision has been handed down by Surrogate Abbott, in Brooklyn, admitting to probate the will of Miss Maria Sprague Meeker, which left her residuary estate, amounting to about \$12,000 to the Hospital for Breadwinners, provided the latter was incorporated at the time of her death. If it was not incorporated at this time the money was to go to the Brooklyn Home for Consumptives. The Hospital for Breadwinners was not incorporated at the time of the death of the testatrix, and

the Surrogate decides that the residuary estate goes to the Home for Consumptives. The will was contested by two nieces of the deceased.

DEDICATION OF BUILDINGS AT THE LOOMIS SANITARIUM.—The Church of St. Luke the Beloved Physician, a beautiful chapel at the Loomis Sanitarium for Consumptives at Liberty, N. Y., erected by Mrs. Alfred L. Loomis in memory of her husband, was dedicated on May 27th by Bishop Potter. Other buildings at the sanitarium dedicated on the same day were: The new administration building, the gift of J. Pierpont Morgan; a handsome library, the gift of Mrs. James H. Aldrich, in memory of her father, Mr. Edson; and an annex for the accommodation of charity patients. The graduating exercises of the 1901 class of trained nurses was also a feature of the occasion.

ANOTHER SANITARIUM FOR TUBERCULOSIS.—The new buildings of the Country Sanitarium for Consumptives, a special department of the Montefiore Hospital for Chronic Diseases, situated near Bedford, Westchester County, were formally opened on Memorial Day with addresses by Bishop Potter, Vice President Roosevelt, Jacob H. Schiff, president of the Montefiore Hospital, Oscar S. Strauss, lately U. S. Minister to Turkey, Dr. Alfred Meyer, physician-in-chief of the sanitarium, and others. The buildings now completed will accommodate 150 patients, and it is proposed to enlarge them to a capacity of at least 500.

CONSECRATION OF A CONVALESCENT HOME.—On May 27th Archbishop Corrigan consecrated the Convalescents' Home at Tuckahoe, Westchester County, N. Y., a commodious building with ample grounds, presented by Adrian Iselin and his daughter. It is designed as a place of recuperation for patients discharged from the New York hospitals.

SMALLPOX IN BELLEVUE HOSPITAL.—It is reported that within ten days no less than twelve persons suffering from smallpox have presented themselves at the outdoor department of Bellevue Hospital.

Miscellany.

THE BLESSINGS OF CHARITY.

WE have received the following appeal addressed to a confrère in a neighboring city, which is worthy of reproduction:

DEAR SIR:

The liberty & equality of this country, where it is no diversity between creed & nationality, are encouraging me to write the following lines: my bad state is indescribable, but very easy to imagine my position; when my small earned wages must be spent for Dr. & medicine, and nothing can be left to satisfy the stom-

ach of my poor four children. To send this patient to hospital is impossible, firstly she cannot be separated from the children, secondly I have nobody to take care of them when she'll be in hospital. Therefor by the name of humanity, the divine faculty, I request you to send a Dr to my place if possible as it is done in some other cities. By doing the above you will save the life of four children who are suffering limitless.

Your obedient servant,

Following the above, the benevolent physician received this message:

Discerning your charitable care by visiting my humble house where a poor helpless woman is confined to her cot, with poor four children, whose only hope is only in you, I encourage myself to ask your honor to call today as she feels worse.

Your humble servant,

Obituary.

ALLEN M. SUMNER, M.D.

DR. ALLEN M. SUMNER died at his home in Boston May 25th, at the age of fifty-seven years. He was born January 31, 1844, and had been a resident of Boston most of his life. Receiving his early education in the public schools, Dr. Sumner entered the Lawrence Scientific School, Cambridge, where he received the degree of S.B.; later he received the degree of M.D. from the Harvard Medical School. He then studied for several years in London, Paris and Vienna. Returning to America he entered upon the practice of medicine in Boston, where he continued to reside up to the time of his death. He was for many years a visiting physician at the City Hospital, a position from which he resigned about three years ago. For twenty-nine years he was connected with St. Luke's Home for Convalescents, and at the time of his death was senior physician on the consulting staff. He was a conscientious and skilful practitioner and a physician of wide experience, which his long service at the City Hospital did much to foster and increase. A wife and two children survive him.

RESOLUTION ON THE DEATH OF DR. SUMNER.

Resolved, That in the death of Dr. Allen M. Sumner on May 25, 1901, St. Luke's Home for Convalescents lost a faithful adviser and a loyal friend. His services covered a period of twenty-nine years: from 1872 to 1878 on the active staff, and from 1878 to 1901 on the consulting staff, the last seven years he being the senior physician of the Home. Dr. Sumner was always ready with timely counsel and practical assistance to further the welfare of the patients, and his careful attention to the duties of his office served to enlist the regard and respect of those associated with him in the work of St. Luke's Home for Convalescents, Boston.

Resolved, That the Trustees and Medical Staff extend to the family their sincere sympathy in their very great affliction.

WALLACE H. HAM, *Secretary*.

GEORGE S. OSBORNE, M.D.

DR. GEORGE STERN OSBORNE of Salem, Mass., died at his home, May 25th, at the age of 62, of heart failure. He was educated in the Salem schools, and was fitted there for Harvard, which he entered in 1856. He did not complete the four years' course, but in 1859 entered the Harvard Medical School, from which he graduated. On July 8, 1862, he enlisted in the First Massachusetts Cavalry, and became assistant surgeon, with the rank of Lieutenant, March 17, 1863. On December 30, 1863, he was promoted to major and made surgeon of the Fifth Massachusetts Cavalry, but

resigned May 7, 1864, on account of illness. He returned to the service later. He spent the next two years studying in Vienna and Paris. On returning to this country from this period of study he began practice in Peabody. He continued until 1894, building up a large and successful practice.

He was a member of various social and professional organizations, and a man who greatly endeared himself, both professionally and socially, to a wide circle.

Correspondence.

DISGRACEFUL AND ANNOYING MEDICAL ADVERTISEMENTS IN CURRENT MAGAZINES AND NEWSPAPERS.

NEW HAVEN, CONN., May 18, 1901.

MR. EDITOR:—With all our medical practice acts and efforts at pure medical journalism, it seems strange that no tether can be placed upon the quack rampant on the field of magazine and newspaper advertising pages. These gentlemen assure you that all kinds of diseases "can be cured while you wait, consultation free," "Let us send you a bottle," "Keep your hats on, gentlemen; it will all be over in a minute." Trash of this nature obstructs our view in current periodicals. One distinguished gentleman assures the public that he abolishes varicocele and appends his beautiful physiognomy posed for the occasion in half-tone, with a page of vituperated slush about what he knows he cannot do. "Ideal sight." "Are you deaf? Put the electric battery in a foot-tub (or anything convenient) and watch it," with a lucid illustration of an impossibility. Blood cures, body braces, hair on your face, crowd upon one another with the energy of horses at the race-track.

These vacuous fellows keep up a "continuous performance" and increase yearly in our best periodicals, and we either cannot, will not, or dare not, try to stop it. The medical profession can say, with truth, that quackery is beneath its contempt. This is true; but the fact remains, that these magazines fall into the hands of innocent young people. Curiosity, a human trait, is awakened.

Then questions will be asked about matters that they have no business even to hear of, least of all to mention. "Money talks." Vulgar as this expression may be, it is the root of all this blatant trash buried in our faces daily by the squawking quack.

If some form of legislation could be enacted to curtail these gentlemen "who will let you try it for yourself," we might have less of their warblings, if not, in time, total extinction of the nuisance.

Very truly yours,

G. TOTTEN-MCMASTER, M.D.

SUBSCRIPTIONS FOR MONUMENT TO PROFESSOR OLLIER.

1729 CHESTNUT STREET, PHILADELPHIA,

June 3, 1901.

MR. EDITOR:—Some time since you kindly published an appeal of a committee soliciting subscriptions for a monument to the late Professor Ollier in Lyons. As treasurer of the committee, I beg that you will publish this letter in your journal in order to inform the profession that I have received the sum of \$649 from 103 subscribers. I have forwarded the same, less \$4.00 for postage, printing, etc., to Dr. G. Mondan, 27 Rue Jarente, Lyons, France.

Yours very truly,

W. W. KEEN, M.D., Chairman.

METEOROLOGICAL RECORD.

For the week ending May 25th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	
S..19	29.92	47	48	46	100	98	98	N	15	24	R. R.	145
M..20	30.08	45	46	44	100	96	98	E	20	13	R. O.	72
T..21	30.07	62	60	45	87	84	86	NW	5	5	O. F.	—
W..22	29.96	70	64	57	69	76	72	W	14	14	F. F.	.67
T..23	29.72	70	61	59	83	60	72	W	13	13	F. C.	.40
F..24	29.97	61	75	47	68	96	82	W	3	20	F. R.	.36
S..25	30.19	48	50	46	98	88	93	N	8	8	R. O.	—
Mean	29.99	63	49	—	86	—	—	—	—	—	—	—

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 25, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diphtheria and croup.	Diphtheria and croup.	Diphtheria and croup.
New York.	3,437,202	1,208	373	26.65	14.90	2.65	3.14	3.31	—
Chicago.	1,696,575	—	—	—	—	—	—	—	—
Philadelphia.	1,259,697	421	112	21.85	11.64	1.42	2.4	1.90	—
St. Louis.	575,238	—	—	—	—	—	—	—	—
Baltimore.	508,587	181	50	24.86	12.15	.75	3.31	3.86	—
Cleveland.	381,768	—	—	—	—	—	—	—	—
Buffalo.	335,387	—	—	—	—	—	—	—	—
Cincinnati.	325,802	—	—	—	—	—	—	—	—
Pittsburgh.	321,616	—	—	—	—	—	—	—	—
Washington.	278,718	—	—	—	—	—	—	—	—
Milwaukee.	258,515	—	—	—	—	—	—	—	—
Providence.	175,607	54	10	14.80	11.10	—	1.85	5.55	—
Boston.	560,892	213	54	25.35	13.15	.46	3.29	4.69	—
Worcester.	118,421	23	7	13.05	8.70	—	—	—	—
Fall River.	104,863	31	15	28.00	9.66	—	12.90	—	—
Lowell.	94,869	49	13	32.44	12.25	—	—	6.12	—
Cambridge.	91,886	21	6	33.33	4.76	—	—	—	—
Lynn.	68,513	11	—	18.18	—	9.09	—	—	—
Lawrence.	62,559	21	8	4.76	9.52	—	4.76	—	—
New Bedford.	62,442	20	2	5.00	—	—	—	—	—
Springfield.	62,059	12	2	16.67	—	—	—	—	—
Somerville.	61,643	13	2	61.53	7.70	—	7.70	7.70	—
Holyoke.	45,712	13	9	15.40	7.70	—	—	—	—
Brookton.	40,063	12	3	33.33	—	8.33	—	8.33	—
Haverhill.	37,175	11	4	18.18	9.09	—	—	—	—
Salem.	35,956	7	4	—	—	—	—	—	—
Chelsea.	34,072	9	1	44.44	—	—	—	—	—
Malden.	33,864	7	—	—	25.00	—	—	—	11.11
Newton.	33,587	7	—	11.30	—	14.30	—	—	—
Pitchburg.	31,331	—	—	—	—	—	—	—	—
Taunton.	31,036	10	1	10.00	20.00	—	—	—	—
Gloucester.	26,121	5	—	16.67	—	—	—	—	—
Everett.	24,336	—	—	—	—	—	—	—	—
North Adams.	24,200	8	2	—	50.00	—	—	—	—
Quincy.	23,993	5	—	40.00	20.00	—	—	—	—
Waltham.	23,481	13	4	38.50	15.40	—	—	—	—
Pittsfield.	21,766	4	—	25.00	20.00	—	—	—	—
Brookline.	19,935	—	—	—	—	—	—	—	—
Chicopee.	19,167	4	2	—	—	—	—	—	—
Medford.	18,344	—	—	25.00	25.00	—	25.00	—	—
Newburyport.	14,478	—	—	—	—	—	—	—	—
Melrose.	12,962	—	—	—	—	—	—	—	—

Deaths reported 2,420; under five years of age 691; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 594, acute lung diseases 313, consumption 318, scarlet fever 43, influenza 3, erysipelas 10, typhoid fever 20, whooping cough 12, measles 16, cerebro-spinal meningitis 11, smallpox 13.

From whooping cough, New York 7, Philadelphia 9, Baltimore 2, Boston 1, Cambridge 2. From cerebro-spinal

meningitis. New York 4, Philadelphia 2, Baltimore 1, Boston 3, Pittsfield 1. From scarlet fever, New York 32, Philadelphia 6, Baltimore 1, Boston 1, Worcester 2, Lynn, Brockton and Newton 1 each. From typhoid fever, New York 5, Philadelphia 9, Baltimore 2, Boston, Lowell, Taunton and Waltham 1 each. From erysipelas, New York 7, Philadelphia 1, Boston 2. From smallpox, New York 13.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,187 for the week ending May 11th, the death rate was 16.5. Deaths reported, 3,635; acute diseases of the respiratory organs (London), 237; whooping cough 118, diphtheria 63, measles 10, fever 25, scarlet fever 36.

The death rate ranged from 7.7, in Croydon, to 22.3, in Brighton; Birkenhead 12.7, Birmingham 18.9, Blackburn 17.1, Bolton 15.8, Bradford 17.3, Bristol 17.4, Burnley 13.9, Cardiff 14.2, Derby 15.2, Gateshead 13.2, Halifax 15.9, Huddersfield 14.3, Hull 19.5, Leeds 16.1, Leicester 14.2, Liverpool 18.5, London 15.9, Manchester 20.7, Newcastle-on-Tyne 17.2, Norwich 17.2, Nottingham 15.9, Oldham 18.6, Plymouth 11.6, Portsmouth 17.0, Preston 14.3, Salford 18.4, Sheffield 16.5, Sunderland 16.6, Swansea 20.4, West Ham 14.9, Wolverhampton 16.0.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, WEEK ENDING MAY 25, 1901.

R. M. KENNEDY, passed assistant surgeon. Ordered home via public conveyance.

M. V. STONE, assistant surgeon. Detached from "Buffalo" and ordered home to wait orders.

C. H. DELANCY, assistant surgeon. Detached from "Bancroft" and ordered to the "Castine."

F. M. FURLONG, assistant surgeon. Ordered home via public conveyance.

D. B. KERR, assistant surgeon. Ordered home via public conveyance.

E. J. GROW, assistant surgeon. Ordered home via public conveyance.

A. G. GRUNWELL, assistant surgeon. Ordered home via public conveyance.

D. G. BEER, assistant surgeon. Ordered home via public conveyance.

C. D. LANGHORNE, assistant surgeon. Ordered home via public conveyance.

J. STEPP, assistant surgeon. Detached from the "Castine" and ordered to the "Isle de Luzon."

E. J. GROW, assistant surgeon. Detached from the "Isle de Luzon" and ordered to the "Castine."

E. THOMPSON, assistant surgeon. Detached from the "Solace" and ordered to the "Petrel."

R. W. PLUMMER, assistant surgeon. Detached from the "Petrel" and ordered to the "Nashville."

F. M. FURLONG, assistant surgeon. Ordered detached from the "Brutus," and ordering him forward to Guam, L. I.

RECENT DEATHS.

DR. JOHN E. COMFORT, a prominent physician in the Borough of the Bronx, New York, died on May 20th. He was born in St. Louis, Mo., October 6, 1817, and was graduated from the Albany Medical College in 1864. During the latter part of the Civil War he served as assistant surgeon of the Sixtieth Regiment New York Volunteers. Ever since the war he had practiced in that portion of Westchester County which a number of years ago was annexed to the City of New York and is now known as the Bronx, and for twelve years he was an inspector of the New York Board of Health.

DR. JOHN L. FREMY, Sanitary Superintendent of the Borough of Richmond, New York, died after an extended illness, at his home at Stapleton, Staten Island, on May 31st. He was born in 1845 and was graduated from the Medical Department of the University of the City of New York in 1862. After serving for three years as house physician at the Seamen's Retreat Hospital, on Staten Island, he commenced private practice at Stapleton. From 1870 until the recent consolidation of the Boroughs composing the Greater City of New York, he was surgeon to the police department of Richmond County, and during the greater part of this time was also health officer of the towns of Edgewater and Middletown.

BOOKS AND PAMPHLETS RECEIVED.

Eighteenth Report of the State Board of Health of Wisconsin, September 30, 1900. Madison, Wis., 1901.

Metropolitan Water Board. Sixth Annual Report. January 1, 1901. Boston: Wright & Potter Printing Co. 1901.

Klinische Versuche mit dem Fleischsaft "Puro." Von Dr. Jos. Vesely, Assistent. Sonder-Abdruck aus der Prager Med. Wochenschrift. 1901.

Syphilis as a Non-Veneral Disease. With a Plea for the Legal Control of Syphilis. By L. Duncan Bulkley, A.M., M.D., New York City. Reprint. 1901.

Circular on Tropical Diseases. Number 1. Chief Surgeon's Office, Headquarters Division of the Philippines, Manila, P. I. Reprint. 1901.

Bulletin de l'Académie Royale de Médecine de Belgique. Bruxelles: Hayez, Imprimeur de l'Académie royale de médecine de Belgique, Rue de Louvain, 112. 1901.

Proceedings of the Philadelphia County Medical Society. Report and Exhibition of a Case of Dermographism. By Jay F. Schamburg, M.D. Vol. XXII. Reprint. 1901.

The Extra Pharmacopoeia. By William Martindale, F.L.S., F.C.S., and W. Wynn Westcott, M.B. (Lond.) D.P.H. Tenth edition. London: H. K. Lewis. 1901.

A Treatise on the General Principles and Special Applications of Hematology. By James Ewing, M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

How to Cook for the Sick and Convalescent. Arranged for the Physician, Trained Nurse and Home Use. By Helena A. Sachse. Philadelphia: J. B. Lippincott Company. 1901.

Transactions of the Twenty-second Annual Meeting of the American Laryngological Association. Held in the City of Washington, D. C., May 1, 2 and 3, 1900. New York: Carey Printing Co. 1901.

A Manual of Diseases of the Nose and Throat. By Cornelius Godfrey Coakley, A.M., M.D. Second edition revised and enlarged. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1901.

Transactions of the Obstetrical Society of London. Vol. XLIII, for the Year 1901. Edited by Herbert K. Spencer, M.D., Senior Secretary, and Alban Doran, F.R.C.S. Illustrated. Published by the Society.

An Inquiry into the Existence of Autochthonous Malaria in Buffalo and its Environs. Preliminary Report on Species of Mosquitoes and Blood Examinations. With map. By Irving P. Lyon, M.D., and Alfred B. Wright, Buffalo, N. Y. Reprint. 1900.

Induction Coils. How to Make, Use and Repair Them. Including Ruhmkorff, Tesla and Medical Coils, Röntgen, Radiography, etc. By H. S. Norris (Norman H. Schneider). Second edition, revised and enlarged. New York and London: Spon & Chamberlain. 1901.

A Practical Treatise on Diseases of the Skin. For the Use of Students and Practitioners. By James Nevill Hyde, A.M., M.D., and Frank Hugh Montgomery, M.D. Sixth and revised edition. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1901.

Primary Echinococcus Cysts of the Pleura. Report of a Case of Primary Exogenous Echinococcus Cysts of the Pleura, Showing Hyaline Degeneration of the Cuticle without Lamination with Notes on the Literature. By Charles Curry, M.D., and Irving P. Lyon, M.D., Buffalo, N. Y. Reprint. 1900.

A System of Physiologic Therapeutics. A Practical Exposition of the Methods, Other than Drug-Giving, Useful in the Treatment of the Sick. Edited by Solomon Sells Cohen, A.M., M.D. Vol. II. Electrotherapy by George W. Jacoby, M.D. In two books. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

The Occurrence of Malta Fever in Manila. By Richard P. Strong, M.D., Assistant Surgeon U. S. A., Director of the Army Medical Laboratory, Manila, and President of the Board appointed by the Secretary of War for the Investigation of Tropical Diseases in the Philippine Islands; and W. E. Musgrave, Hospital Steward U. S. A., Resident Pathologist to the First Reserve Hospital. Reprint. 1900.

Coincident Typhoid and Malarial Infection. Report of a Case and Review of the Literature, with a Discussion of the So-Called Typhomalarial Fever. By Irving Phillips Lyon, M.D. (Johns Hopkins), Buffalo, N. Y., Former House Medical Officer, Johns Hopkins Hospital, Baltimore; Clinical Pathologist to the New York State Pathological Laboratory of the University of Buffalo; Instructor of Clinical Medicine in the University of Buffalo. With charts. Reprint. 1900.

Address.

INTERNAL MEDICINE IN THE NINETEENTH CENTURY.¹

BY N. S. DAVIS, JR., M.D., CHICAGO.

It is one of the duties of those who address you, as I do today, to review what has been newly discovered in the field of medicine or in some limited department of it. At this first meeting of the American Medical Association in the twentieth century, it seems most natural to review what has been accomplished in the last one hundred years. The time at my disposal is too brief to read to you a complete history of the achievements of this wonderful epoch, for more of genuine advancement has been made in medicine during it than during all the preceding centuries together. It is only possible for me to point out some of the reasons for the rapid development of medicine, to recall to your minds some of the most important discoveries and applications of them.

A century is not so long a time as we are apt to think. Our grandfathers were vigorous men, in the prime of life, when the nineteenth century was born. Yet changes so great that they seem miraculous have occurred since then. In 1800 this great country was a wilderness, unknown even to the inhabitants of the few straggling settlements upon the Atlantic coast. Our land contained no great cities. There was little travel from place to place. There were no steamboats nor railways; no telegraphs nor telephones. Information traveled slowly by packet ship, canal boat and stage coach. The discovery of the wonderful properties of the x-ray could not then have been flashed over the world in a day, and its genuineness and utility confirmed within a few weeks by experiments made simultaneously in all parts of the world, as did happen at the close of the century. Today all civilized peoples are so united that knowledge has become the common property of them all. In former epochs geniuses delved alone, inspired only by their own enthusiasm. Often it was many years before their discoveries became widely known or appreciated; and many more before another genius standing upon land already found ventured upon its exploration.

All this has been changed. Learning is not possessed by a few, but by many. In earlier epochs men of genius towered above their contemporaries in learning. Today thousands crowd about their shoulders, so much higher is the average of learning. All scientific workers are now linked together by the rapid dissemination of news, so that no matter in what part of the world they may be, they are kept conversant with what is being thought and done in every other part, and they are thereby inspired to greater mental efforts.

Knowledge is no longer isolated. It is cultivated in centers too numerous to count. Even in

this new land universities with great libraries, finely-equipped laboratories, and corps of brilliant teachers and seekers after new knowledge, are found in every part of it. Medical societies have been organized in every state and city, and in many counties and towns. But at the beginning of the century there were only four medical schools in this country, and four state societies, organized for the advancement of medical knowledge.²

These changes have been effected chiefly by the rapidity of communication which has been established in all civilized lands and by the greater concentration of the people in large cities.

But it is not in the United States only that the population has increased and concentrated. In 1801 the total population of England and Wales was less than 9,000,000. Of this number more than half lived in the country. At the end of the nineteenth century the population of the same countries was more than 29,000,000, and only one-fifth of this number lived in rural districts. These figures attract our attention to the social changes which have occurred in all civilized lands — changes which have effected not only a greater diffusion of knowledge, but have also modified the conditions which produce and limit disease.

At the opening of the nineteenth century "Cullen's Practice of Physic," written late in the preceding century, was the standard text-book. A glance at its contents will give us the clearest conception of the state of medical knowledge at that time. In an edition of this work printed in New York City in 1806 I find no description of structural diseases of the heart; even as a complication of rheumatism, heart disease is not mentioned. A single page is devoted to nephritis, but in its description there is no mention of the chemie and microscopic changes in the urine, upon which we depend to recognize it and to distinguish its forms. The affections of the respiratory organs were described with similar crudeness, under such chapter headings as "Of Catarrh," "Asthma," "Pneumonie Inflammation," "Peripneumonia Notha," and "Phthisis Pulmonalis," but the catarrhal inflammations of the nose, pharynx, trachea and bronchi were not differentiated from one another, nor were catarrhal and croupous pneumonia, brown induration, hypostatic congestion and edema of the lungs described.

The hypothetical explanation of diseases and their causes which prevailed at that time is well illustrated by the conclusion reached by Noah Webster, who in his "History of Epidemics and Pestilential Diseases" writes that typhus and nervous fever are due to "conversion of the perspirable fluids of the body into septic matter."

Nothing will help so much to make clear the progress made in medicine in the last century as to compare the resources at the disposal of physicians of our day with those commanded by our grandparents. At the opening of the nineteenth century medical men knew nothing of the clinical

¹ Annual oration in medicine, delivered at the fifty-second annual meeting of the American Medical Association, held at St. Paul, Minn., June 4-7, 1901.

² The colleges were medical departments of Pennsylvania, Columbia, Harvard and Dartmouth (founded 1767). The societies were New Jersey (1766), Massachusetts (1781), Connecticut and New Hampshire (1791).

thermometer, of percussion, auscultation, uranalysis, clinical microscopy, laryngoscopy, ophthalmoscopy, of the sphygmograph, or Röntgen rays.

It was not until the year 1808 that Corvisart spread widely a knowledge of percussion as a means of discovering the physical status of the viscera, although the work of Avenbrugger which he translated, and which was the original description of percussion, had been published nearly fifty years before. The work of Avenbrugger and Corvisart was supplemented in 1819, when Laennec published the result of his labor with the stethoscope which he invented four years earlier. From this time dates our clinical knowledge of diseases of the lungs and heart.

In 1827 Bright pointed out the relationship of albuminuria, dropsy and diseases of the kidneys. At this point clinical chemistry may be said to begin.

At the beginning of the nineteenth century compound microscopes were almost useless, for the images which their lenses made were so distorted and colored that they could not be properly interpreted. In 1812 Dr. William Hyde Wollaston combined two plano-convex lenses so as to correct the spherical aberration which a single double-convex lens produces; and nearly twenty years later Joseph Jackson Lister discovered the utility of combining lenses of crown and flint glass in order to produce an image in the microscope relatively free from distortions and fringes of color. The more recent invention of the oil immersion lens has made bacteriology possible, and has solved many of the problems of infectious diseases which puzzled even our fathers in the fifties and sixties.

The dependence of medicine upon ancillary sciences is well illustrated by the sudden birth and rapid development of new branches of medical knowledge which are dependent on the perfection of the microscope.

This instrument has made histology, embryology, modern pathology and bacteriology a possibility. These departments of science are altogether products of the last century.

It was at the beginning of the century that Bichot divided the structures of the body into what he called "tissues," and showed that there were only a few of them. It is surprising that the great anatomists before him did not make the same discovery.

As modern anatomy has been dependent upon the microscope in order to explain structures, so physiology has been dependent upon experiments on living animals to explain function. It is true that in earlier epochs at considerable intervals of time experiments upon living animals were made, notably by Harvey when he studied the circulation of the blood, but they were never made systematically until the discovery of anesthesia in the nineteenth century made them painless. No wonder, therefore, that the explanations made by physiologists in 1800 seem to us extremely crude. Haller, for instance, whose printed lectures formed the text-book of most students at that time, thus

describes the nature of blood: "Hydrostatical experiments demonstrate in the blood first a kind of volatile vapor or exhalation which immediately and continually flies off from the warm juice with a sort of fetid odor coming betwixt that of sweat and urine. This vapor being catched and condensed in proper vessels, appears of a watery nature, joined with a small tincture of an alkaline disposition."

A few pages further on what he says of the blood gives us an idea both of the state of physiologic and pathologic knowledge at that time: "For the blood in a sound, healthy state, not injured by putrefaction or too violent a degree of heat, is neither alkaline nor acid, but mild and gelatinous, and a little saltish to the taste; yet in some diseases it is sharp enough and comes near to a state of putrefaction; as for instance in the scurvy, when it corrodes through its containing vessels, and in those who have ascites or dropsy whose waters are often much of an alkaline and corroding nature."

At the close of the eighteenth century the part which gland cells play in forming secretions was not comprehended. It was believed that "the albuminous or hardening juices are separated almost anywhere from the arteries themselves, into continuous excretory canals, with any intermediate organ or machine betwixt them." It was believed that all excretions existed primarily in the blood.

The physiologists of this period appreciated the importance of the lungs and the act of respiration, but their exact use they did not comprehend. Haller enumerates several possible functions which they might perform, yet he did not feel sure that any one of them were the real ones. For instance, he says: "Our blood acquires its heat principally in the lungs; for that all animals which have lungs and two ventricles in the heart have the heat of their blood commonly twice that of the atmosphere. But does not this arise from the alternate extension and contraction, relaxation and compression of the pulmonary vessels by which the solid parts of the blood are perpetually rubbed together and closely compressed in the attrition that is made during expiration, as it is more rapidly moved and ground together during inspiration."

Our forefathers one hundred years ago often endeavored to hide their ignorance in long names and resounding phrases, — a common practice, indeed, in all times and not wanting today; for how much ignorance will our successors find hidden in words now so commonly used as are metabolism and auto-intoxication.

Pathology as a distinct department of scientific medicine originated in the nineteenth century. It was not until 1860 that Rudolf Virchow demonstrated conclusively his famous dictum: "*Omnis cellula e cellula*." His studies of cells in disease laid the foundation and did much to rear the superstructure of cellular pathology. So rapidly has a knowledge of this subject grown that we can unhesitatingly say that we now possess very accurate and detailed information as to the anatomical

changes which disease effects. The insight of physicians was so greatly extended into the nature of morbid processes by these pathologic studies that enthusiastic devotees of them felt that the application of the microscope to the study of disease would dispel its mysteries. Increasing information, however, soon demonstrated the limitations which exist as to knowledge derivable from a study of morbid anatomy. Most of us remember how, soon after the birth of bacteriology, it was also hoped that from it at least we would learn the true essence of disease. But we know now that in most ailments after the bacteriologist has discovered the offending micro-organism the chemist must help us, for it is usually a product of its growth, not its physical presence in the tissues, that causes disease.

The production of disease by parasites imbedded in the tissues of the human body was suspected from early times, but was not demonstrated until the end of the first third of the nineteenth century, when James Paget, then a medical student, found unusual nodules in the muscles of a man whom he was dissecting. These Richard Owen demonstrated to be the cocoon of a minute animal which he called *trichina spiralis*. In 1847 Dr. Joseph Leidy of Philadelphia found them also in pork, and soon thereafter it was shown in Germany that men could become infected by eating pork containing trichina, and that in consequence there developed in them a definite train of symptoms.

In 1837 Latour in France and Schwann in Germany almost simultaneously propounded the view that fermentation and putrefaction are due to the growth of micro-organisms. Liebig, with all the weight of his authority, antagonized this belief in a "vitalistic" explanation of these phenomena. Pasteur undertook to settle the dispute by methods of research, which proved to be the foundation of a new department of science — bacteriology. The results of his experiments were published between 1857 and 1869. He proved that without micro-organisms there could be no fermentation, no putrefaction or decay. These studies prompted many investigators to attempt to demonstrate the suspected relationship of micro-organisms to disease. In 1863 Davaine succeeded in showing that the organisms seen by him in 1850 in the blood of animals which had died of anthrax, were its cause. This, as some of those before me will remember, aroused a storm of controversy which was not settled finally until after my own student days.

Formerly, such vague terms as "miasm," "humor" and "virus" were used to explain the communicability of contagious diseases, but they have had to be discarded or to be newly defined by the bacteriologist. It was in the sixties that Lister made his studies upon the relationship of micro-organisms to wound infection. The brilliant revolutionary results of those studies are too well known to you to require elaboration; besides they belong to the history of the nineteenth-century surgery rather than to the history of internal medicine. They were, however, so important in set-

ting the relationship of invisible parasites and diseases that they must be mentioned.

It was at this time, too, that Pasteur and Tyndall finally settled the controversy over spontaneous generation, which had raged from time immemorial. The world at last felt convinced that even micro-organisms could not exist where an antecedent organism had not been.

It is needless to recapitulate the long list of discoveries rapidly made from this time onward of the causes of infectious diseases, by such men as Koch, Klebs, Loeffler, Fraenkel, Laveran, and many others.

Although medical men have been incited to search for the causes of disease in order that they might understand their nature better and therefore be able to treat them better, such studies naturally led more directly to the prevention than to the cure of disease. That is why the recent epoch-making bacteriological discoveries have greatly stimulated the study of preventive medicine. It is true that the prevention of disease has engaged the attention of medical men and statesmen since the earliest times, but the subject was not studied systematically before the last century.

Hygiene as a separate department of medicine, with a literature of its own, was created only in the nineteenth century.

While in the eighteenth century much was done to improve the hygienic state of individuals, and as a result there began before its close to be a reduction in the mortality rate, which has continued up to the present time, public hygiene or attempts to prevent the spread of disease by state and civic interference, was not fairly established until very recently. Even today small communities have no health officers or sanitary inspectors, and few regulations which are intended either to inform the people as to the relative healthfulness of towns and hamlets, or by which the spread of disease is to be lessened. These facts show how new and undeveloped as yet the field of public hygiene is. The mortality statistics which have been gathered in cities since the middle of the last century make it possible to point out which among them are the healthiest, and which diseases are the most destructive. It is to be hoped that these statistics in the future will be supplemented by reports of the kinds and amount of illness, whether fatal or not, that may exist in a given place.

The knowledge recently acquired of infections and their spread has already been applied to their prevention. Such diseases as erysipelas, septice-mia and tetanus no longer torment surgeons when they can make clean wounds. But as late as 1870 the first of these ailments was common in the hospitals of France. Puerperal fever is today as rare as it was common formerly. Typhus fever no longer exists in America, although not uncommon at the beginning of the last century.³

³ Typhus forms an item in the mortality reports of Chicago (and other American cities) as late as 1880. This is probably because it was confused with typhoid. Not during the first quarter and rarely afterwards genuine typhus occurred in this country.

Indeed, it is rarely seen in any civilized country today. At the beginning of the nineteenth century smallpox was so common that few persons reached adult life without having had the disease, and the mortality from it in childhood was great. What is the status of this disease today? I venture to say there are many physicians in this audience who have never seen a case, and that a majority of them have not treated more than four or five cases during their whole professional experience. In the early days of this nation's history yellow fever spread to Philadelphia and New York, and provoked much discussion, for it was feared that it would prove as great a pest as cholera. A careful study of the disease and a consideration of the possibility of preventing it was referred to a committee of the New York Medical Society, which reported that yellow fever may be produced in any country by pestilential effluvia. How different is this conclusion from that of recent students of the subject, who assign to it a specific cause, which is transmitted from man to man by mosquitoes, who are its host.

Cholera has been brought to our shores several times in the last few years, but its spread has been prevented in each case. In Europe it has also been limited to comparatively small areas. Within a year the plague has been found in this country, in Great Britain and France, but has caused little alarm, so great is the confidence that it will be successfully suppressed. (Let us hope that this confidence is not misplaced.)

What has been accomplished during the last one hundred years by internal medicine the following statistics will show in part, although it must be remembered that mortality statistics gathered before the middle of the century are not reliable. It is estimated that in 1805 in New York City from 35 to 40 deaths occurred in every 1,000 inhabitants. During the last decade it has averaged 20 in 1,000, and has been as low as 19 in 1,000. In 1847 the mortality in London from zootic diseases was 23.26%; during the last two decades 19% to 20%. In 1846 the deaths from consumption were 12.67%; now approximately 9%. The mortality from diseases of the respiratory organs has been reduced in the same time from more than 12% to about 7%, and the mortality from diseases of the digestive organs has diminished from about 6% to less than 5%. In Chicago the mortality rate has fallen, with small fluctuations, from 46 and 61 deaths per 1,000 inhabitants in the cholera years of 1852 and 1854, to 11 in 1898. The following diseases are among those in which the death-rate has fallen progressively: Cholera infantum, cramp, diarrhea, diphtheria, dysentery, malaria, measles, scarlet fever and whooping cough. These are ailments the spread of which has been controlled either by isolation or by insuring the people purer food and water. Although the general mortality of Chicago, which is typical of the great cities of civilized countries, has improved, there are some diseases which are increasing in prevalence, notably nervous diseases, heart diseases, cancer,

Bright's disease, bronchitis and pneumonia. To the discredit of my native city must it be said that the mortality from typhoid fever reached its highest point at the close of the century, during 1890, 1891 and 1892, although its cause and its mode of dissemination, as well as its prevention, were well known.

The general lowering of the death rate is due to the improved hygiene of communities. In what the improvement has consisted is best shown by recalling some of the conditions under which people lived in 1800. At that time few cities had an adequate public water supply. In London water could be delivered at any house three times a week by one of the water companies; but most households depended upon wells. The sewerage system was quite as imperfect. Onthouses and cesspools were attached to each dwelling. The conveyance of sewage from houses by water did not become general until well into the last century. Ventilation of buildings, and especially of public halls, had attracted attention before the nineteenth century; but the real causes of danger from bad ventilation were not appreciated until bacteriology disclosed them.

In 1800 streets were not paved, and rarely cleaned. The habits of the people as regards eating and drinking were bestial. Excessively large quantities of food were consumed by all who could provide it. Alcoholic beverages were universally drunk, and generally in immoderate quantities. No disgrace attached to drunkenness; and it was customary for a man to drink several bottles of wine at a sitting.

Those who compose this audience appreciate how much illness must have been caused by these habits, and how much the relative abstemiousness or temperance of today has lessened the percentage of disease.

Prevention of diseases is only possible when a knowledge of their causes, their mode of dissemination, and methods for their suppression is possessed by all the people. Medical men alone cannot stop their spread, nor will the making of laws do it. Only the intelligent co-operation of those who are ill and those who are well can accomplish it. It must not be expected, therefore, that as soon as the cause of a disease is discovered, that ailment can be suppressed. Time is required in which to educate all classes of people on that particular subject. Unfortunately, many persons are so obtuse that they will not believe in methods of prevention, even when the fullest demonstration of their success has been made. A notable instance of this is seen in the recent repeal of laws in England which made vaccination compulsory. The ease with which drinking water may become contaminated, and the danger to health from contamination, is not even now appreciated by the public. It is partly because such thorough knowledge is needed by the laymen that tuberculosis, diphtheria, pneumonia, typhoid fever and similar troubles have not been better controlled in the past. In order that in the twentieth century the fruits of the great discoveries of the last may be

gathered, all members of the medical profession must fit themselves to teach their patients what is known of disease and its prevention. Those who are especially adapted to do so must disseminate their knowledge by popular discourses and essays. When hygiene shall be regarded by all classes as necessary, and as much a matter of course as the use of the railroad, steamboat, the telegraph, telephone, and labor-saving machines, then, but not until then, striking results may be expected.

The wonderful, the revolutionary discoveries made by students of internal medicine during the nineteenth century are not always appreciated as they should be, for their results are often demonstrable only by statistics; and the dramatic rescue of individuals from certain death, which the surgeon at times accomplishes, unfortunately cannot be effected by the therapist. It is not in the nature of his art. Great progress, however, has been made in the use of medicines and remedial procedures. Good reasons can be given for their employment, and their mode of action can be explained. Empiricism no longer governs their use as it formerly did. The placing of therapeutics upon a scientific basis began in the last century, when the physiological effect of drugs was first demonstrated by experiments upon animals.

No field of medical research needs cultivation so much or is more certain to yield a rich harvest than therapeutics. It is surprising that we have not a larger volume of accurate knowledge of the effect of drugs than we do possess. Of late pharmacology has been neglected for studies which have temporarily been more enticing to experimenters, such as bacteriology and experimental pathology. Moreover, a knowledge of these subjects is essential to enable a clinician to apply his therapeutic resources to the mitigation of suffering, the support of strength, and the elimination or destruction of noxious substances. One can safely prophesy that the exact utility and the limitations of drugs and medical procedures will be defined in the present century.

To accomplish this, not only is more knowledge required of the physiologic action of drugs, but also better means of accurately measuring their effects when they are given to patients. We know when pain is relieved we can sometimes measure effects produced upon the heart and blood vessels and temperature. Beyond this we depend for knowledge upon the impressions of physicians, impressions which must be corrected and often reversed by a wide experience. Clinicians possess only a few appliances or methods for the exact study of the sick. It is to be hoped that more will be discovered, and that they will also make it possible to register with accuracy the effect of drugs. When this is accomplished, undoubtedly a smaller number of useful drugs will be employed, but these with greater exactness.

It is true that more drugs are used today than need be, because patients demand them as a fetish; but this will be changed when laymen learn that it is the function of the physician to teach them

what to do to give nature the best chance to effect repair, what to do to make themselves comfortable and to preserve life; when they learn that it is a physician's function to teach them how to protect others from the same ailment, to foretell the possibility of recovery or death, and to avert or forestall complications. Medical men should include time and faith in their materia medica as important means of effecting a restoration of health. I do not mean faith in a fetish procured in an apothecary's shop, but faith in the wisdom, honesty and disinterested devotion of physicians which will enable them to accomplish all that can be done for the suffering.

Although the greatest discoveries in the field of internal medicine have been applicable to the prevention of illness in the masses, much has also been done to increase the chances of recovery of individuals who are sick. I need call attention only to a few of the improvements in treatment which have been effected, to remind you of more. Typhoid fever, which has been a scourge in all civilized countries, and constantly present in all larger centers of population, has not only been greatly lessened,—sometimes even suppressed by improved hygiene, but the chances of recovery of the one who is sick with it have been increased several fold by improved methods of treatment. Twenty-five years ago the mortality from typhoid fever in the hospitals of the world was from 20% to 35%; today it is from 5% to 15%. The better results are due to the cold baths which are used, to a more generous supply of fresh air, to proper feeding, and to protection against, or the prompt treatment of, complications.

One great therapeutic discovery has been made at the end of the nineteenth century—the discovery of antitoxins, the natural antidotes to the poisons of infectious agents. For a very long time it had been known that something developed in the human system during the course of many ailments which gave to the sufferer from them for a variable time immunity from a recurrence of the same disease. Until the existence of parasites and of poisons generated by them was proven, an antitoxin was of course unrecognizable. Moreover, the possibility of such a thing in diseases, one attack of which did not cause immunity to others, was not even suspected. But the diphtheria antitoxin, the most efficient of those of which we know anything, is one belonging to this last group of ailments. The chemical composition of antitoxins is yet to be discovered. Since antitoxin has been used the mortality from diphtheria has been reduced about one-half. The most extensive collection⁴ of statistics gathered from all civilized countries shows that when antitoxin is used on the first day of the disease, the mortality is 5%, increasing rapidly to 30% when used on the fourth day or later. Before its employment, the average mortality of the disease was from 25% to 35%. To effect a still greater reduction in the death rate from this ailment, it is necessary that it be recognized early, and that

⁴ Das Oesterischen Sanitätswesen, 1900, No. 52.

antitoxin be employed more generally as a preventive for those who have been exposed.

That tetanus antitoxin and plague antitoxin are valuable is admitted. Many others, such as pneumonia, typhoid, tubercle, scarlet fever, erysipelas and streptococcus antitoxins are still in the experimental stage. But even though it should be found that few natural antitoxins can be isolated for use as remedies, those already discovered confirm physicians in the hope that specifics will be found some day.

Another therapeutic discovery made at the close of the century which has thrown a flood of light upon some obscure points in physiology and pathology, and has restored to usefulness many who were formerly incapacitated and incurable, is that of internal secretions, and especially the rôle of the secretion of the thyroid gland. Ingredients in the thyroid, suprarenal bodies and ovaries produce as definite effects upon the living body as many extracts from plants or synthetic chemicals. The pituitary body, the thymus, and bone marrow may also have a value as yet undetermined. The rescue of those suffering from myxedema and cretinism by the administration of thyroid is one of the few happy dramatic incidents which fall to the lot of the practitioner of medicine.

That a much larger proportion of recoveries from tuberculosis occur today than formerly is evident from the statistics of this disease, but this lessened mortality is not due to prevention only. Trudeau has estimated that 18% of all persons have tuberculous lesions, because a reaction to tuberculin can be demonstrated in that proportion. This statement is confirmed by Councilman, who states that his autopsy statistics show that at least 17% of all who die have had this disease. But in spite of this prevalence the mortality from the ailment is lessening.

Rabies and tetanus are two diseases which until recently were thought to be incurable. Rabies can be suppressed by killing unowned dogs and by muzzling the rest. Upon this point the following statistics from England are very instructive: In 1887, 217 deaths occurred in Great Britain from rabies; in 1888, 160; in 1889, 312. A muzzling law was then enforced. In 1891 the death rate from the disease fell to 129; in 1892 to 38. The muzzling ordinance was repealed, with the result that in 1894, 248 deaths occurred from mad-dog bites, and 672 in 1895. Again muzzling was made compulsory. The death rate once more diminished to a considerable extent; in 1897 it was 151; in 1898, 17; in 1899, 9; and in 1900, none!

Pasteur's great and wonderful discovery of a method of attenuating the virus of rabies and rendering those who have been bitten by mad dogs immune by rapidly accustoming them to stronger and stronger viruses, has reduced the mortality.

Tetanus, quite common in hospitals formerly, is now prevented by properly cleansing and protecting wounds. It has become so rare a disease

that today most students do not see a case of it during their college course.

The nineteenth century will be known in the history of medicine as the century of experimental medicine, for it is in that field that the greatest discoveries of the age have been made. The names of Pasteur, Koch and Lister will forever be linked with it as representing its greatest achievements. But these achievements would not have been possible had not the physicist perfected the microscope, and had not Virchow and his pupils explored the field of cellular pathology to its farthest limits. Around Virchow's name as a banner will historians gather the achievements in medicine during the early and middle portions of the century, and around Pasteur's those of its close.

If our greatest needs conditioned the growth of knowledge, we could prophesy what will be the great field of research of the twentieth century; but history teaches us that our needs can often not be met until some sister science has grown, or new methods of experimenting have been devised. Therefore, the future must remain a blank to us. However, we are more apt to accomplish what is needed if the problems are kept clearly in mind. We greatly need more exact methods of clinical study, more accurate knowledge of the effect of remedial agents and procedures; but more than all else, we need a knowledge of the changes which take place in the living tissue in health as well as in disease.

The anatomist has resolved the cellular structure of the body; the physiologist, the laws which govern the action of its organs and the chemie changes which are wrought upon its surfaces; the bacteriologist has discovered the parasites that infest, and often destroy it; the pathologist has described the anatomical changes which disease produces; the clinician has linked all these facts together, and has discovered ways of seeing with the intellectual eye disturbances of physiologic function, of determining their cause, and of anticipating the anatomic changes which they will produce. But this does not satisfy us; we want a knowledge of the atomic and molecular structure of cells, of the changes which take place in the atoms and molecules in health and in disease, and of the effect of medicines and remedial procedures upon them. This knowledge chemistry must give us. I feel sure that, standing as we do at the beginning of a new century, expecting greater developments in it than in the last one, we are halting before new discoveries in chemistry, waiting for new methods of studying metabolism in microscopic portions of tissue. When this knowledge is vouchsafed, medicine will make another stride as great as was made when, by the perfected microscope, cellular pathology and bacteriology became possible.

Let us look forward with confidence to the Virchow and the Pasteur of the future.

THE next meeting of the American Medical Association will be held in Saratoga, N. Y.

Original Articles.

SOME OBSERVATIONS ON CHRONIC SEMINAL VESICULITIS.

BY ARTHUR L. CHUTE, M.D., ROF. N.,

*Surgeon to Genito-Urinary Department, Boston Dispensary;
Surgeon to Out Patients, Carney Hospital,*

AND

RICHARD F. O'NEIL, M.D., BOSTON,

*Surgeon to Out Patients, Carney and St. Elizabeth Hospitals;
Assistant Surgeon Genito-Urinary Department, Boston Dispensary.*

THOUGH disease of the seminal vesicles has been recognized for a number of years, it is only comparatively recently, and largely through the work of Fuller, that men have come to appreciate its frequency and importance.

The writers have recently seen a number of cases of seminal vesiculitis at their clinic at the Boston Dispensary, and feel that their observations may be of interest to others.

The disease undoubtedly occurs without urethral disease, but the writers have seen very few cases of that sort, and the present paper deals only with cases following urethritis.

The number of cases found leads us to believe that this disease is much more frequent than it has generally been supposed to be; the writers found 60 cases of seminal vesiculitis among 540 out patients presenting various sorts of genito-urinary disease. It should be said in explanation, however, that we do not treat syphilis, and that the clinic has a wide reputation among gonorrheal patients. This probably gives us a larger proportion of old and chronic cases of urethritis than some clinics have, and consequently a larger proportion of cases of vesiculitis.

Had we made a systematic search in all patients, we probably should have found a larger number of diseased vesicles, but because of the size of the clinic only those patients were examined in whom urethral disease was unusually stubborn, or who presented symptoms suggestive of possible involvement of the vesicles. A point on which the writers would lay stress is that seminal vesiculitis, secondary to urethritis, is seldom a sharply-defined single disease, but is practically always associated with more or less chronic prostatitis and chronic involvement of the posterior urethra.

The symptoms of seminal vesiculitis may be divided, perhaps rather artificially, into direct and reflex. In any given case the symptoms present may all be of the direct type, all of the reflex type, or a combination of both. As a rule in the long-standing cases the reflex, and on the whole more characteristic symptoms predominate. In the recent cases we more commonly have the direct symptoms, which are often not particularly suggestive of the lesion.

Among the direct symptoms are feelings of vague discomfort in the rectum and perineum, which at times become actual pain; pain and discomfort on defecation; persistence of discharge or shreds, in patients in whom stricture and other

gross urethral lesions can be ruled out; particularly suggestive is the persistence of small comma-shaped shreds from the prostatic urethra. Another common symptom is the starting up, without any indiscretion on the part of the patient, of a urethral discharge which had nearly or quite stopped; frequency of micturition is occasionally found, sometimes associated with more or less tenesmus; nocturnal emissions slightly streaked with blood, and the persistence of mucoid discharge from the glands of the urethra. The direct symptoms are for the most part urinary in character, and not particularly distinctive.

The reflex symptoms comprise all the symptoms more commonly ascribed to sexual neurasthenia. There may be suprapubic pain, pain in the back, pain in the head of the penis or at some definite point along the urethra, while the urethra, on endoscopic examination, shows either no abnormality, or none sufficient to give such pain. These pains are often very definite in location, and patients will give the seat of the pain as the same, day after day. Pain along the spermatic cord may occur, and when the disease involves but one vesicle, the pain has been in the corresponding cord.

In the opinion of the writers, the most characteristic symptoms of seminal vesiculitis are the occurrence of irregularities in the function of erection. In the early stages of the disease it is common to have a great increase in sexual desire, which in the later stages gives way to sexual apathy and impotence. In giving their histories, patients with disease of long duration often tell of their former prowess in sexual matters, which they contrast with their present impotent condition. In the earlier stage, patients not only suffer from very frequent nocturnal erections, but the slightest sexual stimulation suffices to bring on an erection which may or may not be accompanied by ejaculation. These erections are usually painless, but when due to the lighting up of an old urethral process, or when a fresh infection of the urethra has been engrafted on a chronic vesiculitis, we may have all the painful elements of chordee combined with the persistence of erection so characteristic of vesiculitis.

Unless one grasps the underlying cause, this sort of chordee is very difficult to control, the usual sedative treatment with bromides, opium, belladonna, hyoscyamus, etc., together with careful emptying of the bowel and hot injection, having little apparent effect. In our experience, these erections have always quieted down very promptly under no other treatment than stripping of the vesicles. We feel that very frequent erections or very persistent chordee is strongly indicative of seminal vesicle disease, as is also the absolute loss of the power of erection in patients who have no lesion of the brain or spinal cord.

While the so-called neurasthenic symptoms, combined with the above-mentioned irregularities of erection are highly suggestive, almost pathognomic of this trouble, the only way in which an

absolute diagnosis can be made is by rectal examination.

For examination the patient should present himself with an empty rectum and a moderately full bladder; he should stand with his feet apart, bending well forward over a chair, and his legs should be straight at the knee. The digital examination can be materially helped by the examiner making suprapubic pressure with his hand, or, still better, with his closed fist; this will crowd the pelvic viscera down so that the vesicles are more accessible. One can considerably increase his reach by putting his foot on a stool and making pressure with his thigh against the elbow of the examining arm.

At first it is a little hard to acquire reasonable accuracy in telling what one feels, and one's ideas of the prostate as it is usually described are rather upset. It is not at all uncommon to find a large prostate in a young man and a small atrophic one in a man approaching old age. In some patients one can feel both the vesicles and ducts when they are diseased; they are enlarged and hard to the touch, and the patient complains of tenderness when they are palpated. In other cases one feels nothing, and the examination will show only unilateral tenderness, or it may be, tenderness on both sides in the region of the vesicles and ducts. In a very few patients with atonic vesicles in which this disease has been of long duration no vesicle can be felt, nor is there tenderness on palpation. In these patients it is impossible to rule out the disease unless, after carefully stripping the vesicles and ducts, one gets none of the detritus so characteristic of vesiculitis. The appearance of this detritus we shall describe later.

The vesicles and ducts of both sides may be involved, but it is more common to have the involvement unilateral. For some reason unknown to the writers the left vesicle has a peculiar predisposition, which is not unlike that of the left testis in epididymitis.

Rarely one finds what feel like concretions in the vesicles. The presence of such a concretion, in one case at least, was not incompatible with relief.

Combined with the above condition of the vesicles and ducts, one finds various irregularities in contour and consistency of the prostate.

It may be very tender, it may be more or less enlarged, sometimes surprisingly so. This enlargement may be symmetrical, but irregular enlargement is most common. It is not uncommon to have the prostate appear to extend up to a point in the median line, which gives it somewhat the conventional heart-shape, with the base below. This is probably really due to exudate over the ducts, which fuses the structures together and makes it impossible to sharply define the true upper border. There may be little circumscribed indurations in the prostate which have not quite the characteristic hardness of carcinoma, but a hardness suggestive of that condition. When vesicles and ducts on both sides are involved, a raised triangular shaped induration may occa-

sionally be felt on the surface of the prostate, the apex being below. When the disease is unilateral, this raised induration may be felt on one side.

A boggy edematous condition of the center of the prostate near the upper boundary is not uncommon. After massage or steady pressure upon such a spot, one finds that a little depression remains in which the pulp of the finger fits. The large edematous and tender prostates usually go with the more recent forms of disease; the hard and shrunken with those of long duration, although this does not invariably hold true.

Almost as characteristic of vesiculitis as the condition felt per rectum, is the material gotten after massage. This material may either drip from the meatus during the stripping process, or be voided in the urine.

The material, when it oozes from the meatus during massage, is milky, and contains masses of various sizes. If we find, on immediate examination of this detritus, that all the spermatozoa are non-motile, this is almost, if not quite, pathognomonic of vesiculitis; on the other hand, the finding of non-motile spermatozoa in the detritus washed out by urine is not decisive, as the spermatozoa very soon lose their motility when in urine.

The urine voided after massage is usually more or less turbid, with a slightly opalescent tint, and in it there are often little caseous-looking masses which are heavy and fall to the bottom of the glass. These are made up of epithelial and pus cells. Another very striking thing is the presence of large, partly rolled plates of mucus. These look like shavings of paraffine, and float about. They soon settle, however, and then, particularly if the urine is acid, very quickly disappear. If these paraffine-like flakes are removed from the urine at once, and their method of vanishing followed, it will be found that they soak up fluid and become transparent, gelatinous masses, which under the microscope show masses of mucus, in the meshes of which are a few leucocytes, some epithelial cells, and at times many spermatozoa, as well as various bacteria.

The treatment which has given the writers the best results in these cases of vesiculitis is massage of the vesicles and ducts and of the prostate as well. One cannot massage the vesicles without incidentally massaging the prostate to a certain extent; but the writers feel that because of the involvement of the prostate, it should receive definite attention.

For massage the patient's rectum should be empty and the bladder moderately full. He should pass enough urine to wash out the urethra, but should hold some in the bladder. The patient then assumes the position spoken of in examination for the disease. The surgeon introduces his right forefinger, making strong pressure against the perineum. The bracing of his arm, previously described, and strong supra-pubic pressure, are of great assistance. The ducts and vesicles are then gently stroked in a downward direction, using only the terminal phalanx of the finger. The

prostate is then treated in much the same manner, though the pressure used on the prostate may usually be greater than that used on the vesicles, without causing discomfort.

At the beginning of treatment, or when the vesicles are very tender, the time of massage is very short. At first the patients are massaged at intervals of from five days to a week. Later the intervals are longer and the massage more thoroughly done.

In some patients the detritus from the vesicles will be seen to drip from the meatus during massage; in others none is seen until the patient passes the urine retained for the purpose of washing out the urethra. The amount of material thus obtained varies greatly. It occasionally happens that at the first attempt nothing is gotten, while at a subsequent treatment there may be a great deal of the detritus.

During massage a sort of semi-erection is common, also an almost uncontrollable desire to urinate. If the patient, in spite of injunctions, has emptied his bladder, and one finds that he cannot pass urine after massage, it is wiser, in our opinion, to fill his bladder with mild corrosive, permanganate or nitrate of silver solution, and then allow him to pass it. In the majority of cases it is perfectly safe to let him wait until his next micturition; but in a few instances a mild cystitis has followed massage when the refuse has not been washed out at once.

In the greater number of cases the chronic prostatitis and the chronic posterior urethritis need no attention other than the massage.

In some patients, however, when the disease has been of long duration, and presumably accompanied with more or less round cell infiltration in the submucous tissue of the deep urethra, dilating with Oberlaender's or Kollmann's dilator seems to have a beneficial effect. Of these two instruments the Kollmann, while much the more expensive, is in our opinion vastly superior. It apparently opens the mouths of the glands of the prostatic urethra, and allows any solution to enter them freely. It is also probable that the pressure exerted on the infiltrated submucous tissue aids in absorption. With this dilation we use rather strong solutions (5%) of nitrate of silver applied with a deep urethral syringe. In some cases they seem to aid materially; in others they have been badly borne and had to be given up. Hot rectal irrigations through a double current tube have given a good deal of benefit in some cases; in quite a proportion they seem to have no effect; in a few they seemed to aggravate matters, and had to be omitted. We have used the various balsamics in conjunction with massage in a number of patients, though we are yet to be convinced that they are of any real benefit. Tonics and hygiene have in this condition a distinct though entirely secondary place.

The treatment which is of greatest benefit and apparently curative, so far at least as subjective symptoms go, is the mechanical emptying of the diseased vesicles and ducts.

The writers wish to utter a word of warning against the treatment of vesiculitis by regulated sexual intercourse. This treatment they have lately heard advised, and it would probably appeal to many patients.

In the impotent cases with atonic vesicles it is of course out of the question. In the cases in which it seems plausible, namely in those suffering from frequent erections and emissions, it has proven itself useless. Had it been curative we should not find the atonic cases, as most patients would have cured themselves during the early stages when the sexual appetite is so stimulated that they often commit great excesses. The failure of this treatment is due to the fact that the diseased vesicles do not empty themselves during intercourse.

The writers have examined two patients the day after they had, against advice, indulged in coitus. These men had been under treatment regularly, and the amount of detritus did not vary to any extent from the usual amount. To allow sexual intercourse occasionally when the treatment is pretty well advanced seems to us probably not harmful, but to advise it as a therapeutic measure is, we think, a great mistake.

As to the results obtained with these cases: a few who have had no subjective symptoms for some time have been discharged. It depends on one's definition of the word "cure" as to whether they could be styled cured. If one demands only that the subjective symptoms shall have disappeared, they are cured. If one demands that the prostate and vesicles shall have become normal in appearance and that there shall be no detritus from the vesicles, they are not cured.

A great many have disappeared without being discharged, having become very much better, so far as subjective symptoms go, although without a corresponding improvement objectively.

One patient who had not had an erection for some two years has become so that erection takes place with about normal frequency. Men who have had vague pains for a long time have gotten rid of pain. Several suffering from abnormal frequency of erection have improved. Many men having urethral discharges of long duration are well. Marked improvement has been noted in the mental attitude of those patients in whom the neurasthenic element was very noticeable.

Coincident with the improvement in symptoms, there is often a marked improvement objectively: the ducts and vesicles become less tender and less easily palpable; the detritus grows less; the big and soggy prostates, as well as the hard and atrophic ones, tend to become more normal in contour and consistency, the big prostates decreasing in size and the small prostates increasing.

The more recent cases do best, as would be expected, and the younger patients, with a few exceptions, improve much faster than those above forty.

We think we may expect that all cases of vesiculitis can be greatly benefited by careful treatment.

In the majority the subjective symptoms can be made to disappear for at least a considerable time. For the older patients, especially for those having disease of long duration, we feel that massage will probably have to be used now and then, that they may be kept comfortable. They are much better for a few days immediately after massage than they are a little time later. Even if these patients are benefited only temporarily, the treatment is well worth while.

In the opinion of the writers it is probable that a certain number of the cases of impotence and many of sterility are due to vesiculitis; this gives its treatment a wider importance than the mere remedying of the discomfort the patients suffer.

We would strongly advise the examination by rectum of all patients with urethral disease, recent or of long duration, in which the disease is not progressing favorably, particularly of those showing the so-called neurasthenic symptoms.

As the writers have attempted merely to give their own clinical experience with seminal vesiculitis, they purposely have omitted the subjects of etiology and pathology, and have not attempted to compare their observations with the experience of others.

IODOPHILIA.¹

BY THEODORE DUNHAM, M.D., NEW YORK.

I HAVE ventured to coin this word to designate a reaction which occurs in the blood under certain pathological conditions. I bring this subject before you because this reaction has been a definite help to me in diagnosis, and I feel that it deserves a more extended use than it has yet received. The cases in which it gives aid are those of doubtful suppuration and doubtful pneumonia. We are not infrequently confronted with cases of appendicitis where an additional aid to the early recognition of pus would be of the greatest value; and there are other cases of deep-seated trouble with doubtful physical signs where an additional means of throwing light on the presence or absence of pus would be a great help. Pneumonia is often difficult of recognition during the first few days after the onset. An additional aid in diagnosing it during this stage would be of real value.

Let me say a word about the technique of the reaction and then speak of its clinical bearings.

The technique is very simple. It consists in the staining and examination of a spontaneously dried blood smear. The smear need not be stained at once, but will be good for use several weeks at least after making. It is thus possible to make the smear at the bedside and send it to the laboratory for staining and examination.

Only one solution is required, and this is made up as follows: Three parts of potassium iodide are dissolved in one hundred parts of water. In this is dissolved one part of iodine. The result-

ing solution is thickened to a syrupy consistency by the addition of lumps of gum arabic and occasional shaking until they are dissolved. The blood smear is mounted in a drop of this syrup and a bit of filter paper placed at an edge of the cover glass to absorb the excess of fluid. The specimen is then ready for examination by an oil immersion lens. When blood is treated in this way the lymphocytes and the eosinophiles are not affected by the stain. In normal blood the polymorphonuclear neutrophils are either unaffected or their protoplasm is tinged a faint pinkish or brownish color. Under some pathological conditions, however, the protoplasm of a certain proportion of the polymorphonuclear neutrophils takes on a reddish-brown coloration. The mode of coloration differs in different leucocytes; in some it is a diffuse stain; in some a granular network; while in others the color is confined to large or small refractive granules, varying in tint from a light pink to a dark red. Where one or more such leucocytes can be found in a search of a few minutes we have the condition to which, for the sake of brevity, I have ventured to give the name "iodophilia."

It is apparently always present in progressive suppurations and in progressive pneumonias. It may also occur in a few other diseases, but they are fortunately easy of recognition in other ways and not to be confounded with abscess or pneumonia. I will refer to them later. First, let us consider the iodophilia of acute suppuration. The intensity of the reaction is said by other observers to be closely related to the intensity of the process, and I have found this to be true in the cases I have examined. Small abscesses will, however, if the process be active, give a distinct reaction. In cases of so-called tubercular abscess the reaction is absent. Abscesses caused by the germs of acute suppuration, but which are well walled off and have assumed an indolent course, rarely give the reaction. If, however, the process lights up again, the iodine reaction is said to return. Goldberger and Weiss, from an examination of a considerable number of other diseases as well as of abscess, reach the conclusion that a distinct intracellular iodine reaction, even if made out in only a few leucocytes, warrants the conclusion that there is present a progressive suppurative process. In reaching this conclusion, of course the few other lesions which give rise to iodophilia must be excluded.

I shall not weary you with details of all the suppurative cases in which I have tested for iodophilia. Suffice it to say that I have found it in every case where the abscess was of any size and the process of any virulence. I will speak in detail of only 3 cases in which the finding of iodophilia was an aid in reaching a correct diagnosis.

D. K., age seven and one-half months, was admitted to the Babies' Wards of the Post-Graduate Hospital with an adenitis of the neck. No previous history was obtained. The process was not acute, and at first I thought the gland tubercular. The leucocytes were 19,700. Iodophilia was very

¹ Read before the Warren Club, of Boston, March 28, 1901.

striking in some leucocytes. At operation I found the gland had broken posteriorly, and my finger passed in the pus cavity between the spine and the upper part of the trachea. The pus showed streptococci.

A. M., a girl of thirteen years, was admitted to the service of Dr. Joseph D. Bryant at Bellevue Hospital, suffering from a not very acute appendicitis. She had had right iliac pain for five days. The leucocytes were only 12,200. The iodine test showed diffuse browning of many leucocytes, and a few contained brilliant iodophile granules. Here the leucocytosis was low, but the iodine reaction pointed to pus. The case was operated upon three hours later, and a considerable amount of pus was found.

M. K., a boy five years old, was admitted to the Babies' Wards with a history of excellent health until three months prior to admission. His illness began with general misery, soon followed by a marked jaundice. The jaundice lasted several weeks. When it disappeared he was still sick and had fever. For a time he was treated as a typhoid. Then his disease was diagnosed as appendicitis. Finally a tumefaction was discovered in the region of the gall bladder. When I first saw him he was in a rather low condition, running a very erratic temperature which fluctuated between 99° and 105°. In the neighborhood of the gall bladder was a tumor, very hard, rather tender, and just visible to the eye. I found the leucocytes 21,800. A blood smear showed a number of iodophile leucocytes. On opening the belly I found what the iodophilia would indicate: an abscess. It was the size of a pigeon's egg, in the substance of the liver near its margin, and about three-quarters of an inch from the surface. The pus gave a pure culture of *staphylococcus pyogenes aureus*.

In the 3 foregoing cases the presence of iodophilia helped either to make or clinch the diagnosis.

Let me now speak of the relation of iodophilia to pneumonia. Other observers say that the iodine reaction occurs constantly in pneumonia. I have found this to be true in the cases which I have examined. The reaction would not be of great value in pneumonia if it were present only when consolidation was so far advanced as to give a typical picture of the disease, for then the usual diagnostic signs are sufficient. But in 2 cases where I examined the blood at an early stage, before physical or other signs were specially suggestive of pneumonia, I found a well-marked iodophilia. This early appearance of iodophilia in pneumonia I have not seen referred to by others, and know of it only from the two instances where I looked for it. If it proves to be uniformly present soon after the onset, iodophilia will be one of the earliest diagnostic signs of pneumonia.

I will cite 3 cases in which I had failed to diagnose pneumonia prior to finding iodophilia, but where a pneumonia was subsequently proved to exist.

S. Di M., age forty-seven days, was admitted to my service at the Babies' Wards in a moribund condition. The left femur was the site of an ununited fracture which had probably occurred at birth. The child had been artificially fed and poorly cared for. Respiration was feeble. I could make out nothing abnormal in the lungs. The blood showed iodophilia. At the autopsy there was found a bronchopneumonia of the left lung.

E. K. D., age forty years, was taken suddenly with chilliness, intense facial pain, sore throat, and a temperature of 102.5°, apparently an attack of grippé. In the evening of the second day his temperature was 104.3°, and Dr. Janeway, who saw him in consultation with me, found a suspicion of râles in the right lower lobe. In the morning of the third day I found as light pleuritic friction at one spot over the right lower lobe. At noon I examined the blood for the first time. There was a leucocytosis of 27,600 and iodophilia was present. Later in the afternoon Dr. Janeway found the signs of a coming pneumonia of the right lower lobe. That night there was rusty expectoration, and the sputum contained pneumococci. Solidification progressed.

C. T., a boy age three years, was in my service at the Babies' Wards under treatment for stricture of the œsophagus. His general vitality was low, but he was up and about the ward. One evening his temperature shot up to 105° without other noteworthy symptoms. The next morning it was 104°, and in the afternoon again 105°, with the pulse 180 and the respiration 38. Examination of the chest was negative. I found a leucocytosis of 55,800 and a well-marked iodophilia. On the strength of these findings I suspected a beginning pneumonia. A day and a half after I had found the iodophilia, signs of partial consolidation showed in one upper lobe. He ran a regular course of lobar pneumonia, the fever continuing high for five days.

In these 3 cases the finding of iodophilia was a help in diagnosing the presence of pneumonia. Two of the cases showed it to be an early sign.

As I have already said, certain diseases must be eliminated from the diagnosis before one concludes that iodophilia implies the presence of pus or pneumonia. Hofbauer at Neusser's clinic in Vienna found that iodophilia occurred in certain grave blood diseases. In 18 cases of chlorosis he failed to find it. In 18 cases of secondary anemia he found it in 2, but one of these was complicated by pyothorax and the other by gonorrhœal adnexa, and its presence was probably due to these complications. But in really grave anemias, as that associated with cancer of the stomach, severe chronic intoxications, etc., where the blood picture approached that of pernicious anemia, he regularly found a greater or less number of iodophile leucocytes in the 7 such cases he examined. In advanced pernicious anemia and in leukemia he also found it. I found it very marked in the one case of leukemia which I have examined in this way.

As iodophilia is a natural accompaniment of these diseases, in them its presence throws no light on the existence of pus or pneumonia. During an examination with the iodine test these grave blood diseases would surely be recognized. With their elimination, the finding of iodophilia points to acute suppuration or to pneumonia.

Clinical Department.

CONTRIBUTIONS FROM THE LONG ISLAND HOSPITAL, BOSTON HARBOR.

CYSTIC TUMOR OF MEDIAN NERVE; OPERATION: RESTORATION OF FUNCTION.

BY A. S. HARTWELL, M.D., BOSTON,
Assistant Superintendent and Physician, Long Island Hospital.

A WOMAN, eighteen years old, was admitted to the Long Island Hospital November 15, 1900, said to be suffering from syphilis. The history dated back four months, and was in substance as follows: An eruption on the chest causing much itching, and a swelling at the right elbow, just above the joint, which was increasing in size and tender.

Examination showed a freely movable tumor at the inner edge of the biceps muscle on the right forearm, about 5 cm. above the joint.

It was about the size of a chestnut. Moving it about caused tingling down the forearm and into the hand through the distribution of the median nerve, in which there was also loss of sensation to touch and pain. There was likewise considerable paralysis of motion. A diagnosis of tenia versicolor of the chest was made, and the swelling was thought to be a tumor of the median nerve. Syphilis was ruled out.

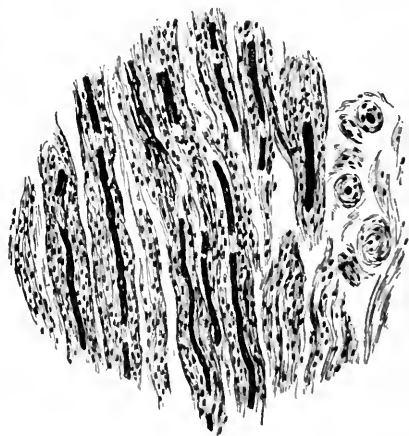
Operation showed the following condition: The median nerve was enlarged to a fusiform-shaped tumor 4 cm. long by 1.75 cm. wide. The fibres were separated, and between them and in the center of the tumor was a clear, colorless fluid somewhat thicker than water. Tearing the fibres apart, the fluid easily escaped, leaving the nerve slightly enlarged and edematous, but otherwise apparently normal. A small piece of the nerve was removed for examination and the wound closed.

It healed readily, and there was considerable pain in the arm for several days following the operation. Ten weeks after operation there was no return of the tumor, no pain or sensory disturbance, and, excepting slight weakness in the arm, it appeared to be normal. The skin eruption disappeared upon application of local treatment.

Pathological examination.—Examination of a portion of the nerve excised showed macroscopically no changes. Sections stained by the Weigert hematoxylin method show a considerable separation of the individual fibres, a very marked thickening of the sheaths of Schwann, and an almost complete disappearance of myeline (see fig-

ure). The axones cannot be clearly distinguished in a section stained by Van Gieson's picric-acid-fuchsin solution. A nuclear stain (hematoxylin) shows a very considerable proliferation of cells of the connective tissue surrounding nerve fibres, but nowhere is a distinct new growth to be made out. The nerve, in general, presents the appearance of edema, with proliferation of connective tissue elements and degeneration of nerve fibres. It may be surmised that the pressure exerted on the nerve by the presence of the cystic tumor secondarily led to the intrinsic alterations of the individual nerve bundles.

The case is again interesting from the fact that the patient was sent to a physician previous to her admittance to the hospital, who pronounced the affection syphilis, because, as the patient stated, of the rash on the chest and an enlarged gland at her elbow. The relatives with whom the patient lived were told of her supposed condition, which resulted in her being sent away from home



in disgrace. The injustice of so openly declaring a case to be one of syphilis, without the most convincing evidence, is well illustrated here.

The patient was again seen May 27, 1901. The improvement following the operation has been continuous; she has gained 12 pounds in weight, and is able to use the affected arm for all purposes, noticing only a somewhat increased awkwardness in making finger movements. Gross strength is essentially unimpaired, and all movements of the hand and arm are possible. There is still considerable tenderness over the scar of the operation, and occasional radiating pain in the forearm, especially on exertion. Sensation is objectively impaired only in the terminal phalanges of the middle finger of the right hand, in which there is almost complete loss of the temperature, pain and tactile senses. Examination with galvanism shows a good reaction from the

median nerve above the seat of operation, a slight quantitative diminution of excitability in the flexor muscles of the forearm, and a complete reaction of degeneration—slow response, AnC greater than CaC.—in the small muscles of the thumb. The patient regards herself as essentially well, and there is certainly no present evidence of a return of the cystic tumor.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY F. B. LUND, M.D., BOSTON.

THE IMMEDIATE AND REMOTE RESULTS IN ONE HUNDRED CONSERVATIVE OPERATIONS ON THE OVARIES AND TUBES.

BURRAGE¹ reports the results in 100 cases of conservative operations upon the ovaries and tubes which have been under observation a year or more after the operation.

Classing as conservative operations all those in which an operation upon the appendages being performed (not including suspension of the ovaries or hysterectomy), one ovary, a portion of an ovary, or one tube or a portion of one tube, was left behind, he had performed 156 operations with 3 deaths.

During the early operations marked enlargement of resected ovaries had been noted in the weeks immediately following operation, the enlargement disappearing in the course of time, but being attended by pain. These phenomena had latterly been less frequently noted, and the writer thought the enlargement to have been due to hemorrhage from the free puncturing of cysts without careful hemostasis, and due to hemorrhage as well as trauma. Pelvic inflammatory exudate about ovary and tube had been noted in a few cases following resection of a closed tube, these being old gonorrheal cases which had suffered repeated attacks of pelvic inflammation.

In other respects convalescence from operation had been as uneventful as in other similar operations where ovaries and tubes had not been resected. As a general rule, conservative operations require for their performance a somewhat longer time than radical operations, a fact which should be remembered in operating on enfeebled patients.

The greatest interest centres in the late results of the preservation of ovarian and tubal tissue. In the instances where the writer has left an ovary or part of an ovary in doing hysterectomy, the symptoms of the artificially induced menopause have seemed to be lessened. There is a possibility of pregnancy occurring in the tube or the abdominal cavity where the uterus has been removed and the ovary and tube left, and such an instance has been reported.

In summarizing his 100 cases, the writer finds a symptomatic cure in 73, and no relief in 27. From

the fact that a large number of the patients were pronounced neurasthenics, and from the difficulty of estimating the relative share of the sexual organs and the nervous system in the symptom complex, the writer thinks that too much weight ought not to be attached to these figures.

Anatomical cure (ovaries and tubes normal to feel, and well placed) was noted in 44 out of 69 cases which came under observation, or 64%. Some enlargement or prolapse of ovaries and tubes was found in the remaining 25 cases. Pregnancy following operation occurred in 19 cases. In no instance, however, did pregnancy result after resection of a closed tube, both tubes being closed at the time of operation.

After correcting his tables by deducting from the list of married women those who afterwards had oöphorectomy or hysterectomy performed, who became widows or took measures to prevent conception, and adding those who became married after operation, Burrage found that 32 $\frac{7}{10}$ % became pregnant. All of the cases of subsequent pregnancy except 3 had been pregnant before the operation, so that 34 $\frac{1}{2}$ % of those who had previously borne children became pregnant after operation, while only 6 $\frac{1}{2}$ % of those previously sterile subsequently became pregnant.

Several of the unsuccessful cases were in women over thirty-five years old, with extensive, long-standing tubal and ovarian disease; it would seem less desirable to subject such cases to conservative operations than the younger women with the same trouble, for at this time of life the patient is suffering not so much from the ovarian and tubal affection as from the long-continued effects of it. There is little chance that the uterine organs, diseased for many years, will be able to regain an approximately normal condition in the few remaining years of functional activity, both because of the limited time and because the reparative processes of the system are less vigorous than at an earlier age. Therefore these patients either need no operation at all, or one which will entirely eliminate the ovarian function, thus doing away with the monthly pain and discomfort, which are an additional burden to an already jaded nervous system.

As bearing on the question of resected ovaries becoming diseased at some future time, the writer found that out of 85 cases, in only 1 case, a syphilitic, was another operation necessary for subsequent enlargement of an ovary resected for cystic disease.

In 3 instances in which one ovary was removed and cysts punctured in the remaining ovary, another operation was required for disease of the ovary left behind. In 7 other cases a remaining ovary, cystic at the time of operation, was later noted as being large, though causing no ovarian symptoms.

In 5 cases of the extensive purulent inflammatory type, all of them gonorrheal and 3 syphilitic, one ovary and tube being removed in each case, the remaining ovary became diseased following operation, and another operation was indicated,

¹ Medical News, April 13, 1901.

although only one of the patients had actually submitted to it.

In 2 cases a diseased ovary was left at the bottom of the pelvis, once after the removal of the sac of an ectopic pregnancy and once after the removal of a pus tube. Both of these women had suffered pain since the operation, but neither had been willing to be operated upon again.

As far as the writer had been able to determine, the amount of ovarian tissue present had no definite relation to the amount of menstrual flow or the intensity of sexual desire and gratification.

The most unfavorable cases for conservative operations are the pronounced neurasthenics who are approaching the menopause, patients with long-standing gonorrhoeal infection, and those having both ovaries thoroughly riddled with cysts.

REPEATED EXTRA-UTERINE PREGNANCY.

Varnier and Sens² present the following conclusions derived from the study of 65 reported cases of repeated extra-uterine pregnancy, in 36 of which the diagnosis was established absolutely by the finding at the operation of either the fetus, chorionic villi or decidua.

(1) Repetition of an extra-uterine pregnancy is much more frequent than is at present recognized. It ought to be made a most important factor in the prognosis as to continued health which is made in these cases, for there is a distinct tendency to repetition in this disease.

(2) This recurrence almost always takes place in the opposite tube, it having been noted in the same tube only once in the 65 cases. In 43 cases of recurrence in which mention is made of the tube which was the seat of the first attack, we find that this first pregnancy involved the left tube 16 times and the right tube 27 times.

(3) The time which elapsed between the first and second pregnancy is noted in 56 cases; the time noted, however, being generally that which elapsed between the first and second operations for the condition, and varying between six weeks and twelve years.

(4) In only 6 out of the 65 cases did a normal pregnancy intervene between the ectopic pregnancy and its recurrence. Only 3 times did this intercurrent normal pregnancy go on to full term; in the 3 others a miscarriage occurred.

(5) There seems to have been a tendency on the part of the recurrence to follow the same type with reference to location, method of evolution, etc., as the first attack. In a number of cases both ectopic pregnancies went on to an advanced period, in close resemblance to normal pregnancies, without pain, hemorrhage or peritonitis, until false labor, with retention or expulsion of the dead fetus, established the diagnosis.

(6) In regard to the few reported cases in which ectopic pregnancy is alleged to have occurred three times in the same patient, a careful analysis fails to show that in these cases the diagnosis has been established beyond question, although it is not impossible for such a case to

occur, as it has been demonstrated that ectopic pregnancy may take place twice in the same tube, even when the tube has been ruptured the first time.

(7) Leaving out of account, however, the very exceptional cases in which the same tube is twice affected, the fact remains established that when ectopic gestation has occurred in one tube, there is a distinct tendency to its recurrence on the opposite side; and the question must be asked: What is the analogous condition of the tubes which predisposes them to become the seat of ectopic pregnancies? One is led naturally to believe that the tubes successively affected present some identical predisposition, either congenital or acquired, which might be discovered by a careful examination of the unaffected tube at the laparotomy performed for the relief of the first attack. Unfortunately, however, the shortness and inaccuracy of the reported observations renders the establishment of any generalization upon this point difficult. In an effort to analyze the reported cases with regard to this question, the writers are able to get some facts of value, and their conclusions follow:

(1) In 51 cases in which the previous history is given, 40 concerned multiparæ and 11 nulliparæ. We have, then, 11 cases in which the genital organs have been abnormal in function from the first. This abnormality was repeated by a recurrence of the same sort in 2 out of the 11; in one of them, that of Duff, an abortion at nine weeks intervening between the 2 ectopic pregnancies. In 2 of these women, after five and seven years of sterile married life respectively, ectopic pregnancy occurred in both tubes successively. It is in cases such as this that Freund's hypothesis of "bilateral arrest of development of the tubes preventing the descent of the fecundated ovum, and arresting it in one of the infantile sinuosities of the oviduct," appears reasonable.

But of the 7 cases of this group in which two laparotomies were performed, in only 1, that of Boisleux, was the condition of the non-gravid adnexa noted during the first. In Boisleux's report he states that "the tube and ovary on the left side appeared normal."

Brosin, who did not examine the condition of the opposite adnexa at the first laparotomy, but did examine the specimens removed, states his opinion that in his case it was improbable that the second ectopic pregnancy was in any way due to the conditions resulting from the first,—at least there were no adhesions found, either to the parietal incision, to the pelvic wall, or to the viscera. He found abnormal sinuosities and complicated windings of the lumen of the first tube below the dilated portion, and is inclined to the belief in a congenital cause for both pregnancies. There is so little evidence on this point that the importance of careful observation of the non-gravid tube at a laparotomy for this condition in a multipara is evident, and such observation ought to be practiced in every case.

² Ann. de Gynæk. et d'Obstet., March, 1901.

(2) In case of recurrent ectopic gestation in women who have previously gone through normal pregnancies, we are led to think of changes resulting from puerperal peri- or endo-salpingitis arresting the descent of the ovum. In these cases note of the condition of the opposite tube was made only 8 times, and in 2 of these the statement is made merely that the tube was "diseased." Falk found at his second laparotomy he had to deal with bands and sheets of old adhesions resulting from the first operation, and is inclined to attribute to these a causative relation to the second attack.

Lindblom operated in 1896 upon a woman who had had five normal pregnancies, followed in 1895 by a retroflexion, endometritis, and right oöphoritis for which vagino-fixation was performed. At the laparotomy the tube and ovary were found surrounded by firm adhesions, which confirms the hypothesis that pathological conditions of the tube are a frequent cause of abnormal implantation of the ovum.

In the six other multigravidæ, where the opposite tubes were examined, they were reported healthy. It seems not improbable that the adhesions due to the organization of the exudate about the tube removed at the first operation may be the cause of the second pregnancy. To those who object that ectopic gestation does not follow removal of a single tube and ovary for other causes, the reply is made that such operations are done either for a simple ovarian cyst, in which practically no peritubal adhesions on the opposite side would result, or a salpingitis, in which lesions of the mucosa on the side preserved would prevent impregnation.

On the other hand, the statement that the opposite tubes were found "healthy" at the first operation does not prove much, for the reason that alterations of the mucous membrane, or an occlusion, might escape such observation. As to endosalpingitis, many authors consider it incompatible with impregnation, and Bland Sutton makes the paradoxical statement that a healthy tube is more likely to become impregnated than one which has been inflamed. Others (Boldt, Martin, Dührssen) state that a catarrhal endosalpingitis, if of slight character, favors the occurrence of ectopic gestation.

The writers, in conclusion, call attention to the real poverty which prevails amid the apparently rich store of observations which have been accumulated of recent years, and urging the attention of future observers to the undecided points.

(To be continued.)

BETWEEN 1892 and 1894, inclusive, according to the *Philadelphia Medical Journal*, there were 1,475 deaths from cholera, while the number of deaths from tuberculosis during the same period reached 10,650. The annual mortality from tuberculosis all over Russia is between 360,000 and 450,000, while the number of persons affected with the disease is estimated at 2,000,000 to 2,500,000.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

ABSTRACT REPORT OF THE SIXTEENTH ANNUAL MEETING, HELD AT WASHINGTON, D. C., APRIL 30, MAY 1 AND 2, 1901.

(Concluded from No. 23, p. 564.)

SECOND DAY.

STUDY OF BUBONIC PLAGUE.

DR. FLEXNER considered the pathology of this affection. He said that the glandular enlargements could not be mistaken for those occurring in any other disease. The bubonic condition is characterized by a peculiar hemorrhagic edema, which is not limited to the gland, but involves its surrounding tissues for some distance, and shows numerous foci of necrosis. The enlargement is due to multiplication of the cells normally present in the gland, in addition to the edema, and to the enormous growth of bacteria, which is greater than in any other disease, with the possible exception of the skin lesions of leprosy. The necrosis is due to the presence of toxins and bacilli in the blood vessels.

The pneumonia is usually lobular in character, and the exudate contains enormous numbers of the bacilli, making up a very considerable part of the material which fills the alveoli, and produces the consolidation. The changes in the spleen are those of acute splenic fever, and the organ is enlarged occasionally to five times its normal size.

He said that he expected to hear soon that plague has disappeared from San Francisco, and that the statement, when received, will be reliable, in that it will be based upon bacteriologic demonstration; for the city and State authorities, acting with the United States Government, have carried out the recommendations of the commission for the erection of a public mortuary, and for the establishment of a retention camp, in which suspected cases will be kept under observation.

DR. STERNBERG, in the discussion, attributed the very prompt suppression of the San Francisco epidemic to the fact that there were on the spot trained bacteriologists, with laboratories at command, who promptly recognized the disease. He referred to the conditions existing twenty-five or thirty years ago, when a most serious epidemic would have most probably followed the entrance of a case into this country.

DR. PARK related the history of two cases of plague which recently entered the port of New York on a coffee-ship. They were of a mild type; both got well, and no other cases followed.

DR. VAUGHAN reported a case occurring at Ann Arbor, where a student, working with Dr. Novy's cultures in the laboratory, infected himself. The student was promptly isolated, together with those of his associates who had been near him; his room was disinfected, and the laboratory closed. The patient's condition became very serious, and required the most vigorous use of the antiplague serum. Recovery followed.

DR. DOCK exhibited the temperature chart of this case, and explained its clinical history. It was of the pneumonic type, and the more acute stage was followed by a prolonged heart weakness.

DR. BARKER congratulated the Ann Arbor physicians on their prompt recognition of this case, and upon their successful efforts to prevent an epidemic, as well as their saving the patient. He added, that probably all cases of plague are contagious, and that attendance upon such cases, and the making of autopsies, are both attended by a certain amount of danger. Patients with the pneumonic type of plague should have their mouths covered by a fine veil, and anyone going near them should cover his own mouth and nose with a fine sponge.

DRS. WALTER REED and JAMES CARROLL, U. S. Army, read papers on

EXPERIMENTAL YELLOW FEVER.

DR. REED gave a detailed account of his recent work in yellow fever, adding the histories of a number of cases not heretofore recorded. As in the first instances, however, they show very definitely that the poison of yellow fever is carried in the circulation, and can be transmitted from one person to another by mosquito inoculations, or by direct transmission of the blood hypodermically.

DR. STERNBERG, in the discussion, referred to the importance of these demonstrations, which have made clear a number of facts that have heretofore seemed contradictory. For instance, ships arriving from Havana, without any cases of yellow fever aboard, would be unloaded by stevedores, a number of whom would soon develop the fever. It is now clear how they succeeded in disinfecting such ships by sulphur dioxide. The burning sulphur destroyed mosquitoes hanging about on the ship's timbers; whereas, it could not have produced disinfection if it were necessary to penetrate the cargo. This work also explains how yellow fever was contracted from passing ships, with which no communication had been held.

DR. STERNBERG referred to his own work in the effort to determine if there was anything in the blood of yellow fever patients that would give the disease to others, and said, that now that the intermediate host had been discovered, he hoped it would not be long before the parasite itself was isolated.

DR. WELCH congratulated Dr. Reed on the success of his experiments, and called attention to the American soldiers who had so nobly assisted the work by submitting themselves as experimental subjects, saying that they deserved to be known in the history of the army and in medical circles as true heroes.

DR. JAMES EWING, of New York, reported

A CASE OF MALARIAL NEPHRITIS, WITH MASSING OF THE PARASITES IN THE KIDNEY.

Microscopical examination of the kidneys of fatal cases of malaria yielded evidence of three

main types of acute renal lesions occurring in this disease: (1) Acute degeneration of toxic origin, often reaching a degree in which exudation of blood serum into the tubules is added, is responsible for the vast majority of the cases of albuminuria in malaria; (2) an extreme form of acute degeneration with focal necroses, which is seen in cases of hemoglobinuric malarial fever; (3) massing of parasites in the renal capillaries with extreme degeneration of parenchymatous cells, hemorrhages and exudation into the tubules. This is seen only in severe estivo-autumnal infections.

DR. WALTER B. JAMES, of New York, read a paper on

SEPTIC INFECTION THROUGH THE STOMACH AND DUODENUM.

It is generally assumed that septic poisoning rarely takes place through lesions of the stomach and duodenum. Influences that operate against such are the inhibiting effect of the gastric contents upon bacterial growth, and the effective protective mechanism supposed to reside in the liver and to operate upon such elements as find their way into the portal stream. The author was led to inquire into the subject through the occurrence in his practice of several cases in which the clinical picture, and in some instances the results of the post mortem, pointed to the existence of septicemia, where it seemed probable that the portal of entry for the infecting organisms had been lesions of the stomach or duodenum. Dr. James reviewed the recent work to show that the evidence proves that the stomach and duodenum practically at all times contains large numbers of bacteria that are taken with the food, and are in an active state capable of exerting their peculiar influences and producing a septic condition should a solution of continuity take place in the mucous membrane. Illustrative cases were given to show that severe and even fatal septicemia may have its starting point in an ulcer or similar erosion in the mucous membrane of the stomach.

DR. KINNICUTT said that he had long believed and taught that the fever so frequently noted in ulcer and cancer of the stomach is the result of infection from the gastric lesion. Another observation which tended to confirm this opinion was the presence of some of the less grave conditions of infection, such as suppuration of the parotid and other glands occurring in ulcer cases.

DRS. J. H. MYSSER and N. B. GWYN, of Philadelphia, reported

TWO CASES OF STREPTOTHRICAL INFECTION: (1) BRONCHOPNEUMONIA; (2) ABSCESS OF THE BRAIN.

The first case was one of bronchitis of several weeks' duration, due to a mixed infection and terminating in bronchopneumonia. The sputum showed micro-organisms having the characteristics of streptothrix, and also of the branching forms of tubercle bacilli. Inoculations and cultures did not show them to be tubercle bacilli.

The second case was that of a young man in whom the clinical features of tuberculous tumor of the brain and meningitis were present. There were no localizing symptoms. The patient had epileptic convulsions, and after an illness of one week died in coma. The spinal fluid was negative. At the autopsy a small abscess was found in the frontal lobe, which contained foul pus, in smears of which the streptothrix was found.

Dr. FLEXNER referred to a case similar to the first one which he had reported a few years ago from the Johns Hopkins Hospital. That case also strongly resembled tuberculosis, but the streptothrix was found on examination.

Dr. ABBOTT remarked that he had also encountered these organisms, and found some difficulty in distinguishing the condition from tuberculosis.

Dr. MCPHEDRAN gave an

EXHIBITION OF A URINARY SPECIMEN.

The specimen was obtained from a neurasthenic patient and was of a dark blue color. Chemical examination showed the coloring matter to be an indigo.

Dr. E. TRUDEAU presented a

REPORT ON A CHEMICAL STUDY OF THE TUBERCLE BACILLUS.

An assistant of Dr. Trudeau's recently started a chemical analysis of the tubercle bacillus and obtained some very interesting results. He found the organism to be composed of about 30% of wax, which is undoubtedly the part which takes up the stains. The outside coating consists of cellulose, and he also found three proteids from which he separated a nucleic acid. A coloring matter of light pink shade was obtained, and he was inclined to believe that the products of the nuclear proteid are the active portions of the organism. A glycogen was also isolated from the bacillus.

Dr. VAUGHAN described a

NEW FORM OF INCUBATOR.

devised for the purpose of cultivating enormous quantities of bacilli for chemical study.

AFTERNOON SESSION.

This session was called to order by the vice president, Dr. WOLCOTT.

Dr. WM. A. PARK, of New York, read a paper entitled

TO WHAT EXTENT IS URINE A SUITABLE SOIL FOR BACTERIAL GROWTH.

As the result of numerous tests it was found that the best growths occur in the neutral or slightly acid urines, but still there are certain urines that, without regard to the reaction, will not permit the growth of any bacteria. An effort was made to determine the amount of acid or alkali production by the bacteria. The colon bacillus made some alkali in albuminous urines. The staphylococci

made more in diabetic urines, but the proteus made by far the most, changingsome decidedly acid urines in a few hours into alkaline solutions. The practical bearing of this seemed to be that treatment might be aided in certain infections by keeping the urine decidedly acid.

Dr. F. P. KINNICUTT, of New York, read a paper on

ORCHITIS COMPLICATING TYPHOID FEVER.

Osler observed this complication in only 2 of his first 800 cases of typhoid, and Dr. Kinnicutt reported 2 cases occurring in 889 typhoid cases at the Presbyterian Hospital. Of the cases collected by Eshner, 35 occurred during the period of convalescence, and of these 13 went on to suppuration. Six presented on examination the Eberth bacillus, and only 1 the presence of any other pyogenic organism. Dr. Kinnicutt concludes that it is a rare complication of typhoid origin, which develops late in the disease or during convalescence, and terminates usually by resolution. Suppuration occurs in 25% of all cases. Atrophy of the testicle is a rare sequence and death has not been noted.

Drs. OSLER, SHATTUCK, MUSSER, WILLIAMS and BAUMGARTEN all reported recent cases of this complication observed in their practices.

Dr. F. H. WILLIAMS, of Boston, presented

NOTES ON THE TREATMENT OF SOME FORMS OF CANCER BY THE X-RAYS.

He stated that the risk of producing burns is greater when using the x-rays for therapeutic than for photographic purposes, and their caustic action should be carefully guarded against. The cases he reported have all been examined by pathologists first to determine their cancerous nature. They consisted of epithelioma of the lid and hand and rodent ulcers. The cosmetic results were excellent. The treatment sometimes only requires a few exposures, and it can be conducted without the patient leaving off his usual occupation. The difficulties are that the apparatus is quite expensive and the treatment sometimes prolonged.

In reply to questions from Drs. BOND and PEARSON he said he believed it was the x-rays and not the cathode rays which possessed therapeutic value, and that the interposition of a cloth or any penetrable substance between the patient and the tube made no difference in the action of the rays.

Drs. F. A. PACKARD and J. D. STEELE, of Philadelphia, reported cases of

OSTEITIS DEFORMANS.

Dr. PACKARD analyzed the 67 cases from literature, showing the preponderance of this affection among males and its greater frequency in old age, together with the comparative infrequency of association with malignant tumors as contrasted with the usual text-book statements. He reported a case with the characteristic changes described by Paggett.

Dr. Wm. Osler, of Baltimore, read a paper on
THE SPINAL FORM OF ARTHRITIS DEFORMANS.

He thought we should recognize clinically three different grades of this disease: (1) The form occurring in young children, characterized by enlargement of the spleen and lymph glands; (2) the form in adults characterized by atrophic changes; and (3) the more characteristic form with the well-recognized changes of the disease. Sometimes all the joints of the body are involved, and sometimes only a certain set of joints. He referred to one case in his care where only the feet and hands were involved.

He gave particular consideration to the form in which the spinal column is chiefly involved, and which has raised the question whether some of these cases are not due to diseases of the nervous system. He did not believe they were separate and distinct diseases, but looked upon them as a variety of arthritis deformans, differing only from the other types in involvement of the spine itself, some ligamentous tissue, and the posterior spinal nerve roots.

DRS. STOCKTON and LAMB exhibited

SKELETON SPECIMENS,

showing the bone changes, ankylosis, etc., that results from this affection.

Dr. B. Sachs read a paper describing

CERTAIN TROPHONEUROSES AND THEIR RELATION
TO VASCULAR DISEASE OF THE EXTREMITIES.

He reviewed a special group of trophoneuroses, heretofore generally believed to be due to changes in the nervous system, but in which careful examination of some cases had shown the trouble to have arisen in disease of the vessels rather than the nerves.

Dr. J. J. Putnam, of Boston, gave

PERSONAL EXPERIENCES IN CASES OF JACKSON-
IAN EPILEPSY,

with special reference to the question of treatment by operation.

He considered this form of epilepsy to be the only one that warrants surgical intervention, and he advises it, although neurologists are more conservative on that point now than a few years ago. A focal lesion is not always found, but even in such cases operation frequently does good, perhaps through production of an inhibitory effect and the breaking of a vicious circle.

Dr. F. Forchheimer, of Cincinnati, read a paper on

THE HEREDITY OF APPENDICITIS.

The author reviewed at length the history of several families, and exhibited genealogical charts to show the number of cases occurring in certain families and their evident inheritance. The report was quite convincing, and in discussing the paper, Drs. Blackader and Jacob reported other cases to show a similar family relationship.

THIRD DAY.

Dr. E. L. Trudeau, of Saranac Lake, N. Y., read a paper on

THE IMPORTANCE OF A RECOGNITION OF THE SIGNIFICANCE OF EARLY TUBERCULOSIS IN ITS RELATION TO TREATMENT.

He reviewed the history of his work at the sanitarium and the work of others to show that tuberculosis placed under treatment in its incipency will give about 75% of cures; whereas, if these same patients were allowed to waste their opportunities for treatment until the disease is well advanced, a fatal outcome or a prolonged illness is almost certain. He laid particular stress upon carefully investigating every case that shows a persistent, though irregular, afternoon rise of temperature of one-half degree or more. His experience has shown that the vast majority of patients seeking entrance to sanatoria apply too late to secure the best results, and he begged physicians in general to investigate their suspicious cases more closely, and to inform such patients of the nature of their disease so that they might secure proper treatment.

DRS. J. G. ADAMI and J. McCRAE, of Montreal, read a paper on the

STUDY OF A SERIES OF CASES OF BURNS.

This experimental work agreed in every particular save one with that published by Bardeen, of the Johns Hopkins Hospital, several years ago. The authors did not find focal necrosis with the same regularity that Bardeen did, but the lesions were in all other respects similar to those of toxin infections.

AMERICAN SURGICAL ASSOCIATION.

ABSTRACT OF PAPERS AND DISCUSSIONS AT THE TWENTY-SECOND ANNUAL MEETING, HELD IN BALTIMORE, MD., MAY 7, 8 AND 9, 1901, THE PRESIDENT, DR. ROSWELL PARK, OF BUFFALO, N. Y., IN THE CHAIR.

FIRST DAY.—MORNING SESSION.

IMMEDIATELY after calling the meeting to order a short executive session was held, and then the scientific business was begun.

The president read his annual address, entitled

SOME PHASES OF THE CANCER QUESTION,

and stated that pathologists, who study the condition purely from the dead-house point of view, have confronted some of the greatest problems which it has to offer, but have also missed some of its most important aspects. The parasites of cancer, be their nature what it may, are in all probability polymorphic in extreme degree, and masquerade under many forms, changing with their different stages of reproduction. There is no other disease which is characterized by metastasis in which the pathologists decline to see evidences of parasitism. Every metastasis of cancer

has the form and significance of an inoculation experiment only performed under the most favorable, because natural, conditions. The primary question, after all, is the general one of parasitism, but it has not yet been reduced to a question of just what parasite. In the author's opinion, it may and probably will be found that cancer is not a question of any single organism, and possibly not even of a single class. The latest work of Roger Williams was then quoted at some length and reference was made to Demarquay, who collected 134 cases of cancer of the penis, whereas in only one instance was the wife affected with uterine cancer. Numerous cases are now on record of cancer along the track of the trocar used in tapping for ascites due to cancerous disease, and surgeons now quite generally admit this traumatic dissemination of the disease by inoculation of wounds during operations. From studies already made in the New York State Laboratory, it seems to be clear that death in cases of cancer comes about, as in so many other diseases, by a sort of terminal infection, which is a conspicuous feature of the disease, and has not hitherto attracted sufficient attention. The exact nature of these terminal changes has not yet been made out beyond what is implied in the term "hematogenous." The predictions of the Italians have failed in many respects, and it is by no means so easy to successfully inoculate animals with the yeast as has been generally supposed. By comparing tumors removed by operation with those removed post mortem, it became evident that the organisms either increased rapidly during the period just before death, or that they proliferate in the tissue immediately after death. In practically all scrapings from cancer could be seen either small hyaline refractive forms, which in suspension possess a characteristic oscillating motion, or larger forms with projecting pseudopodia, or sacular forms containing very refractive spherical bodies.

The work of Dr. Gaylord in association with the author was then referred to at considerable length, and reference was made to a number of publications by these gentlemen on this subject. It was mentioned that considerable difficulty is added to the work of investigation by the extraordinary polymorphism of many of the minute organisms found in cancer. Plimmer's work was referred to at a considerable extent, and deductions drawn therefrom. It appears that the protozoa are capable of producing in man lesions of widely different nature from mere infection of epithelium, and Pfeiffer has shown that they might produce them both in man and in animals. A full report was promised in a short time of the results of inoculating 72 animals with the technique employed.

Pfeiffer's work was quoted from at some length and various deductions were drawn therefrom.

That cancer begins as a purely local infection has been verified by the recent report by the author in the Laboratory at Buffalo, and also that it kills by becoming generalized, which is equally true of tuberculosis. Miliary carcinomatosis is not much

more rare than miliary tuberculosis, and these constitute apparent exceptions to the above rule, but even they do not prove that the disease did not have a local beginning.

The author concluded his paper by stating, "I want to make it as evident as possible that carcinoma is an epithelial infection."

DR. THOMAS S. CULLEX, of Baltimore, gave a lantern-slide exhibition of

THE EARLY SIGNS OF CARCINOMA OF THE UTERUS.

DR. W. S. HALSTED, of Baltimore, made a few remarks on a

BRIEF CONSIDERATION OF THE CASES OF CANCER OF THE BREAST TREATED AT THE JOHNS HOPKINS HOSPITAL SINCE 1889.

He spoke of the difficulties of getting a good picture of cancer, and stated that drawings are made in every case to file away with the records. He reported having operated on 320 cases of carcinoma of the breast and 450 cases of breast tumor, as well as 3 cases of primary sarcoma of the breast. Intracanalicular myxomata and fibromata are often spoken of as sarcoma, but in Dr. Halsted's opinion they are not. He referred at great length to the difficulty of compiling statistics, and demonstrated the method of grouping the cases at the Johns Hopkins in order to arrive at the proximate results. His experience is that the percentage of recurrences is very variable, and he reported that out of 129 cases operated upon 51 had been cured.

DR. W. B. COLEY, of New York, read a paper entitled

LATE RESULTS IN INOPERABLE SARCOMA TREATED WITH THE MIXED TOXINS,

and stated that he had secured the best results in cases of the spindle-cell variety. His results in the round-celled sarcoma have been fair, and sufficient to warrant further work along this line. The risks are *nil*, and out of 200 cases treated only 2 have died. He advised the use of the toxins in inoperable tumors only, and practically in sarcoma only. He reported no success in melanotic growths; but in lymphosarcoma of the neck, which are practically hopeless from an operative point of view, the toxins have a remarkable inhibitory effect. Out of 21 cases of spindle-cell sarcoma, 10 disappeared entirely, and 15 cases have passed the three-year limit, while eight years have elapsed in some cases since treatment. The author went into detail concerning a number of the cases in which the toxins were used, and stated that of the 15 who had passed the three-year limit 8 were of the spindle-cell variety and 2 were of the parotid gland. The results thus far, in the opinion of the author, are sufficient to warrant the use of the toxins when operations cannot be tried, and even in carcinoma they seem to have a marked inhibitory influence.

DR. JOSEPH D. BRYANT, of New York, read a paper entitled

THE INFLUENCE OF MENTAL DEPRESSION ON THE DEVELOPMENT OF MALIGNANT DISEASE,

in which he dwelt at length on the history of cancer as affected by mental depression. Paré, in 1510, was the first man to refer to mental perturbation, anger, and the like, as making a cancer "more fierce and raging"; while the same authority, under the head of treatment, insists that the patient must eschew fasting, watching, sorrows, cares and mourning. Sir Astley Cooper was of the same opinion, while Velpeau thought otherwise. Grant and Napoleon have been referred to as examples of cancer following reverses, and Paget and Virchow gave a qualified allegiance to the passive side of the question.

The foundations of the different phases of the contention rest on the beliefs (1) that cancer may result from the direct influence of mental depression; (2) that cancer may arise indirectly from mental depression because of the defective nutrition attendant upon it; and (3) that mental depression exercises in no respect influences that admit of sufficient proof to warrant serious discussion.

The author referred to the infrequency of cancer in insane patients, and stated that females suffered twice as often as males. Statistics were given from a number of institutions which showed that the death rate in the female was nearly double that of the male, although there were more male melancholics; but melancholia in the male does not seem to exercise any distinctive effect on the death rate. Neither is melancholia in the male more often associated with cancer than with other forms of malignant growths.

Many authors were quoted, and the following division of the cases was suggested: (1) Cases in which mental depression is not associated with the idea of cancer; (2) cases in which mental depression is associated with the idea of impending cancer of primary or secondary occurrence; and (3) cases in which the depression is the outcome of common causes.

AFTERNOON SESSION.

Dr. J. COLLINS WARREN, of Boston, in discussing the foregoing papers, stated that there were several different ways of approaching the question as exemplified by different writers, and referred to the geographical, statistical, histological, experimental and blastomycetic. The experimental was divided into chronic irritation and inoculation, and reference was made to the fact that two papers had appeared during the year in favor of the protozoan theory of the disease.

Reference was made to the experiment of Lack in producing peritoneal cancer in a rabbit by scraping the ovaries, which observation, so far as known, has not been confirmed by other observers.

Dr. CULLEN closed the discussion on his paper by stating that he had been very much interested in the report of the laboratory work at Buffalo. He commented at some length on Dr. Gaylord's experiments there, and made some reference to the lantern-slide picture shown by himself this morning.

Dr. PARK stated that he had not told one-half of what he would like to tell, but promised another paper in a short time by Dr. Gaylord and himself, setting forth more fully the work that has been accomplished, particularly along the lines of inoculation.

Dr. J. C. BLOODGOOD, of Baltimore, read a paper on

BLOOD EXAMINATION AS AN AID TO SURGICAL DIAGNOSIS,

illustrated by a large number of tables and statistics.

Dr. J. C. DaCOSTA, Jr., read a paper entitled

THE CLINICAL EXAMINATION OF BLOOD IN APPENDICITIS: A STUDY BASED ON THE EXAMINATION OF ONE HUNDRED AND EIGHTEEN CASES IN THE GERMAN HOSPITAL, PHILADELPHIA.

The author discussed the subject under the heading of (1) methods and technique, (2) classification, and (3) the anemia of appendicitis. The details under each one of these headings was discussed at great length, and a large number of blood counts were given, both actual and comparative.

Dr. J. B. BLAKE, J. C. HUBBARD and R. C. CABOT, of Boston, read a paper on

BLOOD EXAMINATION IN RELATION TO SURGICAL DIAGNOSIS,

and divided the subject into six headings: (1) The Leucocyte Count in Fractures; (2) Post-operative Leucocytosis; (3) Ether Leucocytosis; (4) The Effect of Fear on the Leucocytes; (5) Regeneration of the Blood after Operations on Malignant Tumors; and (6) Blood Examinations in Relation to Intestinal Perforation in Typhoid Fever.

Dr. J. CHALMERS DaCOSTA and Dr. J. L. KALTEYER, of Philadelphia, read a paper entitled

THE EFFECT ON THE BLOOD OF ETHER AS AN ANESTHETIC.

The paper reviews the rather meagre literature of the subject, dwelling particularly upon the writings of Miedelickz, J. Chalmers DaCOSTA, Oliver, Hamilton Fish, Bloodgood and others.

They dwell on the great difference of opinion which exists as to whether or not ether causes blood destruction. They hold that it does, and that those who affirm the contrary have been misled by the blood concentration which results from the preliminary treatment, and which is often added to by sweating during the anesthetic state. This blood concentration may mark the fall of hemoglobin; in fact, in some cases will cause an apparent rise. The important facts to note are that the color index practically always falls, and that the number of corpuscles increases. These facts prove marked blood destruction and increased production of corpuscles deficient in hemoglobin resulting from ether anesthesia. The authors report upon 50 cases, in which blood

examinations were made, and subdivide these cases into numerous tables for purposes of examination and comparison. In 49 of the cases the color index was lowered. The writers also showed sections of the marrow of a rabbit's femur, the animal having been etherized to death. These sections show marked erythroblastic proliferation.

The authors conclude that the hemoglobin is absolutely reduced after the administration of ether, this reduction being manifest in the individual corpuscular hemoglobin value. The increased hemolysis which occurs is nature's effort to rapidly replace the destroyed corpuscles and the regenerated cells are imperfectly supplied with hemoglobin. The authors urge that whenever possible one or two blood examinations should be made before ether is administered, and these examinations should be made before preparatory treatment has been instituted. If less than 50% of hemoglobin is present an anesthetic is dangerous, and should only be given in a surgical emergency which threatens life. In malignant disease a percentage of under 50 contraindicates operation. Miculicz says no general anesthetic should be given under any circumstances if the hemoglobin is under 30. We believe that 40% is probably the lowest justifiable limit. If operation must be performed when the hemoglobin is under 40%, a local anesthetic should be given, except under stress of absolute necessity. It is true, cases with under 40% of hemoglobin are occasionally etherized successfully (for instance, we know of one case with only 24%); but such instances are rare, are not sufficiently numerous to set aside the rule, and are only justified by the imperative necessities of a vital emergency. Whenever the percentage of hemoglobin is less, the administration of the anesthetic should be entrusted only to an experienced man; as little ether as possible should be given; the surgeon should operate quickly, and prompt measures should be adopted to bring about reaction and to remove the ether from the lungs and blood.

EXAMINATION OF THE BLOOD IN RELATION TO SURGERY OF SCIENTIFIC VALUE, BUT TOO OFTEN OF NO PRACTICAL VALUE, AND MAY MISGUIDE THE SURGEON,

was the subject of a paper read by Dr. JOHN B. DEEVER, of Philadelphia. The author referred rather fully to the subject of appendicitis, and commented on the value of the microscope in bedside diagnosis, but objected to so much importance being attached to it as compared with the amount of weight given to other diagnostic points, some of which possess, in his opinion, greater merit as aids to the surgeon.

Dr. B. FARQUHAR CURTIS, of New York, in discussing the foregoing papers, commented on the frequency of leucocytosis following ether anesthesia, and stated that this was equally true in intraspinal anesthesia. He believed that operative leucocytosis should be looked upon as a fixed factor, and one which could not be used in deter-

mining the existence of infection. He referred to a case as illustrating his point, and stated that while he considered the fact one of great value, he did not think it more so than the temperature and pulse record.

SECOND DAY.—MORNING SESSION.

This session was held at the Johns Hopkins Hospital, and addresses were made by Drs. OSLER and WELCH. Demonstrations were also given by Dr. KELLY in the employment of the newer methods of diagnosis in rectal and urinary disease, and by Dr. YOUNG in catheterization of the male urethra. Dr. Osler's remarks referred to the clinical and Dr. Welch's to the laboratory methods of teaching employed at the Johns Hopkins.

Dr. OSCAR H. ALLIS gave a

DEMONSTRATION OF FRACTURES OF THE PELVIS.

He demonstrated upon the cadaver the effects of violence directed against the pelvis through the medium of the femur, being a comparative study of the relative strengths of the neck of the femur and that of the pelvis. The application of force was by means of a lever driving the head of the femur against the acetabulum, directed (1) at right angles to the long axis of the trunk, and (2) parallel to the long axis of the trunk.

AFTERNOON SESSION.

Dr. A. W. MAYO ROBSON, of Leeds, England, read a paper entitled

PANCREATITIS WITH ESPECIAL REFERENCE TO CHRONIC PANCREATITIS.

The author commented on the fact that he thought it strange it had not until recently dawned on the minds of clinical observers that whatever obstructs the common bile duct at its lower end must also of necessity lead to an obstruction in the pancreatic duct. When the common bile duct is obstructed, the objective signs of jaundice at once demonstrate the fact; but hitherto no pathognomonic sign has been discovered which will show conclusively that the pancreatic ducts are occluded, unless it be the extremely rapid loss of weight. When it is borne in mind that the pancreatic duct opens along with the common bile duct into the second part of the duodenum, it is not a matter for surprise that pancreatitis should be met with. The essential and immediate cause of the various forms of pancreatitis is bacterial infection, which has been positively proved both clinically in the human subject and experimentally in the lower animals. The association of gall stones with chronic pancreatitis was absolutely forced on his mind by the frequency with which he found inflammatory enlargements of the head of the pancreas when operating for gall stones in the common duct.

Taking up the subject of fat necrosis, it was stated that this condition is commonly found in association with pancreatitis, and the relationship

between the two conditions has given rise to much speculation.

Hemorrhage in pancreatic diseases was dwelt upon, and it was mentioned that death from collapse may occur either immediately or some hours after spontaneous hemorrhage. Several illustrative cases were cited, together with the symptoms and results, the following conclusions being reached: (1) that in certain diseases of the pancreas there is a general hemorrhagic tendency, which is much intensified by the presence of jaundice; (2) that hemorrhage may apparently occur in the pancreas unassociated with inflammation, or with jaundice, or with a general hemorrhagic tendency; (3) that both acute and chronic pancreatitis can and do frequently occur without hemorrhages; and (4) that some cases of pancreatitis are associated with local hemorrhage. It was suggested that pancreatitis should be divided into the acute, subacute and chronic, and that the hemorrhagic be considered a variety of the acute. The glycerine set free in the tissues by the fat necrosis was looked upon as a possible cause for the local hemorrhage, and some details on this point were gone into. In addition, the results of blood examinations, with a view of discovering, if possible, the cause of the hemorrhagic tendency, were given.

The treatment of the three stages of the disease was then discussed fully and examples given of each, together with the results of treatment, as well as of post mortems.

DR. GEORGE E. BREWER, of New York, stated that he believed the disease to be of far more frequent occurrence than is generally supposed, and in support of this assertion he cited the records obtained from the autopsy table, as showing its serious nature, frightful mortality and obscure symptomatology, as well as the fact that certain surgeons, as the author of the foregoing paper, have had a large personal experience with the disease, and where it has been extensively discussed a fairly large number of cases have annually been reported. The fact of its non-recognition by the profession at large is established by the fact that in other localities no cases are reported. He stated that in going over the recent annual reports of fifteen or twenty of New York's largest hospitals he found but one which recorded surgical treatment of the disease, and in this one institution four cases are reported as having been operated upon during a single year.

He believed the profession failed to recognize this disease more readily for two reasons: (1) Their attention has not been directed to it by reports of cases and monographs on the subject; and (2) sufficient data has not been collected on the subject for the compilation and presentation of an accurate and complete catalogue of the characteristic symptoms. He dwelt upon the importance of constant vigilance being maintained for this disease, and the value of recording and publishing the clinical histories and results of operations, together with the autopsy findings of all cases of this disorder coming under the surgeon's

observation. This he felt would be of great value to the profession at large, enabling them to diagnose the condition much more readily. The anatomy of this region could be renewed with great interest, not only in regard to the clinical history and pathology of the disease, but might furnish some very valuable suggestions in reference to treatment. At a very early period in the development of the embryo, pancreas is formed by two offshoots from the intestinal tube, just below the gastric dilatation between the two layers of the posterior mesentery. These two branches rapidly develop, and again divide and subdivide, forming an innumerable number of fine twigs, each one ending in a small epithelial-lined sac. These are surrounded by minute plexuses of blood vessels, nerves and lymphatics, and held together by areolar tissue which divide the gland into a large number of segments or lobules. The further development of the pancreas was then discussed at some length, and the development of another outgrowth, which afterwards forms the liver, was noted. The different stages in the development of the bile duct and the two pancreatic ducts were recognized, and the fusion of the lower pancreatic duct with the bile duct, forming the ampulla of Vater, which opens into the duodenum in the adult subject, was remarked. He referred to the fact that the older anatomists taught that the upper pancreatic duct gradually atrophied, and only remained patent in a few instances; but later investigation resulted in the discovery that it could be injected from the main pancreatic duct in about 56% of the cases; and still later investigation by improved methods demonstrates the fact that the duct of Santorini is practically always present in the human subject.

He then presented five or six photographs furnished him by Dr. Carlton Flint, of the Anatomical Department of Columbia University, showing the arrangement and accessory in some of the lower animals as compared with those of the human body.

He then called the attention of the society to the fact that in the early stage of its development the pancreas is completely invested by the peritoneum, and only becomes a retroperitoneal organ by the absorption and conversion into areolar tissue and fat of the several layers of the posterior mesentery. The attention of the society was directed to the four different routes by which the pancreas may be reached; namely: (1) By dividing the gastrohepatic omentum just above the lesser curvature of the stomach; (2) by dividing the gastrocolic omentum just below the greater curvature of the stomach; (3) by dividing the transverse mesocolon; and (4) by reflecting the parietal peritoneum through a lumbar incision until the perirenal fat is reached, which is continuous with the areolar tissue surrounding the pancreas. He then mentioned the fact that in his opinion a probable causative relationship existed between an enlarged and relaxed duodenal orifice of the ampulla of Vater, due to the frequent passage of biliary calculi

and inflammatory diseases of both the bile duct and the pancreatic duct, stating that he based his opinion upon observations regarding the existence of like conditions in other portions of the body of ducts emptying into septic cavities in other portions of the body.

In concluding, he mentioned the probable digestive action of the pancreatic juice, when allowed to percolate into the connective surrounding the gland, as a cause of erosion of the blood vessels and extensive necrosis, in addition to the well-known power it possesses of producing fat necrosis.

DR. EUGENE L. OPIE, of Baltimore, commented on the relation of gall stones to the disease under discussion. He considered that there are two mechanisms, which explain this association, due to the anatomical features of the region. As to acute hemorrhagic pancreatitis, he stated that a variety of irritating substances, when injected into the pancreas of animals, will produce this lesion, and referred to the experiments of Flexner, who had injected artificial gastric juice, acids, alkalis and dilute formalin, to prove the fact. Another cause of hemorrhagic pancreatitis he believed to be the penetration of bile into the pancreas, which will confirm the fact of the relation between pancreatitis and gall stones. It seems to be true that in the cases in which chronic interstitial pancreatitis accompanies gall stones in the common duct, the pancreatitis, which has been at times mistaken for malignant disease of the gland, is the result of this obstruction.

DR. J. W. ELLIOT, of Boston, referred to the association of the disease with gall stones, together with the relation of jaundice to these conditions; while theoretically, if the common duct was not blocked, there would be no jaundice, yet practically, with stones only in the gall bladder, jaundice is frequently present. Cases were cited where these conditions were true, and where malignant disease had been diagnosed, although not present.

DR. GEORGE R. FOWLER, of Brooklyn, reported three cases with symptoms and treatment, two of which recovered, while the third died. He laid particular stress on the collapse which occurred in his cases, in one being so bad that operation had to be put off several times.

DR. CARSON, of St. Louis, gave the details of a case occurring in his practice, of induration of the pancreas associated with jaundice. After operation the patient made a good recovery.

DR. W. L. ESTES, of Easton, Pa., reported two cases of operation with recovery, one of chronic interstitial pancreatitis simulating carcinoma, and the other following an abdominal injury.

DR. LEONARD FREEMAN, of Denver, reported a case of jaundice, which he had believed to be due to gall stones, and stated it had not occurred to him that pancreatic disease was probably the cause, although he had no doubt such was the case.

DR. ROBSON stated that he had never seen such marked and frequent attacks of collapse as those mentioned by Dr. Fowler. He reported one case where the collapsed condition of the patient had prevented operation, and death had ensued; and he believed that it was a common symptom, although not to the extent in individual cases observed by Dr. Fowler. He felt that the bile probably offered an explanation for many cases of hemorrhagic pancreatitis, and he believed the infected nature of the bile was often the most important factor. He referred briefly to Dr. Opie's specimens, and expressed himself as much pleased with Dr. Brewer's description of the anatomy of the region.

(To be continued.)

Recent Literature.

Thomas Sydenham. Masters of Medicine Series.

By JOSEPH FRANK PAYNE, M.D. (Oxon), Fellow and Harveian Librarian of the Royal College of Physicians. New York: Longmans, Green & Co. 1900.

This series contains, in addition to the present volume, John Hunter, William Harvey, Sir James Simpson, William Stokes, Sir Benjamin Brodie, Claude Bernard, Von Helmholtz, Vesalius; all Englishmen but three.

Sydenham's family was a Dorsetshire family, and in common with the well-to-do in that neighborhood its members were staunch Puritans and parliamentarians. His father, his uncles, his brothers and he himself were strenuous fighters for the Commonwealth. His oldest brother, Colonel Sydenham, who inherited the family property of Wynford Eagle, was one of the twenty persons, beside the regicides, named by the House of Commons, at the time of the Restoration, to be exempted from the benefits of the Act of Indemnity.

This little volume gives as full a sketch of Sydenham's life and character as can be had from existing and accessible materials, and at the same time throws vivid sidelights upon the important and stirring period of English history during which he lived. As a book, in common with others of this series, it is both interesting to read and useful to have.

Anatomie générale appliquée à la Physiologie et à la Médecine. Par Xav. Bichat, Médecin du Grand Hospice d'Humanité de Paris. Professeur d'Anatomie et de Physiologie Première Partie. Pp. 256. Paris: G. Steinheil, Editeur. 1900.

This book is a reissue of Bichat's work, published as one of the volumes of the *Bibliothèque Positiviste*, and claims to be a reproduction of the edition of 1801, as regards orthography and punctuation. The book is naturally of interest to the student of the history of medicine, and to those who find profit in the presentation of gen-

eral facts in a philosophical spirit. It is always desirable that the work of the masters in natural science should from time to time be reprinted for the edification of later generations.

Consumption, Pneumonia and Their Allies. By THOMAS J. MAYO, A.M., M.D., Professor of Diseases of the Chest in the Philadelphia Polyclinic, etc. Pages 539. New York: E. B. Treat & Co. 1901:

This may fairly be called a picturesque book. The title itself carries a suggestion of belligerency, and the preface at once presents the author's ultimatum in the form of five propositions, which it seems worth while to quote in full.

(1) That pulmonary phthisis in the large majority of cases is primarily a neurosis, and that the pulmonary disintegration is secondary;

(2) That any agent, influence or condition which undermines the integrity of the nervous system will engender pulmonary phthisis, or some other form of pulmonary disorder;

(3) That the only remedies of value in the treatment of pulmonary phthisis are those which appeal to and act through the nervous system;

(4) That of special value in the treatment of phthisis is the counterirritant action of silver nitrate introduced hypodermically over the vagi in the neck;

(5) That acute pneumonia and other forms of acute pulmonary diseases are closely affiliated with disorders of the nervous system.

A further perusal of the book, however, shows that there is more reason in it than might be inferred. It presents evidence of great industry in the collating of cases having a bearing on the thesis, and the reader's interest must be stimulated by the suggestiveness of some of the evidence so ingeniously presented, even if at the end he still clings to the more commonly accepted theories of development. One feels that the author, if he had not tried to prove too much and had been less ambitious to see his views under the cover of a rather large volume, might have presented a very readable treatise. The outline of treatment is good, and in it the vaunted silver nitrate plays quite a subordinate part, as is doubtless right that it should.

The Feeding of Infants. Home Guide for Modifying Milk. By JOSEPH E. WINTERS, M.D., Professor of Diseases of Children, Cornell University Medical College. Pages vii, 47. New York: E. P. Dutton & Co. 1901.

This little book being, as stated in the title, merely a home guide for modifying milk, cannot be expected to give more than an outline of the principles of infant feeding. These, as far as they are given, are stated concisely and, on the whole, accurately.

Rules are given for the management of the dairy and for obtaining a clean, fresh milk. The author assumes that such an ideal milk is always obtainable, and gives no rules for pasteurization or sterilization, which he mentions only to condemn.

As such ideal conditions are not always obtainable, and as pasteurization is therefore often a necessary evil, we feel that the author's position is a wrong one, and that the book would be improved if the method of pasteurization was described.

The author gives tables, based on a method of his own, for the preparation of modified milk at home from birth to one year. Tables showing the amount of food at a feeding and the intervals of feeding at various ages are also given.

The dangers of artificial feeding and the unsuitability of "infant foods" are clearly stated. This form of missionary work is extremely important and cannot be overdone. On the whole, this little book should be of much use to mothers and to many beginners in infant feeding, although it is decidedly rudimentary and adds nothing to our knowledge of the subject.

Diseases of the Heart. Their Diagnosis and Treatment. By ALBERT ABRAMS, A.M., M.D. (Heidelberg), F.R.M.S., Consulting Physician for Diseases of the Chest, Mt. Zion Hospital and the French Hospital, San Francisco. Chicago: G. P. Engelhard & Co. 1900.

The author somewhat disarms criticism by stating in the preface that "this little book was never intended to aspire to the dignity of a treatise on diseases of the heart," and states that "the primary object was to make it useful to the practical physician." He has undoubtedly compressed much information regarding the heart into its pages, which would, however, have carried more conviction if statements made in one place were not occasionally contradicted in another. For instance, on page 54 he speaks of the "small and irregular pulse of mitral stenosis," while on page 119 he says that it is "smaller in volume than normal, but regular"; and this is not the only instance. In an addendum he describes the "heart reflex," which is "practically a myocardial contraction consequent on irritation of the skin of the precordia by vigorous rubbing with the finger or, better still, by a spray of ether, and is manifest by the Röntgen rays and the fluoroscope." If corroborated, it will serve to explain the good results obtained in cases of dilated heart by the Schott method of treatment and by massage.

A Manual of Materia Medica and Pharmacology. Comprising all Organic and Inorganic Drugs, which are and have been official in the *United States Pharmacopœia*, together with Important Allied Species and Useful Synthetics. For Students of Medicine, Druggists, Pharmacists and Physicians. By DAVID M. R. CULBERT, M.D., Professor of Botany, Materia Medica and Pharmacognosy in the Maryland College of Pharmacy, Baltimore. New (2d) edition. In one octavo volume of 881 pages, with 464 illustrations. Philadelphia and New York: Lea Brothers & Co. 1900.

This is a second edition of a book of decided value. The scope of the work has not materially changed over the earlier edition, and the original plan has been adhered to in the arrangement of

the comprehensive subject-matter, which is, as stated in the preface, "to associate as nearly together as possible those substances, organic and inorganic, which have a common or allied origin, allowing those next related to follow in regular order, the basal or parental source thus being kept paramount." Certain additions of new remedies and a fuller treatment of several departments of the subject, with an increased number of illustrations, are some of the changes in the new edition. The book is admirably printed, systematically arranged, and contains a vast amount of most important information.

Brubaker. A Compend of Human Physiology. Tenth edition. Philadelphia: P. Blakiston's Son & Co. 1900.

The use by a student of any short road to learning, such as a quiz compend, is to be regretted. Giving, as it should, only the outline of a science, the compend is of value solely as a review agent. But when a book is made to "represent the present state of the subject upon which it treats," it fails to be a help in review and acts as a shorter text book. As such the present work can not be compared in value with many of the text books in the market.

The present work, we are told in the advertisement, is "based upon the most popular text books." To even the uncritical reader it is evident that the book is not the systematic thought of one man. Although the work is in the tenth edition, the author has not taken sufficient care in systematizing the statements gathered from various sources. The indiscriminate use of the English and the metric systems of measures—the inch, the line and the millimetre, the gram and the ounce, Fahrenheit and Centigrade determinatives—tends to make the student unsystematic in his thinking.

Sensory and *sensitive* are not usually considered to be synonymous with the term *pain*, as the author leads the reader to believe (see pages 83, 84, 188, etc.). Figure 1 is unnecessary for a medical student and may be misleading to others. Space is lacking for a detailed criticism of the material contained in the work; but if an eleventh edition should be called for—the reviewer hopes it will not—the student might be informed (1) of the functions of the white blood corpuscles; (2) of the relation of the blood to the carrying of CO₂; (3) of the interchange of gases between the tissues and the blood, namely, internal respiration; and (4) of the view of Goltz and others regarding the functions of the cerebral cortex.

In the attempt to make the book "pocket size," while still retaining all the facts, the publishers have resorted to the use of small type.

OPENING OF NEW WARDS AT NEWTON, MASS., HOSPITAL.—In recognition of the completion of the contagious wards of the Newton Hospital, a reception and inspection of the additions to the hospital's equipment was made last week.

THE BOSTON Medical and Surgical Journal.

THURSDAY, JUNE 13, 1901.

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SOME STATISTICS OF CANCER.

ANY facts bearing upon cancer in any of its aspects is of special interest at the present time, owing to the renewed zeal which is being manifested both abroad and in this country in the attempt to discover its cause. Now that the diagnosis of carcinoma may be made with practical certainty by means of the microscope, it is evident that statistics have a value and significance which could not be claimed for them a few decades ago. A paper by Dr. E. N. Nason, published in the *British Medical Journal* for May 18, 1901, on an analysis of 5,000 cases of death from malignant disease, is of unusual interest as a statistical study. The facts were collected in the course of preparation of a report for the British Medical Association on the influence of locality on the prevalence of malignant disease, and expanded with conclusions, for the purposes of the present paper. Dr. Nason found what we have come ordinarily to expect, that the preponderance of females over males as subjects of cancer was about 62 to 38%, due to the fact of the great frequency of uterine and breast involvement. The writer feels justified in looking upon the excess of female cases as dependent upon the fact that women are the possessors of these two organs, rather than as an indication of their generally greater tendency to cancer. If the sexual peculiarities of both sexes be excluded, the male is found to be the more often affected in the proportion of 53 to 47%. It furthermore appears that the steady increase of mortality from cancer which has occurred during the last thirty years, has been far more noticeable in men than in women. This is explainable in part by the greater accuracy of diagnosis of cancer in internal organs other than the uterus, to which men are as liable as women, and to the fact that surgical measures have reduced the mortality among women from the two most frequent varieties:

cancer of the breast and uterus. Men also are more exposed to the influences of trauma and syphilis, which Dr. Nason regards as important predisposing causes.

The general conclusions which the investigating committee reached are as follows:

1. Certain more or less well-defined areas exist in which the mortality from cancer is markedly above, and others in which it is markedly below, the average for England and Wales.

2. Although age and sex incidence undoubtedly influence this variation, in some cases considerably, they only account for a small proportion of it.

3. That owing to the great difficulty of diagnosis in many cases of internal cancer, the death-rate from cancer is probably at present underestimated.

4. Contamination of the soil or subsoil for long periods with decomposing organic matter is very probably a factor in the production of a high death-rate from cancer.

5. A damp, ill-drained, waterlogged soil of whatever geological formation, is more frequently associated with a high cancer death-rate than is a dry, well-drained soil.

6. There is abundant evidence of the existence of groups of houses in which cancer is found with marked frequency; and some evidence which tends to show that second and third cases occur in the same house with greater frequency than can be accounted for by mere coincidence.

7. Cancer occurs more frequently in old than in new houses and districts.

8. There is some evidence suggesting that under certain circumstances cancer may possibly be transmitted from one person to another in constant close association.

As some of the more certain predisposing causes are given: prolonged local irritation, the effects of direct and sudden injury, syphilis and possibly other constitutional diseases, the tissue degeneration of advancing years, and the presence of fetal remnants. As an exciting cause Dr. Nason thinks a parasitic organism would best explain the facts, but naturally, in the present state of our knowledge of this intricate subject he has no evidence of value to offer in support of this proposition.

We would commend this paper to those interested in collecting and tabulating statistics of this increasingly fatal disease. As in all statistics there are no doubt many sources of error, but it represents a type of laborious work which is of very great value in the solution of many vexed questions regarding the growth and spread of cancer.

ONE HUNDRED AND TWENTIETH ANNIVERSARY OF MASSACHUSETTS MEDICAL SOCIETY.

With venerable and increasing age the Massachusetts Medical Society shows no signs of decrepitude, no indications of waning vigor. On the contrary, its members are constantly increasing, and its work, as shown in its annual meeting just terminated, may easily challenge comparison

with any period of its past history. The attendance has been large from all parts of the State, and the interest manifested in the general session, notwithstanding the absence of several papers which had been promised from different bacteriological laboratories, in the Sections of Medicine and Surgery, the Shattuck Lecture and the Annual Discourse, was most emphatic. There were no excursions, no exhibits, no junketting, and yet the whole time of all in attendance has been at once most profitably and agreeably occupied. Much of this is due to the good work of the officers, the committee of arrangements, and those entrusted with the various programmes.

The new Medical Library Building has added much to the comfort, convenience and pleasure of the occasion, and the same should be said of the use for larger meetings, and for the annual dinner of Chickering and Symphony Halls. At least an appreciative word must be added in praise of the singing of the Graduates' Glee Club at the annual dinner. This organization, under the direction of Dr. Sumner Coolidge, has reached a high degree of proficiency, and furnished music in grateful contrast to the band of former days.

A PROPOSED MEMORIAL TO JESSE WILLIAM LAZEAR, M.D.

It will be remembered that in September of last year Dr. Jesse William Lazear, at that time acting assistant surgeon in the United States Army, and a member of the government commission for the investigation of yellow fever, contracted the disease of which he was making a study, and died at Quemados, Cuba. The circumstances under which he met his death were peculiarly heroic, since he voluntarily submitted himself to the experiment of being bitten by an infected mosquito, in the attempt to gain evidence that the affection is transmitted in this way. Dr. Lazear was still young and a man of very great promise. He was a graduate of Johns Hopkins University and received his degree in medicine at Columbia. He later studied in Europe and at the Johns Hopkins Hospital, and until his appointment to the army was engaged in teaching and research at that institution.

The friends of Dr. Lazear have felt that a lasting memorial should be established to him and to his work. To this end a circular has been sent out by a committee, of which Dr. William Osler is chairman, in the hope and with the expectation that a sufficient amount may be raised to procure an adequate memorial. We quote a part of the circular: "The many friends and admirers of the talented and accomplished student, of the brave, true, self-sacrificing man, desire to estab-

lish a lasting memorial to him and to his work. To this end a meeting was held on the evening of Wednesday, May 22d, which was presided over by Prof. William Osler. At this meeting it was concluded that the nature of the memorial could better be decided upon when some idea could be obtained as to the amount of money available. It was therefore decided that a committee, consisting of Dr. Stewart Paton and Dr. William S. Thayer, be appointed to arrange for the distribution of a circular among the friends and admirers of Lazear, setting forth the object of the meeting. It is earnestly hoped that not only those who have known and admired Lazear and his work, but also others who appreciate courage and manliness and self-sacrifice, may contribute to the fund for the Jesse William Lazear Memorial. Subscriptions may be sent to Dr. Stewart Paton, treasurer, Johns Hopkins Hospital, Baltimore, Md."

We are in entire accord with the spirit of this movement, and hope that the prompt reply to the circular from a sufficient number of subscribers may quickly make possible its consummation. Memorials are founded for various purposes, but we are disposed to think that the quiet devotion to duty which marked Dr. Lazear's death is far more worthy of such a recognition than many more ostentatious achievements.

A REORGANIZATION OF THE AMERICAN MEDICAL ASSOCIATION.

At the meeting of the American Medical Association in 1900 a Committee on Organization was appointed. This committee presented its report at the recent meeting of the association at St. Paul, and the report, including the revised Constitution and By-Laws, on motion of Dr. Harris, of New York, was adopted by a large majority. The report itself is a lengthy document, for the full text of which and for the report on the revision of the Constitution and By-Laws our readers are referred to the Journal of the Association, the issues for May 11th and June 8th. The necessity for these changes has long been apparent. Under the old conditions the transaction of business was either difficult or impossible, or so easy that it was undesirable. The association itself had not the weight in professional and public affairs to which its members and wide representation should entitle it.

The association has now provided itself with a more suitable machinery with which to work, but the results attained must depend in large measure upon the cordial co-operation of the State and county societies, a co-operation which we hope may be in due time forthcoming.

MEDICAL NOTES.

APPOINTMENT OF WILLIAM R. STOKES, M.D. — Dr. William Royal Stokes, city bacteriologist of Baltimore, has been appointed to the chair of pathology in the College of Physicians and Surgeons in that city.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 12, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 74, scarlatina 26, measles 181, typhoid fever 4, smallpox 0.

SMALLPOX IN VARIOUS PLACES. — Two physicians of Worcester, Mass., who had been in attendance on a patient in the hospital suffering from smallpox, have contracted the disease. In Berlin, N. H., there are said to be 42 cases in the pesthouse. The malady is, however, of a mild type, but one death having occurred, and then because of other complications. A Portuguese schooner recently arrived at New Bedford from the Azores, with a large number of cases of smallpox on board. The vessel's passengers and crew will be cared for at the quarantine station on Gallop's Island, Boston Harbor, until danger of a spread of the disease from this source is past. It is said that the Boston health authorities have undertaken to care for the vessel's people, in accordance with an arrangement between that body and the surgeon-general of the navy, and all expenses will be paid by the vessel's owners. Objection is, however, made to taking patients who have been landed from the vessel. Fifteen cases of the disease are reported as under observation in the neighborhood of Providence, R. I., chiefly of a mild type.

A QUEER JOB FOR A BOARD OF HEALTH. — The Legislature of the Commonwealth of Massachusetts has ordered that the State Board of Health make a scientific and thorough physiological investigation of the healthfulness of baking-powders, making such tests as will demonstrate whether or not any brands of baking-powder on sale in this commonwealth are prejudicial to health, and whether the introduction into food of an article in small quantities, which ordinarily would be harmless, would, when taken by a person in feeble health or dietetically disordered, eventually undermine the system; and that said board make such recommendations to the next General Court as the result of said investigation shall in its opinion warrant.

A PROPOSED HOSPITAL FOR INFECTIOUS DISEASES IN CAMBRIDGE, MASS. — Acting on a recent suggestion of Mayor Dickinson, of Cambridge,

the committee on health of the city council has negotiated for land on Concord Avenue, near the Belmont line. The lot is large enough to provide for a building for infectious diseases, a building for smallpox cases,—should the occasion arise,—for a diphtheria hospital, and for a general hospital. It is understood that the town of Belmont will cooperate with Cambridge in the maintenance of such an institution.

BOSTON FLOATING HOSPITAL.—The first trip of the Floating Hospital will take place July 5th. It will cost about \$20,000 to operate the hospital for the summer. Several changes have been made in the medical staff. Dr. J. H. Pratt, of Harvard Medical School, has been appointed pathologist, and Dr. A. W. Fairbanks assistant to the visiting staff. There will be two resident physicians and two assistant resident physicians. There are, in addition, seven medical assistants.

A SERIOUS FIRE AVERTED IN THE CAMBRIDGE, MASS., HOSPITAL.—A fire started in the basement of the Cambridge Hospital the latter part of last week from the explosion of a tank of kerosene, but was checked by the prompt action of the fire department. No patients were injured, and the total damage is estimated at not more than \$500.

NEW YORK.

A CASE INVOLVING THE CHILD-LABOR LAW.—Louis Lehmaier employed Vito Marino, a boy of twelve years, to run a machine in a factory, in violation of the labor law prohibiting the employment of children under fourteen years of age in factories. The boy had his fingers caught in the machinery, was injured, and sued for damages. The case was lost and appealed, and the Appellate Division of the Supreme Court has now given the following opinion on it: "If the defendant had complied with the statute and had not employed this child in his factory, the injury would not have happened; and thus placing the child at work upon a machine in violation of the statute, was the proximate cause of the injury. There was a case for the jury as to the defendant's negligence, and the judgment appealed from should be reversed and a new trial ordered."

ADDITIONAL PRIZES AT COLUMBIA.—At the monthly meeting of the Board of Trustees of Columbia University, held June 3d, it was announced that as a result of a considerable increase in the value of the prize fund founded in the College of Physicians and Surgeons by Dr. Jacob Harsen, of the class of 1825, three additional Harsen prizes, of \$500, \$300 and \$200 respectively, have been established for proficiency in examinations. Among the gifts reported was one of \$1,500 for fitting up the zoological labora-

tory in Barnard College. Drs. Charles H. Peck, Warren S. Bickham and Alfred S. Taylor have been appointed assistants in surgery in the medical department.

UNIVERSITY OF NEW YORK.—The sixty-ninth annual commencement of the professional and graduate schools of the University of the City of New York was held on June 6th at the Metropolitan Opera House. There were 74 graduates in medicine and 6 in veterinary surgery, and it was announced that 32 of the former had secured hospital appointments. Among the announcements made by the chancellor was that Dr. Robert MacDougall, of Harvard, had been appointed to the chair of experimental psychology in the School of Pedagogy.

DEPORTATION OF TUBERCULOUS IMMIGRANTS.—Commissioner-of-Immigration Fitchie, who has just returned from a visit to Washington, reports that the recent order requiring the deportation of all immigrants affected with tuberculosis is simply the result of a ruling on the matter which had been asked for by the Marine Medical Service. The order classes tuberculosis as a "dangerous contagious disease."

Miscellany.

AMERICAN SOLDIERS IN THE TROPICS.

ON May 31st at the Association of Military Surgeons at St. Paul, Minn., Dr. Louis L. Seaman of New York, late Surgeon First United States Volunteer Engineers, who has recently returned from China, read a valuable paper, in the course of which he said: It is interesting to note that on their arrival in China it was the boast of the medical officers of the German Army that typhoid fever and dysentery were comparatively unknown visitors to their camps. Yet within two months their hospitals contained over 500 cases of typhoid, followed by an appalling list of fatalities, while the wards of the American hospitals were and are still singularly free. The Americans had the only water-distilling plant in operation in Peking, and its capacity was so much greater than the requirements of our army that two tons of the surplus water were donated to the Japanese every day of the winter. The American quartermaster also cut and stored 800 tons of ice in Peking—the only ice ever hoisted in that ancient city. The low percentage of all illnesses except those of a private nature, and especially the almost total absence of the class termed "digestive diseases," offers a startling contrast to conditions existing during the Spanish-American war in Porto Rico or Cuba. There I have seen as high as 75% of a command suffering from these diseases at one time, and in the Philippines the percentage of these cases remains persistently high. One nat-

urally looks sharply for the cause of this startling difference, a difference of from one two-hundredth of 1% to 75%. Here in this invigorating zero temperature, where animal heat is rapidly radiated, the men show evidences of splendid health. In China heat-producing foods are needed. Even our full army ration, the richest and most varied in the world, and the envy of every soldier in the allied armies, was not found sufficient to satisfy the cravings of the men. The energy of their systems was not consumed in an effort to eliminate heat-producing foods, as was the case when they were in the tropics, where such foods were superfluous or inappropriate, and therefore not digested or metabolized. Under these conditions such foods rapidly undergo decomposition in the intestinal tract and create toxins, which nature endeavors to eliminate as quickly as possible by establishing catarrhs and diarrhea as the only method left to rid herself of such irritants. And yet Congress has just decreed that no change shall be made in the United States Army ration—that it shall remain practically the same at the pole as at the equator. Let it not be forgotten that in the Spanish-American War, the actual hostilities of which lasted but six weeks, there were fifteen fatalities from disease (practically all preventable) for every one from bullets and wounds. If any vindication were necessary for the theory of regulating the ration of an army to suit climatic conditions, unanswerable proof can be found in Pekin in the study of the statistics of every company serving in the Chinese expedition.

INVESTIGATION OF TUBERCULOSIS IN NEW YORK STATE.

It having been announced that the State Department of Health is about to take an enumeration of the persons in New York State affected with tuberculosis, Commissioner Daniel Lewis has given out the following statement: "The present immediate purpose is not to require or obtain a personal registry of these cases, nor to institute a system of sanitary inspection or isolation of consumptives, but to obtain, with such accuracy as it is possible to do, a record of the number of persons in each municipality who at this time are subjects of this disease; to learn the locality of the disease, its distribution and surroundings. This accumulation of data will be fundamental to more exact plans for its control. It will likewise be of great value in the discussion of the question of State care of consumptives, and also in determining the death rate from this cause. A further report of the sources of infection would also be valuable in the study of the etiology and prophylaxis of tuberculosis. We are not inaugurating a new work, for since 1893 something in this direction has been in operation." In a special report by Dr. H. M. Biggs, of the City Health Department, which was introduced in the recent report of the Tenement-house Commission, it is pointed

out that more than one-quarter of all deaths occurring in New York City in the period of greatest usefulness—fifteen to sixty-five—are due to tubercular disease; and the opinion is expressed that with the enforcement of certain regulations, especially regarding tenement houses and lodging-houses, and the immediate municipal provision of hospital accommodations for from 2,500 to 3,000 consumptives, the death rate in the city from tuberculosis would within five years be reduced by one-third—a saving annually of 3,000 lives.

DERMATITIS PRODUCED BY A CATERPILLAR.

BOSTON, June 10, 1901.

MR. EDITOR:—Last summer I saw at the clinic for skin diseases at the Massachusetts General Hospital a considerable number of cases of inflammation of the skin, which were undoubtedly caused by contact with some caterpillar. The dermatitis was of the same type in all the cases, and there was also a uniform history of the removal of caterpillars from the affected parts just preceding the appearance of the eruption. As such cases had not previously occurred under my observation, I concluded that the larva must be some recently-introduced species. The parts affected were generally the neck, sometimes the face and hands. The efflorescence was urticarial in character, but very persistent; that is, remaining unchanged for two or three days. The lesions were in some cases arranged in long, continuous tracts, as if following the course of the creature upon the skin. The statements generally given were that the patient had been walking, or had sat under a tree, and had found the caterpillar crawling over the parts which were affected a few hours later.

This season several patients have already presented themselves with the same peculiar, persistent itching, more or less confluent, urticarial eruption chiefly upon the neck (two of them today), and tell the same story. They all give the same description of the caterpillar, which is probably the larva of the brown-tailed moth, *Euproctis chrysorrhæa*. The patients come from towns in this vicinity. The affection yields quickly to soothing washes.

Yours very truly,

JAMES C. WHITE, M.D.

METEOROLOGICAL RECORD.

For the week ending June 1st, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather	Rainfall in inches.
		Daily mean.	Maximum.	Minimum.	Daily mean.	8.00 A. M.	4.00 P. M.	8.00 A. M.	4.00 P. M.		
S...36	30.11	50	54	45	70	75	72	E	9	C. O. R.	.0
M...27	29.76	48	51	45	94	96	96	E	6	C. O. R.	.03
T...28	29.62	53	57	49	97	94	96	E	8	1 R. O. R.	.25
W...29	29.88	51	54	48	90	93	92	E	18	15 O. R. T.	.0
T...30	29.88	48	51	46	97	93	96	E	8	5 O. O. T.	.01
F...31	29.81	49	53	41	90	83	86	N	8	6 O. O. T.	.01
S...1	29.83	52	54	49	100	96	98	N	11	8 R. R. R.	.0
31	29.84	56	48		91						.89

* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threatening; N, snow. † Indicates trace of rainfall.
 27 Mean for week.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, JUNE 1, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria.	and group.
New York . . .	3,437,202	1,167	378	29.22	13.71	3.22	3.60	4.28	
Chicago . . .	1,698,575	—	—	—	—	—	—	—	
Philadelphia . . .	1,253,697	—	—	—	—	—	—	—	
St. Louis . . .	575,238	—	—	—	—	—	—	—	
Baltimore . . .	508,957	141	39	21.98	12.76	—	2.83	2.12	
Cleveland . . .	381,768	—	—	—	—	—	—	—	
Buffalo . . .	352,987	—	—	—	—	—	—	—	
Cincinnati . . .	325,902	—	—	—	—	—	—	—	
Pittsburg . . .	321,616	112	36	26.79	13.40	.89	1.78	2.68	
Washington . . .	275,718	—	—	—	—	—	—	—	
Milwaukee . . .	265,315	—	—	—	—	—	—	—	
Providence . . .	175,597	49	11	24.48	8.16	—	2.04	2.04	
Boston . . .	560,892	181	46	24.30	16.02	3.31	1.67	2.20	
Worcester . . .	118,827	29	5	15.00	10.00	—	—	—	
Fall River . . .	104,863	29	14	27.60	—	—	10.35	—	
Lowell . . .	94,869	31	12	6.40	19.35	—	—	—	
Cambridge . . .	91,866	29	8	31.05	13.80	—	—	6.90	
Lynn . . .	85,543	10	1	20.00	15.00	—	5.00	—	
Lawrence . . .	62,559	20	7	20.00	15.00	—	5.00	—	
New Bedford . . .	62,442	19	8	26.31	15.79	—	5.26	—	
Springfield . . .	62,059	17	4	17.64	—	—	—	—	
Somerville . . .	61,643	11	3	18.18	18.18	—	—	9.09	
Holyoke . . .	45,712	13	1	30.80	—	—	7.70	—	
Brockton . . .	40,063	10	3	10.00	40.00	—	10.00	—	
Haverhill . . .	37,175	9	1	22.22	—	—	—	11.11	
Salem . . .	35,956	8	—	33.33	25.00	—	—	—	
Chelsea . . .	34,072	7	—	—	—	—	—	—	
Malden . . .	33,661	4	—	—	50.00	—	—	—	
Newton . . .	33,587	8	1	37.50	—	—	—	12.50	
Fitchburg . . .	31,581	5	1	22.22	11.11	—	—	—	
Taunton . . .	31,036	12	1	33.33	16.67	—	—	—	
Gloicester . . .	26,121	7	3	14.29	—	—	—	—	
Everett . . .	24,356	6	3	50.00	16.67	16.67	—	—	
Andover . . .	24,290	6	1	11.11	—	—	—	—	
Quincy . . .	23,899	9	3	11.11	11.11	—	—	—	
Waltham . . .	23,481	5	1	20.00	40.00	—	—	—	
Pittsfield . . .	21,766	3	—	—	—	—	—	—	
Brookline . . .	19,935	3	—	—	—	—	—	—	
Chicagope . . .	19,167	6	3	—	—	—	—	—	
Medford . . .	18,244	8	1	12.50	25.00	—	—	—	
Newburyport . . .	14,478	3	—	33.33	—	—	—	—	
Melrose . . .	12,962	—	—	—	—	—	—	—	

Deaths reported 1,889, under five years of age 602; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 528, acute lung diseases 295, consumption 292, scarlet fever 16, influenza 2, erysipelas 14, typhoid fever 19, whooping cough 7, measles 20, cerebro-spinal meningitis 8, smallpox 17.

From whooping cough, New York 4, Baltimore, Pittsburg and Boston 1 each. From cerebro-spinal meningitis New York 4, Baltimore, Boston, Somerville and Gloucester 1 each. From scarlet fever, New York 28, Pittsburg 1, Boston 1, Everett 1. From typhoid fever, New York 2, Pittsburg 1, Boston 1, Fall River, Cambridge, Taunton, Everett and Beverly 1 each. From erysipelas, New York 10, Baltimore, Pittsburg, Boston and Lowell 1 each. From influenza, Baltimore and Pittsburg 1 each. From smallpox, New York 17.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,187 for the week ending May 18th the death rate was 16.8. Deaths reported 3,580; acute diseases of the respiratory organs (London) 249, whooping cough 150, diphtheria 15, measles 81, fever 16, scarlet fever 31.

The death rate ranged from 8.9 in Croydon to 22.1 in Preston; Birkenhead 15.5, Birmingham 19.1, Blackburn 18.8, Bolton 18.8, Bradford 17.3, Brighton 16.5, Bristol 16.9, Burnley 18.2, Cardiff 11.2, Derby 17.2, Gateshead 15.1, Halifax 15.8, Huddersfield 11.3, Hull 16.7, Leeds 17.5, Leicester 12.8, Liverpool 20.0, London 15.8, Manchester 20.7, Newcastle-on-Tyne 15.7, Norwich 11.1, Nottingham 17.6, Oldham 11.0, Plymouth 16.9, Portsmouth 15.1, Salford 19.1, Sheffield 15.8, Sunderland 22.0, Swansea 19.8, West Ham 16.7, Wolverhampton 16.5.

CHANGES IN THE MEDICAL CORPS OF THE NAVY, WEEK ENDING JUNE 1, 1901.

Dr. J. H. IDES, appointed assistant surgeon in the Navy, from May 1, 1901.

W. S. DIXON, medical director. Commissioned medical director from April 28, 1901.

C. G. HERNDON, medical inspector. Commissioned medical inspector from April 28, 1901.

E. V. ARMSTRONG, passed assistant surgeon. Detached from "Vermont" and ordered to Key West Naval Station for duty at Dry Tortugas.

T. M. LIPPITT, assistant surgeon. Ordered to the Washington Navy Yard, June 1st.

R. B. WILLIAMS, assistant surgeon. Detached from duty at Dry Tortugas, and ordered home to be in readiness for sea duty.

J. H. IDES, assistant surgeon. Ordered to Naval Hospital, Chelsea, Mass., for duty.

J. F. COSTIGAN, passed assistant surgeon. Detached from the "Yorktown" and ordered home. Resignation to be accepted after arrival.

W. M. GARTON, assistant surgeon. Detached from the Washington Navy Yard, June 1st, and ordered to the "Indiana."

H. O. SHIFFERT, assistant surgeon. Ordered to the "Nashville."

E. THOMPSON, assistant surgeon. Ordered to the "Solace."

R. K. McCLANAHAN, assistant surgeon. Ordered to the "Culgoa."

J. COWAN, pharmacist. Detached from the Manila and Cavite Naval Station and ordered to Naval Hospital, Yokohama, Japan.

SOCIETY NOTICES.

BRITISH CONGRESS ON TUBERCULOSIS. — The British Congress on Tuberculosis will be held in the Queen's Hall, London, from Monday, July 22, to Friday, July 26, 1901, under the patronage of the King.

BOSTON MEDICAL LIBRARY. — The Medical Library will hold its first Smoke-talk June 15th, at 8.15 P.M., at the Library Building, 8 The Fenway. Dr. C. J. Blake will give a short talk. Dr. Malcolm Storer will show and talk about some of the Library's collection of medical medals. Dr. J. W. Courtney will read a sketch entitled "The Journalistic Physician." There will be singing by members of the Harvard Graduates' Glee Club.

F. J. COTTON, M.D., Chairman of Committee.

RECENT DEATH.

SETH B. SPRAGUE, M.D., of Jersey City, N. J., died on June 5th, after an extended illness. He was born at Dexter, Me., January 12, 1840, and was a graduate of Bowdoin. His eldest son, Dr. Ezra K. Sprague, is a passed assistant surgeon in the United States Marine Hospital service.

BOOKS AND PAMPHLETS RECEIVED.

Indian Basketry. By George Wharton James. Illustrated. New York: Henry Malkin. 1901.

Study of Man. By Arthur Macdonald, Specialist in the United States Bureau of Education, Washington, D. C. Reprint. 1901.

Verhandlungen des Vereins für Innere Medizin in Berlin. Herausgegeben vom Vorstand des Vereins. Jahrgang xx, 1900-1901. Berlin, 1901.

Selected Researches in Pathology. By Alex. Gunn Auld, M.D., M.R.C.P. Illustrated. London: J. A. Churchill; Philadelphia: P. Blakiston's Sons & Co. 1901.

Diseases of the Thyroid Gland and Their Surgical Treatment. By James Berry, B.S. (London), F.R.C.S. Illustrated. Philadelphia: P. Blakiston's Sons & Co. 1901.

Department of Public Health, New South Wales. Report on the Outbreak of Plague at Sydney, 1900, by the Chief Medical Officer of the Government and President of the Board of Health. William Applegate Gullick, Government Printer, Sydney. 1900.

Some Retrospects and Prospects in Surgery. By Reginald Harrison, F.R.C.S., Member of Council, Ex-Vice-President, and Hunterian Professor of Pathology and Surgery, Royal College of Surgeons; Honorary Fellow of the American Surgical Association; President of the Medical Society of Liverpool (1881-2); of London (1890); and of the Surgical Section of the British Medical Association (1901-2); Surgeon to St. Peter's Hospital, London. An address delivered at the Medical School of Cornell University, New York, March 13, 1901. Reprint. 1901.

Original Articles.

A STUDY OF THE FOOD CONSUMED AND DIGESTED BY FOUR MEMBERS OF THE HARVARD UNIVERSITY BOAT CREW IN JUNE, 1900.

BY W. O. ATWATER AND F. G. BENEDICT,
MIDDLETOWN, CONN.

INTRODUCTION.

CONSIDERABLE information has accumulated within the past few years concerning the normal and usual food consumption of mechanics, laboring men, professional men and other people in ordinary conditions of life, but the food requirement of athletes is less definitely understood.

In Bulletin No. 75 of the Office of Experiment Stations of the U. S. Department of Agriculture,¹ account is given of dietary studies carried on with the Harvard and Yale University boat crews during the spring of 1898. These show the kinds, amounts and composition of the food actually eaten by the crews, and in one instance by an individual member, when in training at Cambridge and New Haven, and later at Gales Ferry, near New London. Another bulletin of the same department, now in press, reports the kinds, amounts and composition of the food eaten, and the amounts and composition of the feces and urine excreted by three bicycle racers during a six-day race in Madison Square Garden, New York City.² The studies just mentioned, with one of the food eaten by Sandow,³ one of food eaten and urinary excretions by Weston, the pedestrian,⁴ and two of food eaten by college foot-ball teams, one at Wesleyan,⁵ and one at the University of California,⁶ represent practically the extent of the investigations of the food of athletes thus far made in this country. A few investigations of a somewhat similar nature have been made in other countries.

It is evident that more data are needed regarding the food consumption and food requirements of persons with intense muscular exercise. The desired information is ordinarily sought by dietary studies, digestion experiments, studies of the excretory products,—especially the urine, nitrogen metabolism experiments, and, finally, respiration and respiration calorimeter experiments, which include more detailed investigation of the metabolism of matter and energy in the body.

Dietary studies.—The object of studies of this sort is generally to find the kinds, amounts and composition of the food consumed by people of different classes. A large number of dietary studies of people in ordinary walks of life have been made in this and other countries, but the

number made with athletes is still small, as just explained. The investigation here reported includes such a study.

Digestion experiments.—Not all of the food consumed is actually available to the body for the building and repair of tissue and the yielding of energy. A portion resists the action of the digestive juices, and is eliminated, together with residues from the digestive juices and other metabolic products, in the intestinal excreta. The proportions of the nutrients of the food which are actually available to the body have been determined by means of so-called digestion experiments, in which the ingredients of the food eaten and those excreted in the feces are compared, in order to find the proportion thus actually used by the body. A large number of experiments of this sort have been made with people engaged in ordinary occupations. Very few data, however, have accumulated concerning the relative digestibility of the same food materials under different conditions of rest and of more or less active or severe labor. The present investigation includes a digestion experiment under conditions of very severe muscular work.

Investigations of excretory products.—The composition of urine is one of the most, and that of feces one of the least, thoroughly studied topics of physiological chemistry. In the present experiments the feces were analyzed by the methods commonly followed, while the examinations of urine were somewhat more detailed than are usual in digestion experiments.

Nitrogen metabolism experiments.—The object here is the study of the metabolism of proteids, as shown by the income and outgo of nitrogen. In the present experiments the total nitrogen was determined in the food, feces and urine, thus showing the nitrogen balance.

THE INVESTIGATION.

The present investigation, which thus includes dietary, digestion and nitrogen metabolism experiments,⁷ was made at the instigation of the Harvard Athletic Committee, through Dr. E. A. Darling in order to obtain information regarding the food consumed and digested by the Harvard University boat crew. The observations were made in June, 1900, at the headquarters of the crew, at Gales Ferry, near New London, during the last days of training previous to the race with Yale, on June 28th. The feces and urine were sent, with samples of the food materials, to Middletown, where the analyses were made in the chemical laboratory of Wesleyan University.

⁷ The experiments were so planned as to bring them in line with a larger inquiry regarding the food and nutrition of man, which is being carried on by authority of Congress, under the auspices of the Department of Agriculture, and by co-operation with a considerable number of universities, colleges, and experiment stations in different parts of the country. The extent of the present investigation, its usefulness for its especial purpose and its general value are thus greater than would otherwise have been possible. Its relation to the larger inquiry will account for the numbering of the dietary and digestion experiments in the tables beyond, as well as the fact that the results of that inquiry have been drawn upon so freely. The details of the experiments will probably be published in a bulletin of the Office of Experiment Stations of the U. S. Department of Agriculture.

¹ Dietary Studies of University Boat Crews, by W. O. Atwater and A. P. Bryant.

² Dietary Studies of Bicycle Racers, by W. O. Atwater and H. C. Sherman. Not yet published.

³ Reported by C. F. Langworthy and W. H. Beal in Storrs' (Conn.) Agricultural Experiment Station Report, 1896, p. 158.

⁴ Reported by Austin Flint in New York Medical Journal, June, 1871.

⁵ Reported by W. O. Atwater and C. D. Woods in Storrs' (Conn.) Agricultural Experiment Station Report, 1891, p. 128.

⁶ Reported by M. E. Jaffa in Bulletin No. 84 of the Office of Experiment Stations of the U. S. Department of Agriculture.

Subjects.—It was not practicable to include all of the crew in the study, but it was possible to make such arrangements with four members of the crew, that their exact food consumption could be determined, as well as the quantities of liquid and solid excreta. The ages, heights and weights of the four men were as follows:

Subject.	Age, Years.	Height, Feet, Inches.	Weight, Pounds.
A.....	29	6 2 1/2	174
B.....	22	5 11	163
C.....	19	6 0	175
D.....	25	6 1 1/2	167

Physical condition of the men; daily routine.

—As regards the physical characteristics and condition of the men, it will suffice here simply to call attention to the fact that they were in normal condition throughout the period of the study. The men rose at 7 a.m. and took a five-minute walk before breakfast. After breakfast they indulged in reading, going out in the launch, playing games, etc., until about ten o'clock, when they prepared for morning practice on the river, which was in general from three-quarters to one and one-quarter hours in duration. On the return, after the bath a light lunch was served, and at two o'clock a heartier meal was taken. The evening row began between five and six o'clock, and lasted from one-half to two hours. The last and the heartiest meal of the day was served about eight o'clock, and at its close the men sang or read until ten o'clock, at which time they were obliged to retire.

General plan of the study.—The four men ate at a small table in the large general living room, which served as a dining room. The remainder of the crew, the substitutes and the coaches, sat at one long table in the same room. The observers in charge of the investigation were stationed at the door of the pantry adjoining. The small table, at which the men under observation sat, was served by a special waiter, who was also required to serve, in a general way, at the large table. Each article of food served at the small table and all food materials taken from that table were weighed, and samples were taken for analysis. No attempt was made to determine the proportions of food consumed by the four men individually. The study began with breakfast Tuesday morning, June 19th, and ended with the evening meal of Monday, the 25th.

Food.—The kinds of food materials served were much the same as those in the study of Harvard crews two years previous, the results of which have already been referred to.⁸ All the visible fat was trimmed from the meat, and rejected. With lamb or mutton chops only a small amount of the total weight of the chop was actually eaten. Well-cooked, crisp bacon was served occasionally, and seemed to be especially relished. Most of the bread was toasted, although at the last meal of each day stale bread was allowed. A dish of calves' foot jelly with sherry was given after the morning row, and at the evening meal ale or claret was allowed. It was noticed that

after the time row, and other unusually severe work, more ale or claret was taken. Table 3 beyond shows the kinds and amounts of food materials consumed.

Feces.—In collecting the solid excreta from a given diet it is customary to make the separation between the feces from the diet under consideration and those from the previous and subsequent diet, by means of small portions of charcoal administered at the beginning and end of the experiment. The charcoal serves to color the feces. Such separation was attempted in this investigation; but owing to a misunderstanding the feces were not collected after the close of the study, and consequently the final separation was not obtained, and the first was of no use. In order to provide in advance for such a contingency the feces excreted by each subject were collected for each day, beginning with the commencement of the experiment, and thus the feces eliminated during the exact period covered by the study were taken as the measure of the feces belonging to the food eaten during the same period. Inasmuch as the diet was very nearly the same in the days immediately preceding as during the experiment, it is assumed that the feces collected during the first two or three days of the investigation were not materially different in amount and composition from those collected in the latter part of the period. Any error introduced in this way could hardly be important.

Urine.—This was collected for each subject separately in twenty-four hour periods, beginning at 11 o'clock in the morning of June 19th. At this time, immediately preceding the morning row the bladder was always emptied.

It will thus be seen that the quantities of solid and liquid excreta were determined for each subject, but the food consumed was determined only for the four men taken together. It is hoped that at some future time it may be possible to determine both the food and the excretory products of individual persons. It was obviously necessary, in this case, to make the investigation of as little trouble as possible to the men, and on this account no attempt was made to determine the food consumption of the individuals separately.

Methods of Analysis.—The methods followed were, in the main, those adopted by the Association of Official Agricultural Chemists,⁹ with such modifications as have been devised from time to time in this laboratory. The total nitrogen was in all cases determined by the Kjeldahl method, with the special manipulation suggested by one of us.¹⁰ The fat was determined by extraction with ether and the mineral matter by incineration, with the usual precautions. The water was determined by drying in a water oven for a period of five hours. In vegetable food materials and in milk the difference between 100% and the sum of the percentages of water, protein,¹¹ fat (ether

⁸ See U. S. Department of Agriculture, Division of Chemistry, Bulletin 46.

⁹ Journal of American Chemical Society, 22 (1900), p. 250.

¹¹ It is a common custom to estimate protein, both of animal and vegetable foods, as N x 6.25, thus assuming an average of 16%

⁹ U. S. Department of Agriculture, Office of Experiment Stations, Bulletin No. 75.

extract) and mineral matter (ash) was taken as indicating the proportion of carbohydrates; in other words, carbohydrates were estimated by difference.

The heats of combustion of food and excretory products were determined by means of the bomb calorimeter.¹² The combustion of solid materials, like bread, meat, etc., are made by compressing air-dry or partially-dried material in pellets, and burning them with a large excess of oxygen in the bomb. The accurate determinations of the heat of combustion of urine is, however, more difficult, owing to the tendency of urea to decompose into ammonium carbonate during the process of drying. We have followed the method suggested by Kellner,¹³ which is in effect the saturation of a cellulose "absorption block" of known weight and known heat of combustion with a known amount of urine, drying in an oven at about 60° C. and burning in the bomb calorimeter. The heat of combustion of the urine taken is the difference between the total heat given off and that produced by the combustion of the cellulose block.¹⁴

In the analytical work involved in the investigation here reported, we are indebted to the valuable aid given by Dr. J. F. Snell and Messrs. P. B. Hawk, E. Osterberg and E. M. Swett. The determinations of urea and uric acid, however, were made by Dr. E. W. Brown, who has made a special study of the subject in the laboratory of physiological chemistry of Yale University. The urea was determined by the Mörner-Sjogvist¹⁵ method and the uric acid by the Hopkins¹⁶ method.

Sampling and analysis of food materials.—

In order to make the statistics as exact as possible, practically all the food consumed was sampled and analyzed. In the case of uncooked foods this is not so imperative. The composition of ordinary raw food materials can be estimated approximately from the averages of a large number of analyses of different materials which have lately accumulated. The composition of cooked materials is, however, uncertain, both because only a few analyses have been made of cooked food and because the methods of preparation of the same materials or "made dishes" differ widely. The quantity of nutrients in a roast of beef depends not only upon the composition of the raw material, but also upon the amount of water and fat which are removed in roasting. The composition

of mashed potatoes depends not only upon the composition of the potatoes themselves, but upon the amount of butter and milk, or cream, which may have been added. It was, however, impracticable in this investigation to analyze samples of every kind of cooked food. The following general plan for sampling and analysis was therefore adopted:

All food materials were sampled, with the exception of raw eggs, lady fingers, shredded

TABLE 1.—PERCENTAGE COMPOSITION OF FOOD MATERIALS EATEN BY FOUR ATHLETES.

Laboratory No.		Water.	Nitrogen.	Protein.	Fat.	Carbohy- drates.	Ash.	Heat of Combustion (Calorim.)
3237	Meats. Composite sample.....	60.7	3.7	23.2	13.1	.....	1.6	2,580
3217	Poultry. Composite sample.....	59.6	4.4	27.7	9.8	.....	1.4	2,519
3215	Fish.....	67.1	3.5	21.9	7.6	.....	1.5	1,995
a	Eggs, raw.....	73.7	2.4	14.8	10.5	.....	1.0	1,833
3216	Eggs, cooked.....	73.7	1.8	11.0	11.4	.....	1.1	1,852
3230	Soups. Composite sample.....	88.9	0.8	4.8	1.3	3.4	1.6	512
3232	Butter.....	12.8	0.2	1.0	83.2	.....	2.9	7,781
3218	Milk.....	87.8	0.5	3.2	3.3	5.0	0.7	683
3231	Cream.....	76.3	0.5	2.8	16.0	4.3	0.7	1,769
3236	Calves' foot jelly.....	72.5	0.8	5.3	.....	21.4	0.9	1,177
3214	Oatmeal.....	82.2	0.5	2.7	0.8	13.7	0.6	817
a	Shredded wheat biscuit.....	8.6	2.2	13.6	2.4	74.5	0.9	4,011
3225	Toast.....	21.0	1.7	9.8	4.1	63.4	1.7	3,458
3213	Bread, white and graham. Composite sample.....	33.0	1.4	8.0	4.6	53.1	1.3	3,123
3233	Crackers, graham.....	5.3	1.2	6.9	11.1	74.0	1.8	4,571
a	Lady fingers.....	15.9	1.4	8.8	5.0	70.6	0.6	2,729
b	Bread pudding.....	67.3	0.8	4.8	5.2	22.5	0.2	1,685
3234	Tapioca pudding.....	74.7	0.1	0.6	2.3	22.2	0.2	1,116
a	Sugar.....	.....	.....	.....	.....	100.0	.....	3,860
3223	Vegetables. Composite sample.....	79.0	0.4	2.4	2.5	14.6	1.6	944
a	Grape fruit.....	86.9	0.1	0.8	0.2	11.6	0.5	524
3234	Marmalade.....	17.0	0.1	0.6	0.1	82.1	0.2	3,325
3239	Rhubarb sauce.....	78.0	0.1	0.5	0.1	9.4	0.4	875
3228	Prune sauce.....	49.2	0.2	1.0	0.2	48.5	1.1	2,012
3227	Fruit salad.....	77.9	.....	0.2	.....	21.8	0.1	886
a	Strawberries.....	90.4	0.2	1.0	0.6	7.4	0.6	404
a	Cherries.....	80.8	.....	0.2	1.0	16.7	0.6	794
3235	Jelly.....	22.1	0.1	0.6	.....	77.0	0.3	3,111
3233	Orange sherbet.....	67.4	.....	.....	.....	32.4	0.2	1,280
3240	Alc.....	.....	.....	.....	.....	13.9 ^a	.....	572
3238	Caramel.....	.....	.....	.....	.....	11.5 ^a	.....	479
.....	Sherry.....	.....	.....	.....	.....	24.6 ^a	.....	984

a Composition assumed from averages of analyses of similar materials, as reported in Bulletin 28, revised, of the Office of Experiment Stations, U. S. Department of Agriculture; The Composition of American Food Materials, by W. O. Atwater and A. P. Bryant.

b See pages 15 and 16 of Bulletin 75 of the Office of Experiment Stations, U. S. Department of Agriculture, on Dietary Studies of University Boat Crews, by W. O. Atwater and A. P. Bryant.

¹ Undetermined.

² Found to contain 5.97% alcohol by weight, and 3.8% other organic matter. Since the heat of combustion of alcohol is 7.1 and the heat of combustion of carbohydrates about 4.1 calories per gram, it follows that 1 gram. of alcohol is isodynamic with 1.7 grams of carbohydrates (7.1 ÷ 4.1 = 1.7). The 5.97% of alcohol in the ale may therefore be assumed as equivalent to 10.1% of carbohydrates. Assuming the remaining 3.8% of organic matter to be sugars or starches, the total organic matter in the ale is equivalent to 13.9% of carbohydrates.

³ Found to contain 6.75% alcohol by weight, isodynamic with 11.5% carbohydrates.

⁴ Assumed to contain 14.5% alcohol by weight, isodynamic with 24.6% carbohydrates.

of nitrogen in protein of both animal and vegetable foods. The proportion of nitrogen in protein of vegetable food, especially of the cereal products, appears to be greater than 16%, and requires a smaller factor than 6.25. The factors for protein here used are stated in Table 8 beyond. For a full discussion of the proper nitrogen factor for computing protein, see discussion by Atwater and Bryant, Reports of Storrs' (Conn.) Agricultural Experiment Station, 1898, pp. 74-79.

¹² For a description of this apparatus, see Chemistry and Economy of Food, by W. O. Atwater, U. S. Department of Agriculture, Office of Experiment Stations, Bulletin 21, p. 123; and Reports of Storrs' (Conn.) Agricultural Experiment Station, 1894, p. 135, and 1897, p. 199.

¹³ Landw. Vers. Stat. 47 (1896), p. 297.

¹⁴ For a description of this method, see Experiments with Metabolism of Matter and Energy, by W. O. Atwater and F. G. Benedict, U. S. Department of Agriculture, Office of Experiment Stations, Bulletin 69, revised, p. 25.

¹⁵ Skand. Arch. f. Physiol., 1891, ii, p. 438.

¹⁶ Chemical News, 1892, p. 101, and Journal of Pathology and Bacteriology, 1893, p. 457.

wheat, bread pudding (which was served but once), sugar and fresh fruit. A composite sample of the meats was obtained by taking, as an aliquot subsample, one-tenth of the weight of each kind of meat served at each meal. These various aliquot subsamples were united in one large composite sample of all meats eaten. This composite

TABLE 2.—PERCENTAGE COMPOSITION OF FECES:
EXPERIMENT WITH FOUR ATHLETES.

Laboratory No.	Subject.	Water.	Nitrogen.	Protein.	Fat.	Carbo-hydrates.	Ash.	Heat of combustion per gram. Calories.
3219 A	76.4	1.3	7.9	3.9	7.7	4.1	1.199
3220 B	82.7	1.1	7.0	3.7	4.5	2.1	.954
3221 C	81.1	1.3	7.8	3.7	4.9	2.5	1.039
3222 D	82.8	0.9	5.7	4.4	4.0	3.1	.918

TABLE 3.—FOOD EATEN BY FOUR ATHLETES DURING SEVEN DAYS.

DIETARY STUDY No. 324.¹

Laboratory No.	KIND OF EXPERIMENT.	DAY OF STUDY. (Number of grams.)							Total, 7 days.
		1	2	3	4	5	6	7	
3237	Meats: (Composite sample.)	.....	.....	.....	.....	.....	.....	.....	.....
	Roast beef.....	820	210	310	385	410	410	510	3,055
	Bacon.....	125	.....	.....	.....	.....	.....	.....	125
	Lamb chops.....	.....	170	.....	125	.....	125	140	560
	Steak.....	.....	595	170	645	100	.....	.....	1,500
	Liver and bacon.....	.....	.....	210	.....	.....	.....	.....	210
	Liver.....	.....	.....	.....	.....	170	.....	.....	170
	Roast mutton.....	.....	.....	.....	.....	185	.....	.....	185
	Lamb stew.....	.....	.....	.....	.....	.....	.....	510	495
	.....	.....	.....	.....	.....	.....	.....	170	170
3217	Poultry: (Composite sample.)	.....	.....	.....	.....	.....	.....	.....	.....
	Chicken.....	425	.....	210	.....	.....	200	.....	835
	Turkey.....	.....	170	.....	.....	.....	.....	.....	170
3215	Fish:	.....	.....	.....	.....	.....	.....	.....	.....
	Salmon.....	290	455	.....	.....	.....	.....	.....	655
3216	Eggs, raw.....	.....	.....	55	.....	.....	.....	30	85
3216	Eggs, cooked.....	170	155	140	295	125	240	80	1,175
3230	Soups: (Composite sample.)	.....	.....	.....	.....	.....	.....	.....	.....
	Hotchpotch.....	.....	.....	580	555	540	.....	455	2,130
	Potato.....	.....	.....	.....	1160	.....	.....	.....	1,160
	Okra.....	.....	.....	.....	.....	525	.....	.....	525
	Consomme.....	.....	.....	.....	.....	.....	1,345	.....	1,345
	Soup.....	.....	.....	.....	.....	.....	.....	920	920
	Oyster stew.....	.....	.....	.....	.....	.....	.....	950	950
	Tomato.....	.....	.....	.....	.....	.....	.....	2,080	2,080
3232	Butter.....	.....	.....	.....	.....	.....	.....	225	1,430
3218	Milk.....	1,885	3,120	2,650	1,715	3,575	1,730	2,950	17,225
3231	Cream.....	980	1,065	455	965	1,065	835	750	6,065
3236	Calves' foot jelly.....	.....	.....	.....	.....	.....	.....	350	1,860
3234	Oatmeal.....	550	625	210	400	.....	.....	170	1,955
3234	Shredded wheat biscuit.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	225	225	155	155	225	225	140	1,350
3225	Toast.....	140	555	540	425	550	550	565	3,425
3213	Bread, white and graham.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	335	400	200	440	425	355	325	2,540
	Crackers, graham.....	115	85	125	125	155	420	210	1,235
3230	a Lady fingers.....	.....	.....	.....	.....	.....	.....	.....	.....

	Bread pudding.....	.....	.....	.....	.....	.....	.....	.....	.....

3224	Tapiea pudding.....	.....	.....	.....	.....	.....	.....	.....	.....

3224	a Sugar.....	140	115	70	100	70	100	70	635
3223	Vegetables: (Composite sample.)	.....	.....	.....	.....	.....	.....	.....	.....
	Potatoes.....	340	710	480	505	270	335	560	3,200
	Green peas.....	.....	.....	.....	.....	100	270	.....	580
	Beets, boiled.....	.....	.....	.....	.....	125	140	.....	465
	Macaroni.....	.....	.....	.....	.....	.....	.....	.....	.....

	Rice, boiled.....	.....	.....	.....	.....	.....	.....	.....	.....

	Tomatoes, stewed.....	.....	.....	.....	.....	.....	.....	.....	.....

	Corn, stewed.....	.....	.....	.....	.....	.....	.....	.....	.....
	Asparagus.....	.....	.....	.....	.....	.....	.....	.....	.....

	Greens.....	.....	.....	.....	.....	.....	.....	.....	.....
	Onions, boiled.....	.....	.....	.....	.....	.....	.....	.....	.....
	String beans.....	.....	.....	.....	.....	.....	.....	.....	.....

a	Grape fruit and oranges.....	.....	.....	.....	.....	.....	.....	.....	.....

3234	Marmalade.....	125	170	155	115	100	155	125	945
3225	Rhubarb sauce.....	.....	.....	.....	.....	.....	.....	.....	.....

3228	Fruit salad.....	.....	.....	.....	.....	.....	.....	.....	.....

3227	Fruit salad.....	.....	.....	.....	.....	.....	.....	.....	.....

a	Strawberries.....	.....	.....	.....	.....	.....	.....	.....	.....

a	Cherries.....	.....	.....	.....	.....	.....	.....	.....	.....

3225	Jelly.....	.....	.....	.....	.....	.....	.....	.....	.....
3223	Orange sherbet.....	.....	.....	.....	.....	.....	.....	.....	.....

3240	Ale.....	1,220	835	705	2,255	340	285	1,045	7,275
3238	Claret.....	.....	.....	.....	.....	.....	.....	.....	.....

	Sherry.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ This is the 324th study of the series referred to in footnote 7.

sample was used for analysis. Similar composite samples were taken of all kinds of fish, of soups, of breakfast foods, etc.

Some of the sauces and desserts were not completely analyzed; since they did not form an important part of the diet, the amount of dry substance only was determined, and the composition of this dry substance was assumed from other analyses of the constituent food materials. The error thus involved can hardly be large enough to affect materially the results.

The percentage composition of the food materials used in the study is shown in Table 1. Those designated by laboratory numbers were analyzed; the composition of those designated by the letters *a* and *b* was estimated, as stated in a footnote to the table.

Collection and analysis of feces.—The feces were collected for each subject during the whole period of the experiment, and were analyzed separately; the figures thus show in each case the composition of the whole quantity for seven days. The percentages apply to fresh (not partly dried) substance. The results are shown in Table 2.

The amount and composition of the urine will be discussed later.

THE DIETARY STUDY.

The figures of Table 3 show the kinds and amounts of food eaten by the four men on each day and during the whole seven days of the experiment. For the reason explained above it was not found practicable to weigh the amounts eaten by each man separately. The food materials were weighed as they were put on the table ready for eating. The portions left uneaten were also weighed. The quantities here given are those actually eaten; they were found by deducting the amounts not eaten from those served.

TABLE 4.—NUTRIENTS AND ENERGY IN DAILY FOOD OF FOUR ATHLETES.

DIETARY STUDY No. 324.

FOOD EATEN.	Total food.							
	Grams.	Organic matter.	Nitrogen.	Protein.	Fat.	Carbo-hydrates.	Heat value.	Heat of combustion.
June 19, per man	2,822	768	27.5	169	156	448	3,840	4,215
" 20, " " "	3,205	831	29.9	183	177	471	4,195	4,601
" 21, " " "	3,035	785	24.5	149	135	501	3,800	4,139
" 22, " " "	3,113	805	25.3	155	168	482	4,040	4,417
" 23, " " "	2,945	808	24.2	148	164	486	4,035	4,370
" 24, " " "	2,129	507	19.6	118	119	440	3,560	3,849
" 25, " " "	3,097	701	25.9	158	162	481	4,000	4,300
Total 1 man, 7 days	20,286	5,565	176.9	1,080	1,111	3,314	27,470	29,951
Average per man per day for 7 days	2,898	796	25.3	154	159	473	3,925	4,279
Total 1 man for 6 days, excluding Sunday, June 24	18,157	4,708	157.3	962	962	2,874	23,910	26,102
Average per man per day for 6 working days	3,026	800	26.2	160	160	479	3,986	4,350

The amounts of nutrients and energy in the food eaten are found by applying the figures for composition in Table 1 to those for quantity in Table 3. They are summarized in Table 4.

It thus appears that these four young men, who had been selected from several thousand university students because of their combination of muscular strength and endurance, and the higher qualities needed for success in a severe physical contest, and had been in vigorous training for several months, on a diet such as experience implies to be fitted to the purpose, ate food supplying, on the average, per man per day:

	Average for 7 Days.	Average for 6 Working Days.
Protein.....	154 grams.	160 grams.
Fats.....	159 "	160 "
Carbohydrates.....	474 "	479 "
Total energy.....	4,279 calories	4,300 "
Fuel value.....	3,925 "	3,955 "

It is to be noticed that the figures for the total energy of the nutrients express the total heat of combustion. The fuel value is found in the digestion experiments as stated beyond.

Comparison of results of this and other studies.—Table 5 compares the results of the dietary study just described with those of a number of other studies of similar character. The figures for Nos. 2 to 8 of the table represent the food eaten by the members of the Harvard and Yale University crews while in training, first at Cambridge and New Haven and afterwards at Gales Ferry, for the race of 1898. Nos. 9 and 10 are for the foot-ball teams at Wesleyan University and the University of California. No. 11 is the diet for a single day of Sandow, who is remarkable for his feats of muscular strength, as lifting. With the figures for the food eaten by these athletes are given the average results of a considerable number of studies of people at ordinary occupations: college students and families of mechanics, farmers and professional men in different parts of the United States. All of the dietaries in the table belong to the general inquiry above referred to.

The protein of the food of the four athletes of the Harvard crew of 1900 averages 154 grams and the fuel value 3,925 calories per day. The average for the Harvard and Yale University crews in 1898 was almost exactly the same; protein 155 grams, and fuel value 3,955 calories. So close an agreement is doubtless accidental, but it is interesting that the quantities of food eaten by these four men should be so close to the averages found in the previous studies. It is evident that the quantities of food eaten by these men did not differ materially from those eaten by the other college crew men in training. The college foot-ball teams had much more of both the protein and energy in their daily food. The food of Sandow contained somewhat more of energy and very much more protein.

The number of studies thus far made does not suffice for an accurate measure of the food consumption of people of different classes at ordinary occupations in various parts of the United States. It seems probable, however, that the fig-

ures in this table are not very far from the actual averages. The ordinary food of students at different colleges and universities, as shown by the figures in the table for 15 college clubs, gave 107 grams of protein and a fuel value of 3,580 calories. The corresponding average in families of mechanics, farmers and professional men, as calculated for adult male members, is not far from 100 of protein and 3,315 of energy.

TABLE 5.—COMPARISON OF QUANTITIES OF NUTRIENTS IN FOOD OF ATHLETES AND PEOPLE OF ORDINARY OCCUPATIONS.

(Nutrients in food actually eaten per man per day.)

Reference No.		Protein. Grams.	Fats. Grams.	Carbo- hydrates. Grams.	Fuel value. Calories.
ATHLETES.					
1	Four members of Harvard University crew, 1900.				
	First day, June 19.	169	156	443	3,840
	Second day, " 20.	183	177	471	4,195
	Third day, " 21.	149	135	501	3,800
	Fourth day, " 22.	155	168	482	4,040
	Fifth day, " 23.	148	164	496	4,055
	Sixth day, " 24.	118	149	440	3,560
	Seventh day, " 25.	158	162	481	4,000
	Average 7 days	154	159	473	3,925
2	Harvard University crew at Cambridge, 1898.	162	175	449	4,000
3	Harvard Freshman crew at Cambridge, 1898.	153	223	468	4,470
4	Yale University crew at New Haven, 1898.	145	170	375	3,595
5	Harvard University crew at Gales Ferry, 1898.	160	170	448	3,945
6	Harvard Freshman crew at Gales Ferry, 1898.	135	152	416	3,555
7	Yale University crew at Gales Ferry, 1898.	171	171	434	3,940
8	Captain of Harvard Freshman crew at Gales Ferry, 1898.	155	181	487	4,180
	Average Nos. 2-8	155	177	440	3,955
9	Foot-ball team, Wesleyan University, 1898.	181	292	557	5,590
10	Foot-ball team, University of California, 1898.	270	416	710	7,625
11	Sandow, "The Strong Man"	244	151	502	4,330
PEOPLE AT ORDINARY OCCUPATIONS.					
12	Average 15 college clubs, U. S.	107	148	459	3,580
13	Average 14 mechanics' families, ¹ U. S.	103	150	402	3,355
14	Average 10 farmers' families, ¹ U. S.	97	130	467	3,375
15	Average 24 mechanics' and farmers' families, ¹ U. S.	100	141	429	3,365
16	Average 14 professional men's families, ¹ U. S.	104	125	423	3,220
17	Average 28 mechanics', farmers' and professional men's families, ¹ U. S.	102	136	427	3,310

¹ Calculated for male members.

No. 1. Described above.
Nos. 2-8. Reported by W. O. Atwater and A. P. Bryant, Bulletin 75 of the Office of Experiment Stations, U. S. Department of Agriculture, Dietary Studies of University Boat Crews. These are Nos. 227-233, respectively, in the series of dietary studies referred to in note 7.

No. 9. Reported by W. O. Atwater, Report of Storrs' Experiment Station, 1891, p. 128.

No. 10. Reported by M. E. Jaffa, in Bulletin 84 of the office of Experiment Stations, U. S. Department of Agriculture. Serial number of study 268.

No. 11. Reported by C. F. Langworthy and W. H. Beal, in Report of Storrs' Experiment Station, 1896, p. 158. Serial number of study 179.

Nos. 12-16. Reported by W. O. Atwater and associates in various Bulletins of the Office of Experiment Stations, and Reports of the Storrs Experiment Stations. Summarized by A. P. Bryant in the Yearbook of the U. S. Department of Agriculture, 1898, p. 439.

That athletes eat considerably more than people in ordinary life is what would naturally be expected. An especially interesting feature of

the food of the athletes is the much larger amount of protein in proportion to the fuel value than is found in the food of people with ordinary muscular strain; that is to say, in increasing their food over the ordinary consumption, the athletes added much more proportionally to the protein than to the other nutrients (fats and carbohydrates). The large proportion of protein in the food of men subjected to intense muscular strain has been a matter of frequent observation in the United States and Europe. Why and to what extent it represents a physiological necessity is not yet fully known. It seems very natural, however, that where great muscular strength and effort are needed, there should be corresponding muscular development, and this would be most naturally attained by the use of nitrogenous food.

(To be continued.)

PUERPERAL INSANITY.¹

BY EDWARD R. LANE, M.D., BOSTON.

WHEN your president asked me to speak to-night on the subject of puerperal insanity, I told him that I felt somewhat embarrassed, as I was asked to talk about something which I believed did not exist.

I do not wish to be understood to deny that insanity occurs in conjunction with the puerperal state, for, unfortunately, this distressing complication is frequently seen. Nor do I wish to deny that the puerperal condition is not an exciting cause, for I know that it is. I object to the term "puerperal insanity" to define a distinct type of mental trouble, as I do not find such in practice.

Many years ago I asked myself this question: What is there diagnostic of puerperal insanity about this patient?—one against whose name in the clinical record stood that diagnosis. Can the alienist in going through the wards of a hospital for the insane for the first time, without assistance, name the cases of puerperal insanity from objective symptoms? I do not believe he can. At any rate I cannot. We can diagnose objectively general paresis, mania, melancholia and katatonia; but we must receive the history of recent childbirth before we make a diagnosis of puerperal insanity. This term is one of many descended to us from the old etiological classification of the English and Scotch writers. This has been more elaborately subdivided into insanity of pregnancy, puerperal insanity, and lactational insanity. Again, we hear of puerperal mania and puerperal melancholia. Such a nomenclature not based on mental symptoms alone leads us to hopeless confusion, and is most unscientific.

But you did not ask me to go into the endless subject of nomenclature of mental diseases,—a branch of medical science of which none of us may feel proud. I will only ask you to remember that I do not recognize a distinct type of mental

disease the immediate result of the puerperal condition, and the obstetrician need not, in looking for the origin of these distressing symptoms, confine himself to incidents of the labor or its sequela.

It is commonly said that heredity plays an important part in the causation of puerperal insanity. This may be true, but I seriously question if it is any more potent in these cases than in insanity in general. It is always an important contributing cause; but it certainly is not a cause for our giving a more grave prognosis than we would in a case where there was no insane heredity.

At the risk of exhausting your patience I will venture to ask you to follow me in a hasty statistical inquiry. I was much interested in consulting the statistical returns of this subject, and I then asked the pertinent question; if the puerperal condition is an important factor in causing insanity it can be numerically expressed, if we can learn what is the excess of insanity among pregnant women over the amount of insanity among women in general between the ages of twenty and fifty. Let us take the facts in our own city, so far as we can get at them from the statistics furnished.

You already know that insanity is a disease of middle life. Census returns tell us that 70% of all insanity develops between the ages of twenty and fifty. It is highest relatively among those between thirty and forty; that is, the chance of becoming insane is greater between the ages of thirty and forty than at any other period of life.

There are today in our city not far from 280,000 women; that is, female population. Of these nearly one-half, or 135,000, are between the ages of twenty and fifty. Out of the total female population of the city 1.26 per 1,000, or 353 women, will be committed in one year as insane. According to the figures for the United States, 70% of these will be between the ages of twenty and fifty. But in our city there is a very large proportion of old people committed, and the true proportion would be a little over 60%. Sixty per cent of 353 would be 212 cases. We have a right to expect, then, no less than 212 women at the child-bearing age will become insane. How many of the women of this age are likely to be confined during the year? The vital statistics tell us that 18,000 living children will be born in our city during the year. There are no available figures as to the number of still births or miscarriages which may be expected to occur. This would be essential to an accurate estimate, but I will ignore it for the present. All but an insignificant number of these births will occur among the women of the ages chosen for our figures. If, then, insanity overtakes the 18,000 mothers in the same ratio as it will certainly occur among all women at this age, we may expect 28 cases of insanity to occur during pregnancy or soon after confinement. If we add to this, let us say, 2,000 more cases of miscarriage or still-births, we should have 31 cases of puerperal insanity. But the figures for Massachusetts for one year and those for the Boston Insane Hospital for ten years, which are nearly alike, show that only a fraction

¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, February 27, 1901.

over 4% of cases among women are puerperal. (It is an invariable custom to tabulate the cause as puerperal in the case of any woman who becomes insane during pregnancy or soon after. This, by the way, against the figures of 6% and 7% given in earlier times in England and this country.) And 4% of our total of 353 cases of insanity among all women in Boston is only 14. So that we arrive at the very interesting result that, as a matter of fact, insanity associated with childbirth occurs only one-half as often as it does among women in general at the child-bearing age. To use the terms of the insurance actuary, it would be a good risk to insure a pregnant woman against insanity, or, at least, against commitment for insanity.

I confess I am surprised at the result of this query, and am tempted to inquire further and seek as to why it is so. Among the insane the single outnumber the married; and it is possible that mental defect manifests itself so early that a large number who are to become insane never marry.

I believe it is demonstrated that the puerperal condition is not an important factor in the causation of insanity.

To illustrate the present scepticism on the subject of puerperal insanity, I will give briefly the experience with so-called "puerperal insanity" at the Boston Insane Hospital for the past year. In this time we received 202 women patients, of whom 6 (only 3%) were considered as puerperal cases. Here I use the word "puerperal" in its broadest sense, including all cases when the mental disease came on during pregnancy, or the lying-in period, or during lactation. As a fact, in only one of these six cases did the symptoms begin within ten days of childbirth.

CASE I. Mrs. W., twenty-three years. Became melancholy seven weeks after her baby was born. Thought she had done wrong. She seemed to improve, and her family considered her nearly well when she relapsed, and when the child was three and one-half months old she was committed. She was confused, frightened, said she had let her husband go, and wanted to kill herself. She doubted her husband's identity. There were hallucinations of hearing, and she tried to jump out of the window after her husband.

Since admission she has been very dull, and will seldom speak to any one in the hospital. She speaks more to her husband; is good-natured, but apathetic. Sits like a bashful child before the physicians. She gained remarkably in weight. She does not improve, and probably never will. A case of hebephrenia.

CASE II. Thirty-four years of age; married. One week before admission gave birth to a dead child. She states that she felt no life for a month, and it is believed that the child had been dead that time. She was confined by a midwife, and had no physician in attendance. For two weeks after admission her temperature ran from 100° to 102°. A gynecologist saw her in consultation, and the uterus was curetted and placental tissue and pus removed.

Her first mental symptoms were hallucinations, and she was suicidal. Later she was delicious, noisy and good-natured. This was followed by depression with dullness. She recovered what was probably her natural mental condition (which was never of the best) in six months, and went home. This was a delirious mania (probably septic), followed by depression.

CASE III. Has been insane five years, following a miscarriage, which was caused by slipping on the ice. Four years ago she gave birth to a living child. Soon after became much excited, probably as a result of delusions. Tried to kill her husband. Thought her food was poisoned. Hallucinations of sight and hearing. Refused to eat at one time. Has grown demented. On admission here was quiet and listless. Probably a case of hebephrenia, which had become demented.

CASE IV. Forty years of age. Husband left her many years ago, and she has been living with another man, by whom she had children. October 4th, while six or seven months pregnant (she does not know which), she was admitted to the hospital. She had been suffering from poverty, and probably not properly fed. For three weeks has been actively deluded; thought food was poisoned; was frightened. Later thought she might be dead, and was to be judged. Asked saints to forgive her; apparently felt something akin to remorse, for her illicit relations with her companion. She improved mentally in a week, and in three weeks seemed rational. She was discharged, sent to a State hospital, where she could be confined. This case is called puerperal because she chanced to be pregnant.

It is quite like other cases which come to us which are not complicated in this way, and I think her privation had more to do with it than the pregnancy. This was called a case of acute delusional insanity.

CASE V. Thirty-two years of age; married. This patient, like the previous one, became insane in the seventh month of pregnancy. For two months she suffered from hallucinations of hearing, which caused her to become insane in October. The voices told her she must leave the house, which she finally did one night, when only partially clad. She broke into another house.

On admission she was very quiet, but anxious about her children. She was depressed, but the depression was evidently secondary to her delusions. Could answer all questions intelligently, but refused to speak unless addressed. Had to be urged to eat. This condition continued for a month. She was then transferred to another hospital, that she might be confined. Diagnosis was made of acute delusional insanity.

CASE VI. Twenty-two years old; married. Has had three children,—two dead; youngest is living; was born October 1st. Seven weeks after confinement she began to be insane. Had laughing spells, and cried a good deal, also. She had not slept; said she had worried. She was excited at times; thought people were down on her.

Since admission she has been somewhat depressed; confused at times. She has had hysterical attacks; at other times suddenly excited. This is probably a case of hebephrenia.

This year's record gives, perhaps, a fair example of an experience with puerperal cases. Only one of the six was, in my opinion, a case of mania, and this was similar to the cases of puerperal mania of the older textbooks. These six cases fall, then, into no less than four types of mental disease. The only case of mania was that in which no physician had attended her during confinement, and placental tissue had been retained in the uterus.

Before leaving this subject I desire to read the history of three cases which are more like the cases we read of in the textbooks, and which occurred before the last year. I think they are instructive, and more nearly what we have been accustomed to regard as puerperal insanity.

CASE VII. Twenty-two years old; married. Admitted January 31st. Primipara. Child nine days old. Family history was unknown. She was a Catholic, and had been married about a year; was not married by a priest, and this had worried her at times. She was in excellent physical condition. The labor was not especially severe. She was cared for by a careful and excellent practitioner. When the child was four days old she became exhilarated; she laughed and sang. Then she paid no attention to the baby. An eminent specialist saw her in consultation, and gave it as his opinion that there was no sepsis. She grew more restless, and would not stay in bed; removed the dressings and clothing. She thought she saw the devil. Five days after mental symptoms developed she was committed to the Boston Insane Hospital.

On admission she was profane, obscene and vulgar; extremely restless, and would not stay in bed. Temperature 102.2°; pulse 116; respiring freely; took her nourishment well. The day after admission, mental condition the same; pulse 116, fairly strong and regular. Purulent stain noticed on napkin. Vaginal douche of corrosive sublimate given. Temperature 102° A.M., 104.2° P.M.

A small contusion with small slough noticed on posterior wall of vagina, one inch above perineum. Vagina packed with iodoform. It was thought this would explain the temperature, but soon an abundant purulent discharge appeared. Temperature 105° A.M. It was evident that there was trouble other than the vaginal ulcer to account for her condition. A gynecologist was sent for, and patient was highly stimulated. The surgeon curetted the uterus, and removed considerable purulent matter. But, although she stood the ether well, the temperature rose, and the pulse became weaker. She died on the evening of the fourth day.

This was a case of septic delirious mania. It is a question if there may not have been a double infection here, as the maniacal symptoms are said to have appeared before the sepsis was apparent.

CASE VIII. Admitted September 5th; aged twenty. Primipara. Baby seven days old. This woman was refined and used to comforts. During pregnancy her husband had been out of work, and she was deprived of some comforts. An additional cause of worry was potent, as an indiscreet relative had heated discussions on religious topics, urging her to change her belief, and tried to destroy her confidence in her husband. At the time of confinement there was little to do with, and besides the worry was added the mortification of her poverty. She had lost much sleep during pregnancy. When the baby was five days old she became excited; laughed, got out of bed, and gave imperious orders. She locked herself in her room. She made mistakes of identity; thought she could mesmerize people. Refused food and medicine. Was very emotional.

On admission to the hospital was restless and excited. For the first week her temperature varied from 99°-102°, and it became normal eleven days after admission; that is, eighteen days after confinement. The perineum had several stitches, which were removed in due time. It was necessary to use artificial feeding. There was much insomnia. Hypnotics were used for five weeks. Great excitement continued for seven weeks, when she became quieter and seemed apprehensive. She now began to eat well.

During the months of November and December she was talkative, silly, and frequently quite excited for a day; at other times quiet and timid; but her physical condition improved. During January the maniacal condition persisted. She was extremely mischievous, and used vile language. In February a decided improvement was noticed, and she exhibited more self-control; and in the middle of February she expressed a desire to go home to her husband. She said she could remember many incidents of her illness, but it was very confused. She could not believe she had been in the hospital six months. On February 26th she had gained very rapidly, and was discharged recovered.

This may be considered a typical case of acute mania. It is not one of the short cases of delirious mania of septicemia, but it was the usual course of acute mania. There was some temperature which I believe to be due to some toxic substance, quite possibly due to an infection, but more likely not the common septic poison.

The mental strain from worry, the loss of sleep, the exhaustion incident to confinement, co-operated to bring on the nervous symptoms. We must not forget that undoubtedly there exists a varying susceptibility to this toxic substance (whatever it may be), and those most susceptible possess an idiosyncrasy such that this poison causes in them maniacal symptoms. We must not be too ready to say a patient has a neurotic temperament.

CASE IX. Admitted November 19, 1898. A woman thirty-two years of age. Was admitted in a condition of acute mania. She had been incoherent in speech, very restless and excited for the past week. Began by being hysterical, noisy and irrational. Claimed she was not sick, and

could get up. Thought the milk given her was poison. Became very noisy, and was untidy; was tied in bed. Had hallucinations of sight and hearing.

On admission was very restless, and it was necessary to tie her in bed. Could be urged to take a good amount of liquid nourishment. Erratic in conversation. Trional and sulfonal administered to procure sleep. In ten days she cleared up mentally, with a relapse on the twelfth day, when she was confused and restless. She improved rapidly after this. In thirty-two days she went home, and was entirely recovered.

This case is a very good illustration of the mental disturbances seen in puerperal mania, and I cite it here because the cause was due to an ischiorectal abscess, and the excitement came on within thirty-six hours after an operation for the abscess. No sleep after the operation, and acute delirious mania followed. There was undoubtedly some toxic infection here, although not a septicemia. The patient had been suffering much pain for two weeks before the operation. She had become reduced physically, and was very hysterical before the operation. Loss of sleep and pain had produced a certain amount of exhaustion of the higher nerve centres. It is fair to assume that two pockets full of pus in the lower pelvis had given rise to some toxic substance, which had entered the circulation, and a brief delirious mania followed. This condition is probably not more a true insanity than acute alcoholism, and a recovery is to be expected as soon as the toxic substance can be eliminated and a few nights' sleep obtained.

THE HOME TREATMENT OF TUBERCULOSIS VS. THE CLIMATIC TREATMENT.¹

BY EDWARD O. OTIS, M.D., BOSTON.

ALL treatment of pulmonary tuberculosis is in one sense climatic. Wherever you treat the disease certain climatic essentials are indispensable. These I consider to be: First and foremost, pure air; next, freedom from dust and high winds; a fair amount, at least, of sunshine; a reasonably dry soil, and freedom from sudden, great and frequent variations of temperature. There are other climatic and regional conditions desirable and beneficial, but not essential; namely, altitude, dryness of the atmosphere, equability of temperature, continuous clear weather, absence of excessive heat or cold. Some or all of these additional climatic conditions enhance, as we all recognize, the value of the climate, *per se*; but when they have to be obtained by compelling the patient to be acclimated twice over—first to the new climate and then again reacclimated to the old—it is a debatable question whether the additional gain is worth the price paid. There are also various other sacrifices which have to be made for the gain, which I will mention presently.

If, for example, the Colorado climate and that of Rutland, Sharon, Saranac or Lakewood, were equally accessible and equally easy of choice, I should say choose by all means Colorado, for it possesses a greater number of favorable climatic factors; but when we weigh the demands to be complied with in order to obtain the Colorado climate, by the resident of the East or North above those of the other near-at-home resorts, it is a question whether the additional climatic excellences are worth the additional cost.

Since we have arrived at a realizing sense of the fundamental principles involved in the hygienic-dietetic treatment of pulmonary tuberculosis, the importance of climate, though great as it is, is now held, and with truth, I believe, to be but one of the factors in the ensemble of the treatment. Formerly, as we know, climate was considered the predominating ray, the sole factor. At one time it was a warm climate like Florida, and the exodus of patients was in that direction. At another a cold climate like Minnesota. Then the altitudes, and the rush of patients was to Colorado. This magic of climate as the totality of treatment, as I have said, now no longer holds sway; but any region whose climate permits the patients to continuously, or as nearly that as possible, remain out of doors in pure air, is a favorable one for the hygienic-dietetic treatment. Viewed in this light the "home treatment," as here defined,² is qualified to accomplish favorable results, and those already obtained in Europe and this country attest the soundness of this proposition.

In the home climate, moreover, there is the indubitable advantage of retaining the patient in the same climate in which he has previously passed his existence, and where he must live—in a large majority of cases at least—the remainder of it. Whatever risk there is in a double radical change of climate is obviated. Even so enthusiastic a partisan of the Colorado climate as Solly writes: "It is fair to assume that about 50% of the total number coming to Colorado can return to their homes to live in safety; provided, of course, the danger to them in returning home is only climatic."

Furthermore, by treating the patient near his usual and accustomed residence, we take advantage of the psychic influence of familiar surroundings. A favorable mental attitude is no small factor in the cure of disease, as we all know. I recall the case of a patient whose improvement was more prompt and rapid from embracing the cult of "Christian Science," all through the hopeful mental attitude it placed him in, and the freedom from fear it produced. Proximity to friends and familiar scenes, if not abused, buoys up the spirits and strengthens the will; nothing is more depressing than nostalgia.

Again, the pecuniary factor is a very important consideration with a large number of patients. The expense of a long journey and residence in a

¹ Presented as a part of the discussion upon this subject at the American Climatological Association, May 31st, at Niagara Falls.

² It is understood that the term "home treatment" will be considered to mean the treatment in home climates; that is, in a hygienically suitable locality as near as possible to the patient's usual residence.

distant health resort, even if by dint of sacrifice and exertion it can be attained, is a source of more or less constant worry. "Here I am," says the patient, "spending all this money, and after all shall I recover?" "If I do not recover within such a time I shall be obliged to return, because my money will be exhausted." How often have our Colorado confrères reiterated the statement that the most essential requisite in coming to this resort is a well-lined pocketbook.

With the exception of Brehmer's and Dettweiler's experience and that of a few others in sanatoria, it was not until a comparatively recent date that even phthisiotherapists assured themselves or realized that pulmonary tuberculosis could be successfully treated in a home climate like that of England, Germany or New England. The favorable experience of the last decade in these countries has been a revelation, I think, to us all, and an attestation of the truth that no excellence of climate will compensate for the disregard of a carefully arranged plan of life, adapted to the individual patient, constantly insisted upon with authority, and supervised by the expert phthisiotherapist. If the strenuous life leads to moral victory and achievement, it none the less leads to success in the struggle against tuberculosis. Comparing sanatorium treatment at home with non-sanatorium treatment in a health resort, I doubt whether the additional climatic excellence compensates for the absence of the sanatorium régime. Try as he will, and be as faithful as he may, I do not believe it possible for the physician in a free resort to exercise that despotic power and personal influence over his patients which the physician in a closed resort is enabled to do. In the one case absolute power is possessed; in the other it is not. In either case a firm will and a sympathetic nature is essential on the side of the physician; but in the one case these attributes have full play, and in the other they do not.

It does not seem to me that we are yet in possession of sufficiently accurate and extended statistics of treatment, under the two different conditions here discussed, to judge, with any great precision, from the results obtained. The conditions as to stages of the disease, class of patients, detail of treatment, etc., vary so greatly that comparison of results seems both impossible and unfair. For example, at Rutland, out of an almost unlimited number of applicants, only the very incipient and most hopeful cases are selected; and to compare results obtained under these ideal conditions with those of other sanatoria or free resorts, where cases of varying stages and differing degrees of prospective favorable issue are received, would be manifestly unjust and misleading.

Then, again, before we are in a position to determine the end results, several years must elapse. Further, it seems to me that we must compare sanatorium results with sanatorium results, and open-resort results with open-resort results.

The statistics which have been used to show

the advantages of the high altitude treatment over the home and sanatorium treatment, like the large number collected by Solly, and given in Hare's "System of Practical Therapeutics" and elsewhere, are those, it must be remembered, of ten years or more ago, before we thoroughly appreciated and employed, as we do today, the hygienic treatment of tuberculosis in all its strenuousness. The results we are obtaining today would, I believe, give a more favorable showing for the home treatment. Knoff² is the authority for the statement that cures effected in our home climates have been more lasting and more assured than cures obtained in more genial climates away from home. In this opinion concur Leyden, Gerhardt, Dettweiler, Walther and others.

If other things were equal, which, as I have pointed out, they are not, I am inclined to believe that a sanatorium favorably located in the Rockies, Alps or other altitudes, conducted on the same lines as Dettweiler's at Falkenstein, would, with the same class and stage of cases, produce better results than a sanatorium in our home climates. Turban's elaborate report of results at Davos, published in 1900, appears to show this.

In conclusion, it must be a source of great congratulation to us all who are engaged in the treatment of tuberculosis, that the prospects of success in the home treatment appear so auspicious. It is the very small minority of the tuberculous who are able or willing to travel far afield for a resort in which to take the cure. The majority, for one reason or another, must, if the hygienic cure is attempted at all, undertake it near home.

Clinical Department.

A CASE OF MARKED CYANOSIS, DIFFICULT TO EXPLAIN.

BY SYLVESTER F. MCKEN, M.D., BOSTON.

IN *The Boston Medical and Surgical Journal* of December 7, 1899, and of March 15, 1900, Dr. Richard C. Cabot reported two cases of "chronic cyanosis without discoverable cause." The following case presents quite a striking resemblance to these, and would seem to be of sufficient interest to warrant publication:

Henry H., a German, age fifty-three, packer in an iron foundry, came to the Medical Out-patient Department of the Boston City Hospital on May 6, 1901.

Family history.—Excellent.

Previous history.—About twenty years ago the patient had an attack of dyspnea for the first time, which laid him up for eight days. This came on suddenly, and was accompanied by no other symptoms, such as cyanosis, edema, palpitation, etc. Similar attacks have recurred at intervals of six months to two years. No other previous illness. Not subject to coughs. Denies venereal disease. Drinks one glass of whiskey, four glasses of

² Prophylaxis and Treatment of Pulmonary Tuberculosis, 1899.

beer, and two cups of coffee on an average daily. Smokes and chews fifteen cents' worth of tobacco per week.

Present illness.—He first noticed blueness of the face and hands about one year and a half ago. It came on suddenly, while at home recovering from one of his attacks of dyspnea above referred to, and has persisted with frequent exacerbations ever since. The cyanosis often increases suddenly, and his face and hands become "as blue as blueing," without any accompanying dyspnea or other symptoms of distress. He keeps right on with his heavy work, in spite of the marked cyanosis. Exertion does not seem to increase it particularly, nor cause any dyspnea. Increased blueness is seldom associated with dyspnea, although when he has one of his attacks of shortness of breath he is always more cyanotic than usual. About every two or three days he has attacks of blurring of the vision, followed by sweating and vertigo, when everything in the room seems to go round, and he is obliged to seize hold of some support to prevent his falling. Is not troubled with headaches, or noises in the ears. When very blue his hands feel cold and numb. For the past two years about, he has been subject to frequent attacks of diarrhea, sometimes causing prolapsus recti. Once there was blood in the stool. Appetite good. Sleeps well, but has to get up once every night to urinate.

Physical examination.—Well developed, but rather thin. Mind active. No dyspnea. Respiration 18. Extreme cyanosis of face, especially of the lips, tip of nose, and ears; small veins and capillaries of skin dilated. Hands and feet also very blue; most marked in a dependent position, less so when upright or horizontal. Circulation very slow in skin of other parts of body. An erythematous rash on shoulders and front of chest. Slight clubbing of fingers. Slight pitting over tibiae.

Eyes.—Conjunctivæ injected; pupils equal and react; fundi show retinal veins engorged and filled with very dark blood, but are otherwise normal.

Mouth.—Tongue deeply cyanotic; gums swollen and bleed easily; many teeth loose and decayed; mucous membrane of cheeks and pharynx purplish.

Larynx.—Negative, except for congested appearance; no obstruction.

Pulse.—Rate 65; occasionally a little irregular, tension not high; walls of arteries slightly thickened and roughened.

Heart.—Area normal to percussion; area of flatness marked; apex beat in fifth intercostal space within the nipple line; action for the most part regular; no murmurs; aortic second not accentuated.

Lungs.—Somewhat hyperresonant over upper front; no dullness beneath sternum; no râles.

Liver.—Upper border of dullness begins at seventh rib in mammillary line, and extends two fingers' breadth below costal margin; edge not palpable.

Spleen.—Upper border of dullness at eighth intercostal space in midaxillary line; edge plainly felt an inch below rib margin, descending to two and a half inches on deep inspiration.

Abdomen.—Negative; *taché cérébrale* absent.

Reflexes normal; sensation normal; a few small glands in post-cervical and inguinal regions. Temperature 98.1°.

A careful examination with the fluoroscope by Dr. F. H. Williams showed only emphysema, with consequent enlargement of the right heart, diminished excursion of the diaphragm, and depression of the liver; no mediastinal tumor or aneurism made out.

Urine.—Twenty-four-hour amount 70 ounces, normal color, acid reaction, specific gravity 1.015, trace of albumin, sugar absent; total urea, 35 grammes. Sediment contained a few granular casts, renal cells, leucocytes and abnormal blood corpuscles.

Blood.—Counts from the ear, finger and toe gave 9,440,000, 9,840,000 and 9,380,000 reds respectively; whites, 9,000, of which the polymorphs formed 74%, small mononuclears 18%, large mononuclears 6%, and eosinophiles 2%. Hemoglobin 120% plus.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY F. B. LUND, M.D., BOSTON.

(Concluded from No. 24, p. 585.)

ON THE FAVORABLE INFLUENCE OF PREGNANCY UPON ENTEROPTOSIS.

MAILLART³ has for several years interested himself in observing the effect of pregnancy upon the large class of patients with entero- and gastropotosis at the Canton hospital in Geneva, and has come to the conclusion that patients emaciated and debilitated by this disease recover a remarkable degree of health on becoming pregnant. Far from completing the destruction of an already shattered constitution, he found that pregnancy arrested the disease, and often produced a complete disappearance of the symptoms.

The conclusions at which he arrives are, in his own words, the following:

(1) In cases of enteroptosis the advent of pregnancy increases the intra-abdominal pressure as soon as the uterus has attained a certain size.

(2) Under these circumstances pregnancy produces an improvement in the digestive and general nervous system, which reveals itself by an increase of from 2½ to 6 kilograms in the body weight between the time of impregnation and the close of the puerperal period.

(3) As a result of judicious treatment this improvement, which often approaches in character a complete recovery, may be made more or less permanent, so that in the months which follow the pregnancy a further increase in weight may result.

³ Centrbl. f. Gynak., No. 50.

(4) In the cases in which other causes, such as renal disease, the neglect of proper treatment, etc., prevent this improvement from taking place, pregnancy produces in general no actual ill effects upon patients with enteroptosis,—surely not in the cases which suffer from constitutional neurasthenia. The measures taken to favor the permanence of the temporary improvement which takes place during pregnancy must be begun during the pregnancy, and continued during and after the lying-in period. All the cases which Maillart treated were provided with a suitable abdominal support before pregnancy, which was continued during the first four months, and then replaced by others of sizes suited to the gradual enlargement of the abdomen. The clothing was also so arranged as to depend entirely from the shoulders, and produce no pressure upon the waist or hips. After the child is born a Glenard bandage is applied at once over the ordinary bandage, in order to maintain the intra-abdominal pressure, and enable the patient to turn freely in bed without the falling of the entire abdominal wall and contents to one side. The period of rest in bed is made as long as possible, and should be naturally longer in cases of enteroptosis than in ordinary cases. After leaving the bed the same support is worn as before the pregnancy. Under these measures the abdomen almost completely recovers its former firmness and size, and the organs are maintained in their former positions and under suitable pressure. The proper training of the child as to regular times of feeding,—waking not more than once in the night, etc., is even more important for the good recovery of the mother in these cases than in others; and the nursing and care of the baby have a favorable influence upon the mother by directing her attention from the selfish consideration of her own symptoms to the care and up-bringing of her baby.

LACTATION ATROPHY OF THE UTERUS.

L. Fraenkel⁴ concludes as follows from a study of 95 cases which have been investigated in an extremely thorough and careful manner.

The controversy between authorities as to whether lactative atrophy of the uterus is a physiological or pathological phenomenon; whether the prognosis is favorable or unfavorable, and whether it is advisable to stop the nursing and resort to artificial feeding, may be answered as follows: Lactation atrophy of the uterus is generally a physiological process. It occurs in the vast majority of nursing women, but not in all. It corresponds closely to the universal physiological atrophy of the uterus, which occurs when the degeneration of the muscle fibres after parturition makes faster progress than the regeneration. This appears to occur most often in cases of malnutrition, and is also a normal condition in lactation. Lactation atrophy begins generally during or before the third month of nursing, and is recovered from as a rule spontaneously either after weaning or during the nursing period; very fre-

quently it has disappeared by the seventh month of nursing, even in cases where the baby has not been weaned.

Recovery is so frequent that women who have nursed their babies for nine months or longer, and come to the physician with complaint of amenorrhea, are oftener found to be suffering from another pregnancy than a lactation atrophy; and when the complaints are of gynecological symptoms other than amenorrhea, a uterus of normal size or larger is found more frequently than an atrophied uterus. In case of persistent symptoms attributed to a lactation atrophy, between the third and seventh months of the nursing period, the baby should not be weaned, except in special cases where the symptoms are very severe or the general condition of the patient makes it advisable. (A slight or moderate anemia does not indicate weaning.) An examination of the uterus should be made every four weeks, with a view to determining whether it is increasing in size, remaining stationary or growing smaller. Under the latter conditions nursing should be stopped; under the second, stopped after the seventh month, and under the first, allowed to continue for a year.

In the cases in which the uterus continues to grow smaller, or does not increase after the seventh month of lactation, there is reason to fear that the pathological type of lactation atrophy may ensue. This is commonly a result of nursing for too long a period, though it occurs in only a small fraction of the number of women who nurse their babies too long. This "atrophy through superlactation" has a doubtful prognosis, even under prompt and efficient treatment, and frequently proves incurable. For these reasons a too long nursing period is to be avoided in all cases.

REPAIR OF LACERATED CERVIX, CURETTEMENT, AND RAPID DILATATION OF THE CERVIX.

Deaver⁵ protests against the indiscriminate use and abuse of these three operations, which although in themselves excellent procedures and capable of accomplishing much good and the relief of suffering, are often the cause of harm, because performed without due deliberation and knowledge of the conditions and contraindications. Certain of the remarks and comments of the writer are so sensible as to be worthy of repetition and careful consideration on the part of the large number of practitioners who operate upon these cases.

A lacerated cervix, says the writer, in women who have borne children, is so common that it may be considered more of a normal than a pathological condition. In the absence of special indications such a cervix had better be let alone, for to operate under these circumstances subjects the patient to useless risks without a commensurate reward. If, however, there is eversion with exposure of mucous membrane to injury, or if ulceration be present, or an excessive amount of scar tissue,—and these conditions produce subinvolution or marked reflex symptoms,—then opera-

⁴ *Archiv. f. Gynak.*, 1900, xxvi, p. 121.

⁵ *Philadelphia Medical Journal*, March 2, 1901.

tion is indicated. Any hereditary tendency to carcinoma would indicate operation in such a case.

As strong as are these indications for operative intervention, the writer does not regard it as justified unless there is freedom from all pelvic inflammatory processes and their results. Salpingitis, pyosalpinx, or adhesions, offer strong contraindications. Under these conditions abdominal section for the correction of the intra-abdominal trouble should follow immediately the repair of the lacerated cervix.

In the presence of endometritis great care must be exercised to prepare the endometrium, if this be possible, prior to the narrowing of the cervical canal; or, in other words, to decrease the discharge so that the new and narrow canal will carry it off. These operations, unless carefully and aseptically performed, as every surgeon of experience can testify, are capable of converting a latent salpingitis into an active one. This may be due to the introduction of sepsis through intra-uterine douching or instruments, or the spread of sepsis through an infected uterine cavity, or the breaking up of periuterine adhesions, liberating septic foci which have been walled off. Washing out the uterus, except in septic conditions, also plugging the cavity with iodoform gauze, Deaver regards as vicious practices, and capable of exciting salpingitis. Even in septic conditions the washing should be carefully done and the packing introduced for the purpose of drainage, and not to its exclusion. Curettement of the uterine canal is a dangerous operation, and one which calls for great delicacy of touch and the most rigid observation of aseptic and antiseptic details. The writer then alludes to the indications for the operation as septic conditions of the cavity, both acute and chronic, and characterizes the so-called curative effect of the operation *per se* as nonsense, and one which should be relegated to the Christian Scientist. If the surgeon by logical reasoning cannot arrive at the conclusion to operate in a given case, he had better let it alone; an operation should be attempted only to remove an existing pathological condition, and not one which is simply supposed to exist, or which might exist.

The reliability of the information derived from an examination of specimens curetted from a uterine canal in which malignant changes are expected is doubtful. It is very difficult to make a positive diagnosis oftentimes between chronic benign lesions of the mucous membrane and early malignant changes; and the small and fragmentary nature of the specimens interferes with a satisfactory examination.

Dilatation of the cervix is an operation too frequently performed, and without a proper appreciation on the part of operators of its indications and dangers. The dilatation by tents or by gauze and sponge packing offers no advantages over divulsion, and is attended by much greater risks of sepsis. Divulsion should never be performed except under complete anesthesia and under the most rigid asepsis. Dilatation is indicated in dysmenorrhea due to cervical stenosis, as a pre-

liminary step to curettement when there is a displacement of the uterus which is not adherent, and when there is an absence of tubal inflammation, either active or latent. Dilatation as an attempt to correct flexions of the uterus must be classed among the surgical failures, and in the condition of an infantile uterus accompanied by dysmenorrhea the operation will be merely an ineffectual attempt to restore a congenitally defective organ.

The necessity for careful asepsis and delicate manipulation in these operations would indicate that their performance should be confined to the realm of surgery, and not classed as work which is the duty and prerogative of the general practitioner of medicine.

CYST FORMATION IN OVARIAN TISSUE LEFT AFTER OVARIOTOMY.

Ehrenfest⁶ writes as follows: It is as yet undecided whether the practice of leaving a portion of the ovary in certain gynecological operations is an advantage or a disadvantage to the patient. The opinions of the best authorities are directly opposed to each other, and many additional statistics will be required to settle the question. The observations of Fischer⁷ and Waldstein⁸ have an interesting bearing on this question. Cases of cyst formation in portions of ovaries left behind at operation, either intentionally or unintentionally, are reported. Such examples are not very common; perhaps about as common as the development of carcinoma in the stump of a cervix left after supravaginal amputation, but nevertheless commoner than is generally believed.

Martin⁹ says: It seems to me a question worth serious consideration whether ovaries in which small cystomata have developed and which lie with the diseased tube in a diseased peritoneum ought not to be removed, together with the tubes. Martin is inclined to think that they ought to be removed, as he has had to operate a second time in six instances for the removal of ovarian tissue left at the first operation.

In American literature the following instances of cyst formation in ovaries left behind at operation have been recorded: H. C. Coe¹⁰ reports a case in which the left tube and ovary and the right tube without the ovary were removed per vaginam on account of a gonorrheal infection. Pain continued after the operation. Later a tumor the size of an orange was found to have developed to the right of the uterus. In May, 1897, a cyst of the right ovary, which was only slightly adherent, was removed by a median laparotomy.

At a meeting of the New York Obstetrical Society in February, 1900, Coe again reported such a case. In 1897 the left tube and ovary were

⁶ Centralbl. f. Gynak., 1901, No. 8.

⁷ Centralbl. f. Gynak., 1900, No. 31.

⁸ Centralbl. f. Gynak., 1900, No. 40.

⁹ Eulenberg's Realencyclopædie, 1885, Bd. vi.

¹⁰ American Gynecological and Obstetrical Journal, December, 1897.

removed by a laparotomy. In March, 1899, owing to acute symptoms the right tube, which was thickened and obstructed, was also removed, but the ovary, which appeared to be normal, was left behind. In February, 1900, a third laparotomy had to be done for the removal of a cyst of the right ovary, the size of an orange, which had caused severe symptoms. In the discussion Waldo reported that he had recently observed a similar case, and McE. Emmet reported 2 such cases.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

REGULAR meeting February 27, 1901, Dr. E. S. BOLAND in the chair.

Dr. EDWARD B. LANE read a paper entitled

PUERPERAL INSANITY.¹

Dr. ARTHUR C. JELLY: I should agree with Dr. Lane in general, and especially in what he said from the specialist's point of view, about being unable to regard puerperal insanity as an entity. For the obstetrician, however, there are certain advantages to be gained by considering together these cases of mental disorder which he meets in practice now and then under conditions more or less closely associated with the puerperal state, and where this appears to be at least an exciting cause. Because, if the attending physician knows that certain women are likely to develop insanity at such times, he has an additional reason for guarding against exhaustion and for meeting symptoms of nervous irritability when they first appear. It is true that sepsis is bad enough, but insanity due to sepsis is worse. Though less frequent than formerly, undoubted cases of this sort have not entirely ceased to appear. Moreover, it is not impossible that an existing sepsis may sometimes have been overlooked in certain cases where we have inferred that death was due to simple exhaustion, because the temperature was not very high. In the *Lancet*, 1898, No. II, page 83, a death was reported from puerperal septicemia where the temperature was subnormal throughout, though tested by two thermometers.

As Dr. Lane has said, it seems probable that there are toxic influences as yet not at all understood which lead to forms of mental disorder during puerperal states. This is another reason for careful attention to the eliminative functions.

When called to see these cases at home, one is usually asked, "Is this merely a temporary mental disturbance that will not get very severe, or is it an attack of real insanity?" Because, while any sacrifice is not too much for the family to make for a few days, if the attack is likely to last long, or to be very severe, the patient must usually

be sent to an hospital for insane. In these cases, symptoms due to alcohol may simulate insanity so closely as to make a diagnosis very difficult. Women who are ordinarily abstinent frequently take liquor at the menstrual period, during pregnancy, after a miscarriage or confinement, or take ale regularly while nursing a child. Thus it frequently happens that a woman whose nervous system is unstable, who is neurotic, or neurasthenic, or epileptic, or slightly weak-minded, presents symptoms due partly to alcoholic and partly to other conditions. The picture thus presented may be very different from ordinary delirium tremens. In fact, there may be no more tremor of tongue and hands than seems consistent with the state of mental excitement; and the excitement may seem naturally to follow from the delusions of the patient. The common hallucinations of sight associated with crawling things may be absent, while other visions may or may not be present; and hallucinations of hearing are quite as common as those of sight.

I have seen several cases of this sort. If the patient can be deprived of alcohol, it will usually be possible in a few days to decide whether the attack is due largely or wholly to alcohol. Such are likely to be of short duration, though they sometimes last several weeks. Moreover, such patients are frequently so excitable that it is difficult to keep them at home even for a few days. Epileptics during confinement or shortly afterward are especially liable to have convulsions, or attacks of violent excitement, which appear to come instead of convulsions.

I have the history of one case of hystero-epilepsy who was formerly under Charcot's care, whose first child was stillborn after a long labor and the use of forceps. Two convulsions quickly followed delivery, and within two days an attack of violent excitement, which lasted less than a month.

In somewhat the same way a woman who has never controlled her emotions or passions will sometimes become excited and violent at such times, and present such a clinical picture that only close observation for several days will enable the physician to decide whether she is insane or not.

Such a case I saw recently. A multipara, in poor physical condition, had a miscarriage, followed by profuse hemorrhage, for which she was packed by a competent physician. She passed a sleepless night. The next day she refused the doctor's services, and would not talk to anybody. The following day, after another night without sleep, she refused food of all sorts, lay on her face in bed, would not speak. When the physician pointed out to her the danger of neglect, and urged treatment, she kicked him away from the bedside. Later in the day she declined to have anything to do with another physician. At 5 p.m., however, she talked with me in a calm and rational manner, took liquids promptly, but showed at times a tendency to be dightly and silly. She promised to allow the removal of the packing. The next morning she kept her promise, and agreed to go to the City Hospital

¹ See page 606 of the Journal.

for further treatment. When the ambulance arrived she declined to stir, but was calm. Soon afterward, however, she became excited, talked loudly, threatened her husband in most violent language, and appeared to be utterly beyond reason or control. I found the husband taking care of the two children on the sidewalk. He said it was not safe for them to go in, for she had repeatedly bruised him and torn his clothing in former attacks of temper.

The following morning she was civil to everybody, and submitted to treatment. She has shown no mental symptoms since.

This woman presented on one day a very good picture of resistive depression tending to stupor, due to exhaustion, and on the next symptoms of marked excitement. Either, if persistent, would have warranted a certificate of insanity.

I have related this case in detail because it seems to me to illustrate so well the possibility of grave error unless the physician uses great care and insists upon such deliberation and delay as to render it certain that the disturbance is more than transitory. In the prognosis of the mental changes seen sometimes early and more frequently late in pregnancy, one should be somewhat guarded; for, though the symptoms are usually mild and transitory, two cases about which I knew something died apparently from exhaustion, and several have developed chronic insanity.

Moreover, after miscarriages severe forms of mental disorder may arise.

DR. SARAH E. PALMER: I have had very little experience with puerperal insanity. I recall one case I saw at the New England Hospital. A woman was brought in in labor. She had been ill-treated and underfed, and had puerperal insanity, we thought, as a result of acute anemia.

DR. BOLAND: I feel that the section is under obligation to these gentlemen for the pains they have taken in presenting this subject. The subject has not been presented in the section for a number of years at least. As I remember my insane-hospital experience twenty odd years ago, we used to get an occasional case of that kind coming in shortly after delivery, and we were generally hopeful of recovery, as of any acute case. I was a little surprised, when I left the hospital fifteen years ago, that I did not see more cases of puerperal mania. I think in fifteen years I have only seen one case I could class as such. In this case there was a temperature which, according to the old test, would put this case out of the category. The case made a good recovery. The general practitioner I think sees the class of cases Dr. Thompson referred to—the cases of transient mental disturbance accompanying pregnancy—very apt to blossom out at delivery, and a little different type apt to come from the exhaustion of lactation. These cases usually occur among the poorer classes who have to struggle to make both ends meet, often have thoughtless husbands and a family of children to look after. The condition is one of anemia, exhaustion, etc., readily relieved by intelligent treatment at home, if they have the means.

AMERICAN SURGICAL ASSOCIATION.

ABSTRACT OF PAPERS AND DISCUSSIONS AT THE TWENTY-SECOND ANNUAL MEETING, HELD IN BALTIMORE, MD., MAY 7, 8 AND 9, 1901, THE PRESIDENT, DR. ROSWELL PARK, OF BUFFALO, N. Y., IN THE CHAIR.

(Concluded from No. 24, p. 563.)

DR. ROBSON read a paper entitled

THE SURGICAL TREATMENT OF CHRONIC ULCER OF THE STOMACH,

and stated that the treatment of these cases is at first essentially medical. He compared the treatment of ulcer of the stomach with that of ulcer of the leg, and particularly referred to the tendency to relapses. Twenty-three affections were referred to as complications of the condition, which were looked upon as serious menaces to the treatment of the ulcer. He believes that about 25% of cases of gastric ulcer treated medically died, while only about 16% treated surgically died, according to statistics a year ago; but at the present time, while the percentage death rate in cases treated medically remains about the same, it has been reduced to 5% under surgical treatment. A number of operations were mentioned from which one could take his choice, and great stress was laid upon the importance of the proper preparation of the patient before operation. Each operation was described in some detail, and cases illustrating each form of operation, together with the results obtained, were quoted. The number of operations performed by the author, divided up according to the number performed of each kind, were given, and the method he employs in stomach and other operations, involving the making of an anastomotic opening between the hollow viscera, was described. The author demonstrated the method, which consisted practically of the employment of a method of suturing over a decalcified bone bobbin. The advantages claimed for the method are: (1) That it secures the opening, being of the exact size intended, and that there is no possibility of the passage being made too small by the drawing up of the sutures before the knots are tightened; (2) that it secures an immediately patent channel between the two anastomosed viscera; (3) that the bobbin protects for from twenty-four to forty-eight hours the new line of union from pressure and from the irritation of the visceral contents; (4) that it facilitates the application of the sutures, and so adds to the expedition of union by sutures; (5) that no foreign material is left in the alimentary canal which may irritate or cause subsequent trouble, for the bobbin rapidly dissolves in the alimentary juices; (6) that the method has now been proved by ample experience to be rapid, easy, efficient and safe.

The discussion on the foregoing paper was opened by DR. WILLIAM J. MAYO, of Rochester, Minn., who considered at some length the treatment of open ulcer of the stomach by gastroenterostomy, which he considered the most generally indicated operation for this condition,

in view of the following reasons: (1) The varying extent and reasonable probability that more than one ulcer exists; (2) the common location of the ulceration; and (3) the impossibility of locating the exact site of the ulcer in many cases.

In some few cases presenting special features he believed that excision or other form of surgical procedure is indicated. The symptoms, he stated, depend somewhat upon the situation of the ulcer, the most common location being near the pylorus, which position may introduce certain mechanical features, and in the relief of these secondary phenomena, in his opinion, the operation achieves its triumphs. The relief of hyperacidity and a prompt emptying of the ingesta, preventing irritation and aiding nutrition, are secured by gastro-enterostomy.

Reference was made to the fact that the earlier reports on this subject demonstrate the existence at that time of a belief that the stomach was always contracted, but later reports have proven the error of considering this a fixed condition, although it is no doubt true in a majority of cases. In acute ulcer the stomach is usually small, and if the ulcer is not in the vicinity of the outlet it will probably remain so. On the contrary, it is during the healing process that many ulcers in the pyloric region become most troublesome. Ulcers in this situation are often extensive, and in chronic cases, perhaps, but partly cicatrized, and obstruction of the pyloric orifice may take place by distortion or narrowing of the opening, irregular symptoms of the unhealed portion of the ulcer being manifest, in addition to the dilatation. In these cases periods of health alternate with symptoms of open ulcer, which are later followed by signs of open ulcer in a stomach more or less dilated. Most of the cases when once cicatrized remain healed, although a few sometimes develop into open ulcer. While the capacity of the stomach is not usually materially altered in cases of gastric ulcer, when this condition does exist it has a surgical significance.

He then made a comparison of the results of gastro-enterostomy in (1) ulcers in the pyloric region with a normal or enlarged stomach, and (2) ulcers in a contracted stomach, and stated that, in cases coming under the first group, gastro-enterostomy is the operation of choice, as it delivers the ingesta at a point sufficiently remote from the disease to prevent irritation, and the healing process is not interfered with and develops rapidly; immediate and satisfactory relief for the mechanical condition is obtained, and in five gastro-enterostomies performed under his observation all were speedily and permanently cured.

Reference was made to a pyloric spasm produced by a small ulcer at the pylorus, by which symptoms resembling mechanical interference are produced. While the author considers that pyloroplasty is fairly effective in this form of the disease, he states that it does not compare with the benefits derived from gastro-enterostomy, although the division of the pyloric sphincter terminates the spasms, and the enlargement of the opening

exerts a healing influence on the ulcer. Gastro-enterostomy on the small stomach, affected by ulcer, does not as a rule give immediate relief, although the ulcer will eventually heal; but the results are not so good as in the other class of cases. The author then referred to the use of the Murphy button, and the union of the jejunum to the anterior wall of the stomach as near the greater curvature as possible, which operation he considers equally as good as the posterior, and easier of performance. He stated that three-fourths of the cases which had come under his observation had been operated on for the relief of non-malignant disease, largely pyloric obstruction, the result of healed ulcer; and that there had been but one death in over 40 cases. In malignant cases the death rate was over 25%.

Dr. W. G. MACDONALD, of Albany, reported two cases of gastro-enterostomy for the relief of chronic ulcer of the stomach. One case, which had existed for eight years, did very well for ten months, when distinct symptoms presented themselves of a well-developed tumor in the region of the pylorus, the patient dying shortly afterward of carcinoma of the stomach. The second case was very similar, except that the improvement following the operation lasted for a somewhat longer time. In his opinion the ideal operation for these conditions is extirpation of the ulcerated surface, even though it involves resection of the stomach or partial gastrectomy.

Dr. WILLIAM L. ROEMAN, of Philadelphia, called attention to the fact that malignant degeneration frequently takes place on the site of an old benign ulcer, and also that the great majority of gastric ulcers are situated posteriorly and not anteriorly. In his opinion adhesion plays a very important part in these conditions; but he felt that if the ulcer is anterior and free from adhesions the operation should be done, while if it is posterior it is out of the question.

Dr. ROBSON did not close the discussion, except to thank the gentlemen present for the interest they had taken in his paper.

Dr. R. MATAS, of New Orleans, read a paper on

ARTIFICIAL RESPIRATION,

and demonstrated a new apparatus therefor.

THIRD DAY.—MORNING SESSION.

Dr. R. MATAS, of New Orleans, read a paper on

THE TREATMENT OF THE ARTERIOVENOUS ANEURISMS OF THE SUBCLAVIAN VESSELS,

and reported a case of bullet injury occurring in a man aged twenty-four years, in whom the right subclavian artery and vein had been perforated through the scapularis cutaneus. The bullet had also injured the brachial plexus, causing paralysis of the corresponding upper extremity. The operation was performed ten days after the injury. An osteoplastic resection of the clavicle with disarticulation at the sternoclavicular joint was made under local infiltration anesthesia with

Eucaïn B., and a temporary traction loop of silk was applied under the first portion of an anomalous subclavian artery, the innominate being absent. The vein was provisionally compressed above and below the anastomotic orifice. Notwithstanding complete control of the subclavian at its origin, profuse hemorrhage took place from the anastomotic orifice when the vein was detached from the artery, the bleeding stopping when double ligatures were applied above and below the perforation in the artery. The bleeding indirectly came from the vertebral and internal mammary. After dividing the artery between the ligatures, the orifice in the vein was closed by lateral suture, and the venous circulation was re-established. A bullet, undeformed, 38 calibre, was extracted. Shock followed, but patient was restored by saline infusion. Recovery with partial loss of hand and forearm from mortification, caused by arterial ischemia and insufficient collateral circulation. Primary healing of operative wound. In reviewing literature of the subject the author referred to 15 cases of this rare injury which had been recorded since 1829, when Larrey described the first case. Of these, only 4 had been operated upon. The indications for intervention, the prognosis and details of the operative technic closed the paper.

This paper was discussed by DR. ARTHUR DEAN BEVAN, of Chicago, DR. W. S. HALSTED, of Baltimore, DR. THEODORE A. MCGRAW, of Detroit, and closed by DR. MATAS.

DR. E. H. BRADFORD, of Boston, read by title a paper on

SUBTROCHANTERIC OSTEOTOMY.

DR. ALBERT VANDELVEER, of Albany, N. Y., read abstract of paper on

PHLEBITIS FOLLOWING ABDOMINAL OPERATIONS.

The great field of abdominal surgery has been so carefully and thoroughly investigated, and the operative technique perfected to such an extent, that we go on doing operations with, perhaps, as little strain and anxiety as used to present to the operating surgeon in much less serious surgical work; yet, occasionally, some unlooked-for complication will arise. My abdominal work gives me more anxiety during an epidemic of grippe. Acute perforative appendicitis is more prevalent in August and September, because of the diet in which young people indulge. Also in December and January, because of exercise and exposure. Only lately have I had that disquieting symptom of phlebitis—four cases in the past two years. In operations deep in the pelvis, ligating the uterine and ovarian vessels and applying a mass ligature, it is fortunate we do not have more serious complications than is generally met with. Where these do arise suspicion may occur at once as to some failure in technique; but we should consider the great range of pathological lesions met with in the pelvis. It is very unpleasant, but very necessary in these cases, to keep the patient two or three times as long as promised at first.

In the following cases it is well to be remembered that they came somewhat near each other, and immediately after moving into and beginning our work in a splendid new hospital plant. Our other operations of every kind were doing well, and every usual precaution had been exercised.

CASE I. Mr. H. N. S., age fifty-eight; a very rare case. Angioma in connection with the lobulus spigellii; removed by Dr. Macdonald and myself. Two weeks later patient developed marked symptoms of phlebitis in the left leg. Under treatment the edema and swelling ultimately disappeared, but it was over three months before the patient regained entire use of his leg.

CASE II. Mrs. A. F. C., age forty; double ovarian tumor removed. On the twelfth day after the operation, phlebitis of the left leg appeared. Under treatment the patient made a good recovery in three weeks.

CASE III. Mrs. J. N., age forty-four. Patient gave a long history of disease. An operation was performed and a large fibroid was removed. Patient did well until two weeks later, when a distinct phlebitis of the left leg appeared. Under treatment the patient recovered, and was discharged from the hospital four weeks later.

CASE IV. Mr. W. H. B., age twenty-nine; strong and healthy. Gave a history of four or five attacks of catarrhal appendicitis. The usual operation was performed and appendix removed, seven inches long, with concretions in distal extremity. Patient developed phlebitis of the left leg on the fifth day. Treatment usual, and a good recovery resulted. There was never any evidence of pelvic complication.

The literature on this subject is very scarce, and there is great question as to whether phlebitis in these cases is of septic origin. In my own cases I am not altogether sure but that the tight bandage may have had something to do with at least two of them. Never has there been delay in the union of the wound.

Pain was one of the pronounced symptoms. When the lesion presented there was also a varying and accelerated temperature and pulse. Sex makes no apparent difference, neither does the nature of the operation. In all four cases the patient was in a horizontal position, so there was no extra pressure upon the vessels of the extremities. The pelvis was not elevated. Loss of blood slight. Patients all strong previous to the operation, with the exception of Case I. Ligatures used were silk; no catgut in the peritoneal cavity.

Phlebitis may be due to the anatomical distribution of the veins on the left side, as in varicocele. This may have some bearing on the pathology.

Constipation must always be overcome. Ether was used as the anesthetic. Urine carefully kept track of.

I quote reference to Dr. Strauch's paper on his experiences with ether narcosis, coupled with the high pelvis position, from which he draws the deduction that these two reasons combine to cause phlebitis, and especially of the left lower extremity in all cases.

The above paper of Dr. Strauch was reported in 1894, and since that time very few cases have been reported to the profession.

Treatment certainly consists in rest, elevation of the limb, free movement of the bowels, anodynes to control pain; later, hypnotics to afford sleep, diffusible stimulants and tonics as may be required.

DR. WILLIAM J. MAYO, A.M., M.D., of Rochester, Minn., read a paper entitled

AN OPERATION FOR THE RADICAL CURE OF UMBILICAL HERNIA,

stating that patients suffering from umbilical hernia are usually obese, with attenuated muscles. It is sometimes wise to reduce the weight before operation. The neck of the protrusion should be exposed early and its omental contents ligated off at this point, saving time. The writer has made the following method nineteen times. The steps of the operation are as follows: A traverse elliptical incision is made at the base of the hernial protrusion to and through the peritoneum. Traction upon the hernia exposes its contents at the point of entrance. Return of intestine, if present, and ligation of extruded omentum. Exposure of the aponeurosis above and below the margin of the incision. The lower flat of aponeurosis and peritoneum is slid upward three-quarters of an inch into a pocket previously formed, between the upper margins of aponeurosis and the peritoneum. Retention by two rows of buried sutures. The sliding can be made from side to side in the same manner as was so performed in ten of the nineteen reported cases. If the ring is very large the overlapping from above downward is easier of performance.

DR. A. J. OCHSNER, of Chicago, considers that there are four methods of treatment of umbilical hernia in the adult which are worthy of consideration, and he briefly describes each one. A few cases he referred to in some detail as illustrating the various methods, and the speaker felt sure that any surgeon who had once tried Dr. Mayo's method was convinced of its value. After the operation has been completed the vomiting or straining does not seem to make any impression upon the repaired portion of the abdominal wall. In his opinion the method had so much to recommend it that it is not surprising it should have been invented independently by at least three different surgeons, of which Dr. Mayo was undoubtedly the first by several years.

DR. JAMES E. MOORE, of Minneapolis, Minn., presented a paper on

PREVENTION AND CURE OF POST-OPERATIVE HERNIA.

Ventral hernia is rare among good operators, except after operations for acute appendicitis. The causes of ventral hernia are sepsis, improper closure of the wound and drainage. The location of the wound is of less importance than its proper closure.

When rational principles are adhered to the exact manner of carrying them out may be governed by the operator's personal experience. Each tissue should be united to its own kind by through-and-through stitches of silk-worm gut and buried sutures of absorbable material. Buried sutures of unabsorbable material are objectionable and unnecessary. The crossed suture of Dr. Fowler is a very good one, but requires more time to apply, and causes more pain when removed than the through-and-through suture. Always avoid drainage when possible. Most cases of pelvic surgery requiring drainage are best drained through the vagina. The same rules should govern the treatment of post-operative hernia that govern the treatment of other herniae. Operation is the only treatment to be considered, and it should be done early.

The prognosis after operation is good. In operating we should restore the parts to their normal relations, and hold them there until nature has united them. The peritoneal cavity should always be opened. Scar tissue should all be dissected away, and the various layers of the abdominal wall isolated, after which the wound should be closed by through-and-through sutures of silk-worm gut and buried animal sutures. It is very important to bring the muscular tissue together. Simple cutting out of the scar and approximating the freshened edges will lead to disappointment.

This paper was discussed by DR. ARTHUR D. BEVAN, of Chicago, and closed by DR. MOORE.

AFTERNOON SESSION.

DR. S. H. WEEKS, of Portland, read a paper on

FRACTURES AND DISLOCATIONS OF THE SPINE,

which was discussed by Drs. JOHN C. MUNRO and S. J. MIXTER, of Boston, and DR. R. H. HARRE, of Philadelphia. The author did not close.

DR. CHARLES A. POWERS, of Denver, presented with photographs a paper on

GIANT SACROCOCCYGEAL TUMORS.

The subject of especial observation was a male child first seen at three months of age, at which time there was found an enormous growth occupying the sacrococcygeal region, extending laterally to the buttocks and forward in front of the anus. It was irregularly ball-shaped, and in size as large as the head of a child of six years. Below and in front the growth was cystic; above and laterally it was firm, and in places nodular. The skin over the tumor was of a bluish-red over the cystic parts, normal above and at the sides. Deep palpation showed no gap in the bony structures. There was nothing abnormal about the rectum. The tumor was moved by the gluteal muscles, but the tension of the mass was not changed when the child cried. There was no paralysis nor anesthesia of the lower extremities. No operation was advised, and the growth underwent spontaneous contraction. The skin did not

ulcerate, the contents of the cystic portion were absorbed, and when the child was three years and nine months old the tumor had shrunk to the size of a boy's fist and was well flattened out over the sacrococcygeal region. The boy is as strong and healthy as other lads of his age, lies on his back and sits like other children; except for its mere presence the tumor gives no symptoms.

While this growth lacks pathological confirmation, it is assumed that it is a teratoma or embryoid tumor having a double germinal substratum. A certain number of such tumors have been observed by German and French writers, and when pathologically examined have been found to contain the greatest diversity of tissue: cysts lined with various forms of epithelium, intestinal remnants, masses of gliomatous tissue, smooth and striped muscle fibre, bone, cartilage, etc.

The question of operation must be decided by the surgeon in the individual case. In general it is recommended that operation be deferred until the child reaches such an age as to enable it to successfully withstand operative procedure. The author's case shows that spontaneous contraction may occur.

THE RADICAL CURE OF INGUINAL AND FEMORAL HERNIA,

with a report of 800 cases operated upon from 1891 to 1901, was the subject of a paper by Dr. W. B. COLEY, of New York, which was discussed by Dr. J. COLLINS WARREN, of Boston, and Dr. W. S. HALSTED, of Baltimore, Dr. COLEY closing.

THE USE OF SILVER WIRE AND ELECTRICITY IN THE TREATMENT OF ANEURISMS,

with report of cases, was the title of a paper read by Dr. LEONARD FREEMAN, of Denver. Discussion was participated in by Dr. J. M. T. FINNEY, of Baltimore, Dr. DeFOREST WILLARD, of Philadelphia, and Dr. R. MATAS, of New Orleans, Dr. FREEMAN closing.

Dr. W. W. KEEN, of Philadelphia, read a paper entitled

RESECTION OF THE CHEST WALL FOR A LARGE SARCOMA; SUCCESSFUL USE OF THE ANTISTREPTOCOCCIC SERUM.

The author referred very fully to the details of the operation, together with the condition of the patient before and after. In concluding his remarks he called particular attention to: (1) The method of separating the tumor from the chest wall so as to determine more exactly the limits of the disease and lessen the size of the opening to be made in the chest. (2) The division of the ribs anteriorly and posteriorly prior to opening the pleural cavity; this diminished very much the period of danger in the collapse of the lung. (3) The use of Fell's apparatus, which was not satisfactory in this case, and for which he prefers to substitute the apparatus of Dr. Bloom, of New Orleans, which he then showed to the association, or the apparatus of Matas, which was then dem-

onstrated by its inventor. (4) The suture of the lung to the chest wall, which was followed by no untoward surgical result. It diminished very greatly the amount of post-operative pneumothorax, and in fact one might almost say abolished it. (5) The use of the antistreptococcic serum, and as to whether it was the cause of the fall in temperature or only a coincident, the results seeming to be so striking. (6) The examination of the blood, which was of great value as showing the reason for the continued high temperature, and led to what the author believes to have been the proper treatment for the condition.

In the opinion of the speaker it is too early to determine what will be the future of the patient; but up to the present time, a period of nearly seven months, the results have been entirely satisfactory.

Dr. M. L. HARRIS, of Chicago, read a paper on MOVABLE KIDNEY; ITS CURE AND TREATMENT, which was not discussed.

The following papers were read by Dr. S. J. MIXTER, of Boston: (1) Two cases of abdominal contusion: (a) "Fracture of Spleen-Splenectomy, with Recovery"; (b) "Fracture of Kidney-Nephrectomy, with Recovery"; (2) "Nephrolithotomy on both Kidneys"; (3) "New Method of closing the Defect following the thorough Removal of the Breast."

These papers were discussed by Dr. J. COLLINS WARREN, of Boston, Dr. J. M. T. FINNEY, of Baltimore, and Dr. W. H. CARMALT, of Boston, but Dr. MIXTER did not close.

Dr. MATAS exhibited an apparatus which he used for local infiltration anesthesia. It consisted of a metallic (sterilizable) cylinder provided with an accessory gauge which indicated the level of the fluid within. The cylinder (capacity eight ounces) was filled with a weak Eucain B. solution ($\frac{1}{10}$ and $\frac{1}{100}$ of 1%) and was charged with a small air pump, which forced the fluid into the tissues by simple pneumatic pressure. After charging the cylinder the pump is detached, and the cylinder is connected to the needle and tubing by which the fluid is injected into the tissues. The advantages of this apparatus are, that it facilitates the introduction of large quantities of anesthetic fluid (Eucain B. dissolved in .8 salt solution) and completely edematizes the field of the operation by a process of almost continuous infiltration and without the interruptions caused by the frequent transfer of the ordinary syringes. It is especially advantageous when massive infiltrations over large areas are indicated with extremely weak solution, which anesthetize the tissues by their physical action alone rather than by the chemical analgesic action of the drug.

He had used the appliance all of the past winter, and had been much pleased with the results obtained in a great variety of operations, many of which without its aid would have been entirely beyond the scope of purely local anesthesia. It is also the most satisfactory apparatus that he has used for extensive hypodermoclysis in shock,

hemorrhages and other conditions in which it is desirable to inject rapidly a large quantity of physiological salt solution under the skin.

Drs. HEARN and ROE read a paper on

PNEUMOTOMY OF THE LUNG,

and exhibited a case of a large abscess of the lung of twenty-two years duration, probably the result of local gangrene following pneumonia. Patient male; age twenty-six.

Pneumotomy was performed, and the abscess drained for two years, with much improvement in general health; marked lessening of the previous horribly offensive odor, but without any healing or reduction in the size of the cavity.

They again operated and excised a portion of the abscess wall, stitching the margins of the remainder to the skin surface, thus converting it into an open cavity, with relief from the annoyance of wearing a drainage tube and of cleansing the cavity, and with practically entire cessation of odor.

Although about six months have elapsed the cavity remains unchanged, and there is evidence of secondary bronchiectasis, for which they assign two probable causes; that is, cough and cirrhosis of lung tissue. To obliterate the original cavity, and to relieve the bronchiectasis, or cure it, they propose to remove the greater portion of the lower ribs with their periosteum, in this way allowing the chest wall to collapse upon the lung.

The case demonstrates the great difficulty of definitely localizing an old abscess of the lung with tough, elastic walls which collapse when empty, by either of the two methods; namely, aspiration and palpation; the value of the x-ray; the practicability of giving ether as a general anesthetic; the absence of any embarrassment of respiration by the entrance of air through drainage tubes introduced into the cavity, although they freely communicate with the bronchus; the ease with which the cavity could be flooded with different fluids or solutions, although they entered the bronchus and caused expulsive paroxysms of coughing; the advantages gained by draining the cavity by tubes or by the open method, but without any evident obliteration of the abscess cavity.

A portion of the ninth rib in this case was resected the third time, having been twice reformed.

The presence of pleural adhesions rendered the operations in this case free from the dangers of pneumothorax, and although a localized pyothorax occurred subsequent to one of the operations, it did not delay convalescence.

Dr. DEFOREST WILLARD, of Philadelphia, was chosen president of the association for the ensuing year.

The next annual meeting will be held at Albany, N. Y., in May, 1902.

Recent Literature.

Municipal Sanitation in the United States. By CHARLES V. CHAPIN, M.D., Superintendent of Health of the City of Providence. Pp. 970. Providence, R. I.: Snow & Farnham. 1901.

THIS extremely useful work is the result of a vast amount of research and of labor on the part of a practical sanitary administrator, in bringing together in one volume the different methods in actual practice in the cities of the United States. Disputed points are constantly arising in the work of health administrators, and oftentimes days and months are expended by local officials in searching the laws and regulations of states and cities for information in regard to methods of procedure, and for the precedents which may have been established by other boards of health. To all such officials this volume will prove extremely welcome. It is in no sense a work of theory, and, as the author states, "is not a treatise on the principles of sanitation, and in fact these principles are rarely referred to; but it is, rather, a compendium of sanitary practice."

If every local health official on entering upon his duties would make a thorough study of this volume, and then apply the knowledge thus attained to his daily routine, a great amount of labor, time and expense would be saved. The brief section entitled "Advancement of Knowledge" contains most valuable advice condensed in a few paragraphs.

While the work is not one of theory, the author's opinions are occasionally presented in a clear and axiomatic manner, and as the result of years of experience. For example, in treating of communicable diseases, he says: "There are few boards of health which do not have some of the commoner forms of communicable diseases constantly present; so that this problem of how to deal with communicable diseases actually existent occupies a large part of the attention of sanitary authorities, and is the important problem with which they have to deal."

Of the control of plumbing, he says: "While it would be more logical to vest this function in another department,—that of the inspection of buildings,—the earlier practice has been adhered to, and at present the control of plumbing is in most cities in the hands of the health department. This custom is doubtless due both to precedent and to the popular notion of the very intimate connection between poor plumbing and disease."

With reference to the importance of the registration of vital statistics, he says: "The registration of vital statistics is the firm basis on which the whole structure of sanitary science and practice must rest."

In treating of the sweat-shop system, he says: "The duty of the State to help the helpless, and make life more bearable for the most wretched of mankind, is reason enough for any action which will abolish or mitigate the sweat shop, without

At the third annual commencement of Cornell University Medical College recently held, twenty-four candidates received the degree of M.D., a number of them being women.

conjuring up an exaggerated danger of sickness to the well-to-do." This accords with actual experience in Massachusetts, where, during the first four years of inspection under the provisions of the sweat-shop law, only one actual case of infectious disease was reported as existing in a family where such clothing was being made.

The topics treated are, in their order: Sanitary organization, registration of vital statistics, nuisances, specific nuisances, plumbing, water, ice and sewers, food other than dairy products, dairy products, communicable diseases (four chapters), refuse disposal and miscellaneous sanitary work. An appendix contains very many circulars and blank forms in use by local health authorities, and will prove very useful for reference.

The topics of communicable diseases and refuse disposal have been considered carefully and thoroughly, and are fully illustrated with plans and photographs of buildings and appliances in actual use, special attention being given to the subject of isolation hospitals for infectious diseases.

With reference to the general form of sanitary administration in the United States, it is stated that "local sanitary administration is provided for by law over the entire area of 36 states, including a population of 52,304,922 in 1890, or 83% of the total population at the census of that year. Twenty of these states have provided for a county form of sanitary government, and 16 states have a township form of sanitary government."

Saunders' Question Compend. Essentials of the Diseases of Children. By WILLIAM M. POWELL, M.D. Third edition. Thoroughly revised by ALFRED HAND, JR., M.D., Dispensary Physician and Pathologist to the Children's Hospital (Phila.). Pp. 259. Philadelphia and London: W. B. Saunders & Co. 1901.

This little book is open to the same criticism as all works of its class. We feel that they are almost certain to do harm to the student, as they do not give a clear picture of disease. It is impossible to do this in the form of questions and answers and in so short a space. This book is, however, far better than most of its kind.

The subject-matter is, as a rule, accurate as far as it goes. In many instances, however, the answers are more or less erroneous and very often state only half-truths. The student who uses this book entirely can hardly fail to get imperfect conceptions of many conditions and one-sided conceptions of all. He will do far better to spend his time reading one of the larger textbooks.

Hygiene and Public Health. By LOUIS PARKES, M.D., D.P.H., and HENRY KENWOOD, M.B., D.P.H. Pp. 732. Illustrated. London: H. K. Lewis; Philadelphia: P. Blakiston's Son & Co. 1901.

This sixth edition has been revised, and such changes and modifications have been made as were demanded by the rapid progress in hygiene. It has been written by practical administrators in charge of sanitary work in the populous dis-

tricts of London, and is especially designed, as the authors state, "for those members of the medical profession who are studying for the various health diplomas." It constitutes, however, a valuable work of reference for the profession generally, and, with the exception of the last chapter, upon sanitary law, is well adapted to the use of the American student and medical man.

Details of laboratory work are not presented, but the authors very properly concluded that these subjects could be best presented in special treatises.

The fact that this work has reached its sixth edition speaks well in its favor.

The subjects presented are the following: Water; the collection, removal and disposal of excreta and other refuse; air and ventilation; warming and lighting; soils and building sites; climate and meteorology; exercise and clothing; food, beverages and condiments; communicable diseases and their prevention; disinfection; statistics and sanitary law.

The Theory and Practice of Military Hygiene.

By EDWARD L. MUNSON, A.M., M.D., U. S. Army. Pp. 971, with 8 plates and 400 engravings. New York: Wm. Wood & Co. 1901.

Hitherto most of the different subjects relating to military hygiene have been discussed in small volumes and monographs relating to a few topics only, such as Tripler's manual for the examination of recruits, and others of similar character. But Dr. Munson has brought together in this comprehensive volume all that is essential to the military surgeon from the standpoint of preventive medicine.

The duties of the army medical officer, whether in peace or in war, demand a thorough knowledge of medicine and surgery and the treatment of disease; but he should also be trained in the principles of hygiene.

The volume is not only an admirable textbook for the medical student having army service in prospect, but is also the best work of reference on military hygiene yet published in English.

The general character of the book may be inferred from the following list of subjects which are treated: The selection of the recruit; the development of the recruit; the march in campaign; water supply; the ration; clothing and equipment; camp sites and camps; sanitary administration of camps, posts, barracks and hospitals; ventilation, heating and lighting; disposal of excreta; sewage and refuse; personal cleanliness of the soldier; military mentality and morbidity; diseases of the soldier; disinfection; habits of the soldier as affecting his efficiency; hygiene of hot and cold climates; the troop ship; disposal of the dead, and sanitary inspections. The two important topics, the ration and the diseases of the soldier, are very fully and thoroughly presented. In his treatment of the vexed subject of the army canteen, the author expresses a decided conviction in its favor. Upon this point he presents an array of facts in support

of his position, and says: "It is evident that, coincident with the general establishment of the canteen system throughout the army, there has occurred a decrease amounting to considerably more than one-half the drunkenness which formerly tended to the impairment of discipline, the demoralization of individuals, and to the occurrence of assaults, injuries and deaths. It is idle to deny that this result has not been largely due to the attraction furnished by the canteen, combined with the military discipline which prevails in that institution, and which reduces to a minimum the possibility of dangerous excesses."

The Economic Disposal of Town Refuse. By W. FRANCIS GOODRICH, A.I.M.E. Pp. 340, with 75 illustrations. London: P. S. King & Son; New York: John Wiley & Sons. 1901.

The disposal of refuse¹ has been more fully considered in England than in any other country, and has there reached its highest type of perfection. The valuable information contained in this volume, as presented by an English engineer, will be sure of a welcome by the sanitary officials of all our cities and large towns, many of which are still disposing of offensive refuse in primitive and objectionable modes.

The method most commonly in use in England is that of destruction by fire; and the object of the author is to describe the different destructors now in use, not only in England, but in all parts of the world.

The author has collected information from almost every known source, not excepting Rangoon, Shanghai and the *Boston Herald*.

A special chapter is devoted to the subject of the use of refuse for the purpose of converting it into power, or, in other words, using it as a fuel. Upon this point the author says: "In these days the refuse destructor is boldly associated with electric lighting of towns, sewage pumping, water pumping and other useful power purposes. Why? There is only one answer, and that is, because it is now generally recognized that refuse is a valuable asset, and possesses calorific value."

American experience in the disposal of garbage is treated in a separate chapter, with an introduction by Colonel Morse, of New York City, the noted expert upon this subject. His opinion appears to be clearly in favor of destruction by fire, as opposed to reduction and consequent extraction of certain products for commercial purposes.

¹ Garbage, offal and the waste of cities and towns.

LEPROSY IN FRANCE.—According to the *Medical Record* Dr. Bessier recently presented a report to the Paris Academy of Medicine regarding the increase of leprosy in France. The report stated that the disease was becoming so prevalent in various parts of the country that stringent measures were urgently needed for its suppression. In Savoy and Brittany there were several distinct endemic centres, and at the Hospital St. Louis, in Paris, fourteen lepers were at present under treatment.

THE BOSTON Medical and Surgical Journal.

THURSDAY, JUNE 20, 1901.

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THE MASSACHUSETTS MEDICAL SOCIETY DINNER.

As indicated in our editorial notice of last week, each succeeding anniversary of the Massachusetts Medical Society shows signs of change and of improvement in the conduct of the meeting. Within the last few years the conviction on the part of the management has grown that the members come rather for conviviality than for a satiety of medical communications. The social side of the meetings has therefore become more and more prominent, and the literary part reduced in volume and scope. The custom now prevailing of having a few vital medical topics thoroughly discussed by a group of carefully selected speakers is altogether to be commended, as contrasted with the former method of indiscriminate paper reading on widely dissimilar subjects. This year the general subjects under discussion were, "Diseases of the nutrition of infants" and "The surgical aspects of diseases of the alimentary tract." A somewhat more general section, more particularly concerned with the results of laboratory investigation, completed the literary exercises, with the exception of the usual Shattuck lecture, by Dr. W. F. Whitney, on "The alleged increase of cancer in Massachusetts," a valuable statistical study, and the annual discourse, by Dr. George E. Francis, of Worcester, on "Forecast of the problems of medicine in the coming century."

A part of the proceedings, however, to which the members look forward with particular interest, is the annual dinner, which this year was peculiarly successful, both on its material and intellectual side. Wisdom was shown in the choice of after-dinner speakers, and also in the limitation of their number. President Eliot, of Harvard University, introduced by Dr. Draper as a friend of medical education, spoke feelingly

and forcibly of the growth of medical knowledge, and the self-sacrificing devotion of physicians in their investigation of the problems of disease. He said in part, that it was a source of congratulation that at these annual dinners singing was coming to be substituted for speeches; that a chorus of purely medical men typified the perfect harmony which existed throughout the society. He further spoke of the new education in the Harvard Medical School, which had become a laboratory of experimentation, and insisted upon the importance now, as always, of experimental study. He alluded to the far-reaching beneficence of the recent work on the etiology of yellow fever, as typifying the heroic side of the medical profession, and made a personal allusion to the late Jesse William Lazear, who sacrificed his life in the attempt to demonstrate the means of contagion of the disease. "This devotion to duty is due to no courage of the crowd, no gregarious enthusiasm like that of the battlefield; there are no witnesses, no shouts to encourage; it is the deliberate taking of a great risk. Is it not infinitely superior to the heroism of fighting? Yet it has all come out of the horrors of war; out of this has come the beneficent heroism of peace. There are none braver, none nobler, none more self-sacrificing."

President Capen of Tufts College spoke from the standpoint of a minister as well as of an educator. He acknowledged his embarrassment in facing an audience of medical men, and described his feelings on being called upon to speak as not unlike that of the deacon who when asked to lead a meeting in prayer, hesitated, and finally when asked whether he could pray, answered, "Yes, I can, but I hate to." He went on to speak of the change which had come about in medical education during the past few years, and of the subordinate place formerly given to the physical sciences, and especially to biology, which had now, in his opinion, become one of the humanities. He bewailed the attempt recently made in this State to tie the hands of medical investigators by restrictive legislation, and commented on the services physicians were rendering by appearing at legislative hearings against the legalization of quackery and humbug. He alluded in conclusion to the growth of the medical school of Tufts College, in which he felt a deep personal interest.

Mr. S. J. Elder, for the law, spoke both jocosely and seriously. Usually, he said, we have one of your number in a box, closed on three sides, but now you have one of us, enclosed on four sides. Of expert testimony he spoke as follows: I dislike many classes of experts; they have brought down upon themselves the criticism of the courts and the distrust of the community. At times

such experts are practically paid counsel, but that is not true of your profession. After an increasing number of years at the bar, it is a satisfaction to say that the opinions of doctors are discriminating, fair and nonpartisan.

These various statements are good to hear from men outside the profession of medicine. No doubt they are somewhat exaggerated, to fit the occasion, but it is not likely that the average doctor will have his head turned by listening to such laudation once a year. It is certainly a gratification, amidst the storm of abuse in which the medical expert usually lives, to hear from the lips of so distinguished a member of the bar as Mr. Elder, that the expert is, after all, not so bad as some of the speaker's less distinguished colleagues would paint him.

Dr. Cheever closed the formal speaking by an appeal for the liberal support of the Boston Medical Library, as follows:

"As president of the Boston Medical Library I feel that I have a strong claim to your attention. All of my hearers may not realize the many years of effort which have at last given birth to our new library building. It is worthy of any society, and is a beautiful, chaste and appropriate edifice. Surely this marks a long step in advance for the profession in Massachusetts. A large library, containing files and fresh numbers of over 500 medical periodicals always at hand, besides 29,000 volumes of permanent works, will tempt the inquirer and reward the student. We have happily commemorated Dr. Oliver Wendell Holmes, Dr. John Ware, Dr. Fiffeld, in the halls named for them.

"The doctors of Boston, both of themselves and by soliciting others, have paid in \$73,690. We have a mortgage debt of \$50,000. Our great need now is for endowments, small or large, to buy new books. Any one subject in medicine could be pursued farther for an endowment of only \$1,000, whose annual interest would purchase enough new books on that one subject each year. Let me urge you, gentlemen, to show your interest by becoming associate members, for \$5.00 a year. Go and become familiar with the beauty of Holmes Hall, its many portraits, medallions and mementoes; visit the library; use the library; support the library."

PHYSICIANS AND THE LAW.

THE legal relation of physicians to their patients is always a matter of some delicacy, and one which, unfortunately, not infrequently demands a final decision from the courts. It is altogether proper that a person who employs a physician should have a reasonable assurance of his faith-

fulness and skill, and it is incumbent on the physician to justify this assurance. The limit of a physician's duty to his patient is, however, an exceedingly difficult matter to determine. There is a strong feeling on the part of the laity that a physician's services are absolutely at the beck and call of the public; that if called to a case he has no choice but to go, and if in attendance on a patient is equally bound to continue his services until convalescence is established or death results. It is clearly a matter of very great importance that both the physician and the patient should be protected, and the interests of both safe-guarded by the law, which must always be the final arbiter in matters of dispute.

A case of considerable interest in this connection is reported as having recently occurred in California, establishing a precedent of no little importance to the practicing physician. The facts are said to have been essentially these: A physician, about whose capacity there seems to have been no question, was called to attend a young married woman. After duly considering the conditions he concluded that an operation of some sort was demanded; but when the time came for its performance the patient rather hysterically refused to have it done, whereupon the physician, who had previously told the patient that he would relinquish the case if she refused to act according to his judgment, left the house. An hour passed before another physician arrived, who thought it unnecessary to operate.

The first physician was sued by the aggrieved husband and wife, and a verdict was returned against him to the amount of \$2,000. The case was tried before the Supreme Court of California, which stated that the defendant had shown himself neither unskillful nor negligent up to the time of leaving the case, nor did it hold that he had endangered the life or health of either mother or child. The Court, however, went on to define the duty of the physician under such circumstances, as follows: "It is undoubtedly the law that a physician may elect whether or not he will give his services to a case; but having accepted his employment and entered upon the discharge of his duties, he is bound to devote to the patient his best skill and attention, and to abandon the case only under one of two conditions: First, where the contract is terminated by the employer, which termination may be made immediately. Second, where it is terminated by the physician, which can only be done after due notice and an ample opportunity afforded to secure the presence of other medical attendance. . . . He can never be justified in abandoning the case as did this defendant, and the circumstances show a negligence in its character well-nigh to brutality."

So far as the statement at hand goes, there is no evidence to show that the physician left the case from any other motive than that his judgment was no longer respected by his patient; it furthermore would appear that he had given due notice of his intentions, and that his final action could therefore have been no surprise. In spite of these facts, the decision of the Court was strongly against the defendant. We have no adequate knowledge of this particular case, but we confess to a feeling of uneasiness when we contemplate the hold which such a decision gives to possible designing persons upon self-respecting doctors. A physician's position at once becomes ridiculous when his advice is refused; and yet, according to this decision, it appears that he must still continue his services, even after he has given what to the lay mind would seem to be a sufficient warning of his attitude. It is remarkable that physicians escape as often as they do from the toils of the law, under any circumstances, and it is certainly well that they should be prepared to meet all contingencies.

MEETING OF THE AMERICAN NEUROLOGICAL ASSOCIATION.

This week the American Neurological Association is meeting in Boston, a choice which we may be pardoned for regarding as a wise one. Boston is at all times attractive, but particularly so in the early summer; and, however bent on knowledge the members of the association may be, it is safe to assume that their eyes are not wholly blinded to natural beauties. The gentlemen in charge of the recreation side of the meeting have chosen to have one of the sessions, with a luncheon, at the McLean Hospital in Waverly, and another at the Brookline Country Club. The meeting is being well attended, and the papers vigorously discussed. With a continuance of the present fair weather we trust the association may regard this meeting as a success, and Boston as one of its regular places of meeting,—a hope which we could express less warmly before the new medical library was prepared for the reception of guests. But with the availability of this library building we commend the example of the Pathological and Neurological Associations to the other national medical societies.

MEDICAL NOTES.

ADDRESS IN MEDICINE AT THE YALE MEDICAL SCHOOL.—The annual address in medicine at the Yale Medical School will be given on Tuesday, June 25th, by Prof. Edmund B. Wilson, Ph.D., of

Columbia University, on "The Higher Claims of Minute Research in Biology and Medicine."

MEDICAL EXCURSION TO LONDON AND PARIS.—A medical excursion to London and Paris in connection with the Tuberculosis Congress in London, July 23 to 26, and the meeting of the British Medical Association at Cheltenham July 29 to August 2, 1901, occupying twenty-nine days, will leave New York July 10th, returning August 1st by way of Boston. The expense of the trip will be \$238. There will be an alternative return for those who prefer waiting the adjournment of the British Medical Association, making a thirty-one day trip at a cost of \$260. This trip has been carefully designed in the interests of medical men who desire to attend the two great medical meetings this summer in Great Britain. Before reaching their scientific work they enjoy the opportunity of spending several days in Paris for sight-seeing. In London they are quartered in one of the newest and largest hotels within easy reach of Westminster Abbey and the Houses of Parliament. In Cheltenham they find themselves in one of the most fashionable of English watering places.

SCHOLARSHIP IN PHYSIOLOGY AT THE UNIVERSITY OF CHICAGO.—By the will of the late Dr. Marie J. Mergler it is reported that the University of Chicago is to have a \$3,000 scholarship in physiology.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, June 19, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 70, scarlatina 12, measles 147, typhoid fever 7.

AWARD OF JOHN W. PRAY PRIZE.—The John W. Pray Prize offered by the trustees of the New Hampshire State Hospital for original work on any branch of medicine has been awarded to Dr. Albert E. Brownrigg for an essay on "The Clinical Significance of the Cheyne-Stokes Symptom-Complex." Dr. Brownrigg is a graduate of the Harvard Medical School of the class of '98, and is at present assistant physician at the New Hampshire State Hospital.

NEW YORK.

GANGRENE OF INTESTINE FROM THROMBOSIS.—At the June meeting of the Medical Association of the City of Greater New York, Dr. A. A. Berg presented the specimens from a rare case: gangrene of the intestine due to extensive thrombosis of the veins of the mesentery. The patient, a woman, was admitted to Mount Sinai Hospital three weeks after an attack of abdominal pain, coming on after lifting a heavy weight, and laparotomy was performed for apparent intestinal

stenosis. There had been gradually increasing constipation, so that during the last week it had been impossible to secure any movement of the bowels whatever, and for three days before admission she had had stercoraceous vomiting. When the abdomen was opened there was found in the right iliac fossa a coil of enormously distended intestine about a foot in length, which was of a very dark color, and had a number of entirely black spots on its surface. The gangrenous portion of the intestine was resected, and an anastomosis made of the segments of healthy gut, but the patient survived the operation only a few hours. The thrombosis of the mesenteric veins, which had been detected during the operation, was fully demonstrated at the autopsy. Dr. Berg also presented the ovary of a patient operated on for pyosalpinx involving the appendix vermiformis. When admitted to the hospital she appeared to be suffering from an ordinary appendicitis with abscess formation; but when the abdomen was opened it was found that the case was really one of pyosalpinx, and that the appendix was involved only by continuity. The woman made a good recovery.

COMMENCEMENT AT COLUMBIA UNIVERSITY.—The one hundred and forty-seventh annual commencement of Columbia University was held on June 12th. There were 147 graduates in medicine, and the fellowships of the Alumni Association of the College of Physicians and Surgeons, \$500 each, were awarded as follows: Fellow in anatomy, Dr. Henry E. Hale; fellows in pathology, Drs. Augustus B. Wadsworth and Charles Norris. The Alonzo Clark scholarship, \$700, was awarded to Dr. Augustus J. Lartigan. Among the honorary degrees conferred was that of Master of Science, on Dr. George M. Lefferts, clinical professor of laryngology and rhinology in the College of Physicians and Surgeons. He was presented by Prof. T. Mitchell Prudden, who referred in fitting terms to Dr. Lefferts' twenty-five years' faithful and successful service in the college.

HORSE RACING AND CHARITY.—The \$24,000 stakes won by the horse of James R. Keene, of New York, in the "Oaks" at Epsom, has been donated by the owner to charitable institutions in this country and in England. Among the gifts to New York charities were \$2,000 to St. John's Guild and \$1,000 each to the Herald Ice Fund and the Tribune Fresh-air Fund.

BEQUEST FOR A LABORATORY.—It is announced that Prof. Henry Morton, president of the Stevens Institute, Hoboken, has given an additional \$50,000 for the completion of the new chemical laboratory being erected at the college. His total gifts to the institute now amount to \$140,000.

MORTALITY STATISTICS.—The reports of the Health Department show that during the month of May the mortality in the city represented an annual death rate of 18.26 against 20.67 in April and 19.88 in May, 1900. The weekly average of deaths from diphtheria and croup declined from 49.5 in April, to 44; from typhoid fever, 11.25 to 7.5; from pneumonia, 166.75 to 130.5; from phthisis, 177.5 to 150.25; from bronchitis, 42.25 to 31.75; from influenza, 17.5 to 5; from cancer, 51.25 to 41; and from diseases of the genito-urinary system, 124 to 102. The weekly average of deaths from smallpox increased from 9.25 to 13.75, and from scarlet fever, 43.75 to 44.5.

OPENING OF SEASIDE HOSPITAL OF ST. JOHN'S GUILD.—The Seaside Hospital of St. John's Guild at New Dorp, Staten Island, was opened for the season on June 15th, and on this occasion was dedicated the Lewis Memorial Cottage, which has been erected by Mrs. Frederick Elliott in memory of her son, Frederick Chandler Lewis. The new building, which cost \$10,000, is a wooden structure 103 feet long and 35 feet wide, and contains two wards. It is designed for the care of the most serious cases of infantile disease, and is a complete hospital in itself.

ANNIVERSARY OF HOME FOR INCURABLES.—The thirty-fifth anniversary of the Home for Incurables at Fordham, borough of the Bronx, was celebrated on June 11th. It was announced that a gift of \$30,000 had been received for the institution; and among the speakers on the occasion were Bishop Potter and Senator Chauncey M. Depew. The report of Dr. Israel C. Jones, the medical superintendent, showed that the death rate among the inmates was 19.5%. Of 30 patients discharged during the year, 4 were entirely cured.

BEQUEST TO A HOSPITAL.—Among the charitable bequests made by the widow of Martin B. Brown, who died recently, leaving an estate of \$500,000, was one of \$2,500 to St. Vincent's Hospital.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.—The certificate of incorporation of the Rockefeller Institute for Medical Research, of New York City, was filed with the Secretary of State at Albany on June 13th.

Miscellaneous.

THE MASSACHUSETTS MEDICAL SOCIETY. COUNCILLORS' MEETING.

The annual meeting was held in the Medical Library, Boston, on Tuesday, June 11, 1901.

The meeting was called to order at 5 P.M. by the president, Dr. Frank W. Draper. One hundred and twenty councillors were present.

The secretary read the names of 135 fellows admitted since the last annual meeting, and of 29 whose deaths had been recorded.

It was voted, on recommendation of the Committee on Membership and Finance, that \$4,000 of the surplus in the treasury be distributed among the district societies.

The Committee on Publications reported that Dr. Frank Billings, of Chicago, has been appointed to deliver the Shattuck lecture at the annual meeting of the society in 1902.

Dr. H. R. Hitchcock called attention to the fact that the Massachusetts Medical Society many years ago had been instrumental in establishing a system of registration of births and deaths by the State. Of late years this has been much less satisfactory than formerly. He moved, and it was voted, that the following be referred to the Committee on State and National Legislation:

Resolved, That a committee of three experts shall be appointed by the Governor, whose duty it shall be to consider the subject of "registration of births, marriages, deaths and divorces, from the standpoint of efficiency, economy and practical usefulness," and shall report upon the same to the legislature not later than May 1, 1902, their report to include such recommendations and changes in the present plan as they may deem best.

The Committee on Nominations reported, and the following were chosen officers of the society for the ensuing year: President, Dr. Frank W. Draper, of Boston; Vice President, Dr. Augustus C. Walker, of Greenfield; Treasurer, Dr. Edward M. Buckingham, of Boston; Corresponding Secretary, Dr. Charles W. Swan, of Brookline; Recording Secretary, Dr. Francis W. Goss, of Roxbury; Librarian, Dr. Edwin H. Brigham, of Brookline. Dr. George S. Eddy, of Fall River, was chosen orator of the annual meeting of the society in 1902.

Voted, That the next annual meeting of the society be held in Boston on the second Wednesday in June, 1902.

The following standing committees were appointed:

Of Arrangements.—Drs. S. Crowell, W. H. Prescott, F. G. Balch, J. C. Hubbard, Farrar Cobb, A. P. Perry.

On Publications.—Drs. O. F. Wadsworth, Geo. B. Shattuck, H. L. Burrell.

On Membership and Finance.—Drs. E. G. Cutler, L. R. Stone, F. W. Goss, W. Ela, C. M. Green.

To Procure Scientific Papers.—Drs. A. K. Stone, C. F. Withington, W. H. Pomeroy, J. B. Blake, G. L. Richards.

On Ethics and Discipline.—Drs. G. E. Francis, F. C. Shattuck, C. G. Carleton, E. Cowles, J. F. A. Adams.

On Medical Diplomas.—Drs. H. E. Marion, E. N. Whittier, O. F. Rogers.

On State and National Legislation.—Drs. F. W. Draper, H. P. Bowditch, S. D. Presbrey, S. W. Abbott, B. H. Hartwell.

Obituary.

WILLIAM LEONARD WORCESTER, M.D.

WE regret to record the death of Dr. William L. Worcester, for six years physician and pathologist at the Danvers Insane Hospital. He died Sunday, June 5th, at the age of fifty-six, after a brief illness, from septicæmia.

He was born in 1845 in Chelsea, Vt., and obtained his primary education in the public schools of Thetford of that State. His father, Ezra C. Worcester, was a physician before him, and the son decided to undertake the same profession. After graduating from Dartmouth College in '69, he went to Washington, D.C., and was for a time clerk of the senate committee on pensions. He obtained his degree of doctor of medicine from a medical school in Washington, and was then appointed medical examiner in the pension department. After further study in Europe, and after engaging in private practice for a few years in Burlington, Vt., he decided to adopt mental diseases and pathology as his special field of work. He was for eleven years assistant physician at Kalamazoo, Mich., and for six years assistant superintendent at the insane hospital at Little Rock, Ark. He came to the Danvers Hospital in 1895.

As an alienist and pathologist Dr. Worcester had made for himself an enviable position among his colleagues and those best fitted to judge of his scholarly qualities. He was an unassuming man, quiet in manner, and not inclined to force himself upon the attention of others. In spite of this fact he accomplished in his laboratory researches a most creditable amount of work, always carefully thought out and considered before being submitted to the printer. Although he had much knowledge of general pathology, he had latterly devoted himself especially to the difficult field of the pathology of the nervous system, and had published many papers of decided merit and originality. It is not too much to say that he was one of the pioneers in the application of modern microscopic technique to the nervous system in America, a department of research in which it was natural that good work should have long gone unrecognized.

His death is a loss to the profession at large, and especially to the Danvers Hospital, with which he had become closely identified. The hospital, no doubt, owes him more than can at present be realized, for he represented the best tendency in psychiatric research. In addition to his knowledge of mental disease he was an excellent neurologist, and a man of high scholarly attainment. He was a member of the American Neurological Association, and a faithful attendant at its meetings. Within a few months he had read a paper before the newly formed American Association of Pathologists and Bacteriologists.

Dr. Worcester leaves an aged mother, three brothers and three sisters, who were present at his bedside when he died, with the exception of one brother, Dean C. Worcester, of the Philippine commission, who is now at Manila.

Correspondence.

SMALLPOX AT BERLIN.

NEW HAMPSHIRE STATE BOARD OF HEALTH.

CONCORD, N. H., June 12, 1901.

MR. EDITOR: In response to numerous inquiries, and to inform the public generally on the smallpox situation at Berlin, we have to say that there are at this date, June 12th, approximately 36 cases of the disease in northern New Hampshire; 2 cases in a lumber camp on Gale River; 2 cases in one family at a farmhouse in Berlin, and 32 cases in the isolation hospital in that city. All of these cases are under strict quarantine, and in no manner whatever endanger the public.

An order is for the present in force in the city of Berlin making it a penal offense not to report to the Board of Health every form of eruptive disease. A competent and experienced inspector of the State Board of Health, with headquarters at Berlin, has supervision over the situation, and is co-operating with the local boards of health in carrying out such restrictive measures as may be necessary. No effort is being spared by the State and local authorities to stamp out the disease at the earliest possible moment.

The malady is, of course, confined to the unvaccinated classes. Extensive vaccination has, however, been brought about by the co-operation of health officers, ministers, priests, manufacturers and public sentiment. The situation, therefore, should not cause public alarm, and there should be no interference with business or travel.

There is no occasion whatever for any quarantine to be established other than that now in force, covering the cases themselves, and any quarantine that may have been established by any town against free communication, travel, or business, is hereby dissolved by authority conferred upon this board by the Public Statutes.

We urge upon every town and city the great importance of general public vaccination, and reiterate our recommendation that lumbermen, manufacturers and others require that successful vaccination shall be one of the requisites for employment.

We repeat that the situation should not cause alarm, but that every community and every individual should avail themselves of the only known preventive of smallpox, to wit: vaccination.

We shall keep the public fully informed regarding the situation, and no credence should be given to the baseless rumors that are not infrequently circulated.

IRVING A. WATSON, M.D., Secretary.

INHERITED PREDISPOSITION TO APPENDICITIS.

61 Auburndale Place,

CINCINNATI, June, 1901.

MR. EDITOR: I am trying to establish the fact, which I believe from my own personal observation to be true (see *Lancet Clinic*, June 8th), of an inherited tendency or predisposition to appendicitis. If the readers of your journal will kindly look into history (family) of their cases and report to me, I will be under very many obligations.

Truly yours,

W. H. DEWITT, M.D.

METEOROLOGICAL RECORD.

For the week ending June 8th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S.	29.90	54	60	49	87	83	85	NW	S	2	7	O. O.
M.	29.80	64	74	54	86	54	70	S W	W	10	12	F. O.
T.	29.85	66	79	53	60	55	58	W	W	12	10	C. F.
W.	29.90	72	85	59	53	46	50	W	S W	7	14	C. O.
T.	29.96	76	87	65	60	54	57	S W	S W	10	16	C. O.
F.	29.82	77	74	64	83	92	88	S	S	14	17	O. R.
S.	29.78	62	68	56	63	55	59	W	W	13	16	C. C.
Mean	29.87	76	57			67						.37

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
 ‡ Mean for week.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, JUNE 8, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diphtheria.	Diphtheria and croup.	
New York.	3,437,292	1,209	368	24.73	11.25	—	4.13	3.96	
Chicago.	1,698,575	—	—	—	—	—	—	—	
Philadelphia.	1,235,697	410	115	25.12	10.00	1.11	—	2.68	
St. Louis.	575,238	—	—	—	—	—	—	—	
Baltimore.	321,616	161	45	12.63	8.00	—	3.57	2.38	
Cleveland.	361,768	—	—	—	—	—	—	—	
Buffalo.	352,387	—	—	—	—	—	—	—	
Cincinnati.	325,902	—	—	—	—	—	—	—	
Pittsburg.	321,616	—	—	—	—	—	—	—	
Washington.	278,718	—	—	—	—	—	—	—	
Milwaukee.	265,315	—	—	—	—	—	—	—	
Providence.	175,597	63	12	31.74	3.17	—	3.17	4.76	
Boston.	669,862	202	56	25.71	11.28	2.47	1.47	3.47	
Worcester.	118,421	23	9	8.69	13.64	—	—	—	
Fall River.	104,863	25	9	20.00	8.00	—	8.00	—	
Lowell.	94,969	31	11	16.13	29.03	—	—	6.45	
Cambridge.	81,886	35	5	15.38	11.53	—	—	—	
Lynn.	68,513	23	7	13.04	—	—	—	—	
Lawrence.	62,559	15	8	26.64	6.66	—	—	6.66	
New Bedford.	62,442	21	8	28.57	4.76	—	—	—	
Somerville.	62,442	10	1	30.00	10.00	—	—	—	
Holyoke.	61,643	12	4	16.67	16.67	—	—	—	
Brookline.	45,712	10	6	30.00	10.00	—	—	—	
Haverhill.	40,993	8	3	12.50	—	—	—	—	
Salem.	37,175	10	1	15.00	14.30	—	—	—	
Chelsea.	35,966	10	10	40.00	—	—	—	—	
Chelsea.	34,072	11	4	9.09	—	9.09	—	—	
Malden.	33,664	9	1	33.33	33.33	—	11.11	—	
Newton.	33,567	6	6	—	—	—	—	—	
Taunton.	31,531	12	2	8.33	8.33	—	—	—	
Fitchburg.	31,036	12	4	8.33	8.33	—	—	—	
Gloucester.	26,421	3	1	—	25.00	—	—	—	
Everett.	24,339	3	1	—	—	—	—	—	
North Adams.	24,200	5	1	—	—	—	—	—	
Quincy.	23,859	9	2	22.22	22.22	—	—	—	
Waltham.	23,481	4	1	25.00	—	—	—	—	
Rutland.	21,767	3	1	66.67	—	—	—	—	
Brookline.	19,935	4	1	50.00	—	50.00	—	33.33	
Chicopee.	19,167	8	3	37.50	25.00	—	—	—	
Medford.	18,244	5	2	20.00	20.00	—	—	—	
Newburyport.	14,478	3	1	33.33	—	—	—	—	
Medford.	12,962	—	—	—	—	—	—	—	

Deaths reported 2,410, under five years of age 686; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 592, acute lung diseases 296, consumption 329, scarlet fever 13, influenza 1, erysipelas 15, typhoid fever 23, whooping cough 18, measles 19, cerebro-spinal meningitis 7, smallpox 19.

From whooping cough, New York 5, Philadelphia 7, Baltimore 1, Providence 1, Boston 1, Holyoke 2, Quincy 1. From cerebro-spinal meningitis, Philadelphia 1, Lynn 2, Fall River, New Bedford, Somerville and Brockton 1 each. From scarlet fever, Philadelphia 5, Boston 5, Brookline 2, Chelsea 1. From typhoid fever, New York 5, Philadelphia 12, Baltimore 1, Providence 1, Boston 2, Salem and Newburyport 1 each. From erysipelas, New York 6, Philadelphia 3, Baltimore 3, Lowell, Medford and Southbridge 1 each. From smallpox, New York 16, Philadelphia, Providence and New Bedford 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,163,187 for the week ending May 25th the death rate was 16.7. Deaths reported 3,674: acute diseases of the respiratory organs (London) 191, whooping cough 120, diphtheria 55, measles 196, fever 28, scarlet fever 38.

The death rate ranged from 11.2 in Croydon to 22.6 in Wolverhampton. Highland 17.4, Birmingham 21.8, Blackburn 11.3, Bolton 18.2, Bradford 19.5, Brighton 12.6, Bristol 13.6, Burnley 20.1, Cardiff 15.8, Derby 17.2, Gateshead 17.5, Halifax 18.8, Huddersfield 13.7, Hull 15.8, Leeds 15.3, Leicester 15.0, Liverpool 19.3, London 15.7, Manchester 18.5, Newcastle-on-Tyne 16.1, Norwich 12.1, Nottingham 19.5, Oldham 16.7, Plymouth 16.1, Portsmouth 16.2, Preston 17.1, Salford 22.1, Sheffield 16.4, Sunderland 15.9, Swansea 21.5, West Ham 11.7.

CHANGES IN THE MEDICAL CORPS OF THE NAVY WEEK ENDING JUNE 8, 1901.

Doctors J. W. Backus, F. A. Asserson, J. F. Murphy, W. Seaman and R. R. Richardson, appointed assistant surgeons in the Navy.

F. J. B. Cordeiro, surgeon. Detached from the "Buffalo," June 10th, and ordered home to wait orders.

L. W. Curtis, surgeon. Ordered to the "Buffalo," June 10th.

E. S. Bogert, Jr., passed assistant surgeon. Commissioned surgeon from December 15, 1900.

R. W. Plummer, assistant surgeon. Detached from the "Nashville" and ordered to the "Princeton."

W. Seaman, assistant surgeon. Ordered to the "Independence," June 17.

H. H. Haas, assistant surgeon. Detached from Naval Hospital, New York, and ordered to the Norfolk Navy Yard, June 10th.

R. R. Richardson, assistant surgeon. Ordered to Naval Hospital, New York, June 10th.

J. M. Brister, assistant surgeon. Detached from the "Independence," June 17, and ordered to the Asiatic Station via Transport "Hancock."

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MAY 30, 1901.

CARTER, H. R., surgeon. To inspect the local quarantine station at Baltimore, Md. May 25, 1901.

WOODWARD, R. M., surgeon. Granted two weeks' extension of leave of absence from May 28. May 25, 1901.

VAUGHAN, G. T., surgeon. Detailed as delegate to represent the service at the meetings of the Association of Military Surgeons of the United States May 30; and American Medical Association June 4, at St. Paul, Minn. May 27, 1901.

COBB, J. C., passed assistant surgeon. Relieved from duty at Fort Stanton, N. M., and directed to proceed to Portland, Ore. May 29, 1901.

WERTENBAKER, C. P., passed assistant surgeon. Detailed to represent the service at meeting of the Association of Military Surgeons of the United States May 30; and American Medical Association, June 4, at St. Paul, Minn. May 27, 1901.

GARDNER, C. P., passed assistant surgeon. Detailed to represent service at meeting at the Washington State Medical Society at Seattle, Wash., June 18 to 20, 1901, inclusive. May 27, 1901.

DECKER, C. E., assistant surgeon. Granted leave of absence for ten days. May 28, 1901.

Hony, W. C., assistant surgeon. To proceed to Thomson, Ga., for special temporary duty. May 27, 1901.

HARGIS, J. W., acting assistant surgeon. Granted leave of absence for four days from May 28. May 27, 1901.

OLSEN, E. T., hospital steward. Granted leave of absence for fifteen days from June 13. May 22, 1901.

SPANGLER, L. C., hospital steward. To proceed to Delaware Breakwater, Del., and report to medical officer in command for duty and assignment to quarters. May 28, 1901.

APPOINTMENT.

Lewis C. Spangler, of Ohio, appointed junior hospital steward in the U. S. Marine Hospital service. May 27, 1901.

RECENT DEATH.

DR. DANIEL W. MARSTON, of New York, recently died at Schenectady, N. Y., having been taken with pneumonia while on his way to the meeting of the American Medical Association at St. Paul. He was graduated from Bellevue Hospital Medical College in 1898.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the Associated Physicians of Long Island, January, 1900, to June, 1901. Vol. 11.

Mosquitoes. How They Live; How They Carry Disease; How They are Classified; How They may be Destroyed. By L. O. Howard, Ph.D. Illustrated. New York: McClure, Phillips & Co., 1901.

Eidolopia, or the End of Earth; the Strange History of a Mysterious Being and the Account of a Remarkable Journey, by John Uri Lloyd, author of "Stringtown on the Pike." Illustrated. New York: Dodd, Mead & Co., 1901.

Progressive Medicine, a Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. 11. June, 1901. Illustrated. Philadelphia and New York: Lea Brothers & Co.

Original Articles.

A STUDY OF THE FOOD CONSUMED AND DIGESTED BY FOUR MEMBERS OF THE HARVARD UNIVERSITY BOAT CREW IN JUNE, 1900.

BY W. O. ATWATER AND F. G. BENEDICT, WESLEYAN UNIVERSITY.

(Concluded from No. 25, p. 606.)

THE figures of Table 5 imply that the quantities of food eaten by the Yale and Harvard crews varied within comparatively narrow limits. The quantities were regulated mainly by the appetites and instincts of the eaters, as is the case generally with people who have all they want to eat. Well-to-do people of sedentary habits are often inclined to eat more than they need or than is best for them. It seems probable that people with severe muscular work and plain diet would be less prone to dietary excess. It is evident that these college crews had instinctively arrived at a standard which was nearly uniform for all. Whether that standard, with its 154 grams of protein and fuel value of 3,925 calories in the food actually eaten, is the best for men of their class, and the work they have to do is a question that cannot be decided without a great deal of careful observation and painstaking experiment.

THE DIGESTION EXPERIMENTS.

The object of the digestion experiments is to find what proportions of the food as a whole, and of its several constituents, are digested and made available to the body for building and repair of its materials and for the yielding of energy. A large part of what is definitely known of this particular subject comes from late German inquiry, the methods and results of which have not yet received great attention in American and English medical literature. In the co-operative inquiry referred to above as carried on in different parts of the United States, considerable experimenting has been done in this direction during the past few years.

Definitions of terms.—The following statement, condensed from a late article on the subject,¹⁷ will explain the use of the terms digestibility, availability, energy and fuel value in the present article.

The digestion of food is done at the expense of a certain amount of material which other food has supplied, and which has been fitted by the body for the particular purpose. This material is essentially that which is poured into the alimentary canal in the digestive juices. That which is not reabsorbed remains in the feces in the so-called metabolic products. These latter include, also, the fragments of intestinal epithelium and minute quantities of other substances.

In addition a small part of the food escapes digestion. The feces are, accordingly, made up of (1) metabolic products which are mainly the residues of digestive juices, and (2) the undigested residues of the food. This brings out the distinction be-

tween the terms digestibility and availability as they are here used.

Digestibility of food.—This term is here used to designate the quantity or proportion of material actually digested. It is measured by the difference between the total food and the undigested residue. The statement applies likewise to the several nutrients—protein, fats, carbohydrates and mineral matter. To determine what amount of each is digested, the total amount in the food and the corresponding amount of undigested residues in the feces should be determined. Subtracting the undigested residue from the total amount would give the amount digested. The methods for distinguishing between the metabolic products and the undigested residue of the food, however, have not been made sufficiently accurate to enable us to determine exactly the amounts of undigested residue in the feces. Hence satisfactory determinations of digestibility, in the sense in which the word is here used, are yet hardly feasible.

Availability of food.—The term availability is here used to designate the quantity or proportion of the food and of each of the several nutrients which can be used for the building and repair of tissue and the yielding of energy. The metabolic products are not used either for building material or fuel, and hence are not available in the sense in which the word is here employed. They represent part of the cost of digesting the food. The amounts of available nutrients are found by subtracting the sum of the metabolic products and the undigested residue; that is, the ingredients of the feces, from the corresponding ingredients of the food. The term digestible has often been used in the sense in which available is here employed, but the distinction here made is evidently an important one. How the available nutrients of the food are actually utilized in any given case; how much benefit the body gains from a given amount of nutrients in any given diet, is another matter.

Energy.—The total energy of a given quantity of food or body material is taken as equivalent to its heat of combustion in oxygen as measured by the bomb calorimeter, the unit of measurement being the large calorie. This assumes that when material is oxidized in the body the amount of latent energy which becomes kinetic and available to the body is the same as if the material were oxidized to the same or equivalent products outside the body; for example, in the bomb calorimeter. The correctness of this assumption is based upon the belief that the law of the conservation of energy holds in the living organism, and is verified by the results of late experiments with men in the respiration calorimeter at Wesleyan University.

Available energy.—The view thus expressed makes the total available energy of the food the total energy (heat of combustion) less that of the corresponding unoxidized residues of the feces and urine. It is also the total energy of the available nutrients less that of the corresponding unoxidized material of the urine.

¹⁷ Discussion of the terms Digestibility, Availability and Fuel Value, by W. O. Atwater. Report of Storrs (Conn.) Experiment Station, 1899, p. 69.

Fuel value.—This term is here used synonymously with available energy; that is, it signifies the energy of the material of the food which is oxidized (that is, capable of oxidation) in the body. For the protein it is the total energy less that of the corresponding unoxidized residues of the feces and urine. For the fats and carbohydrates it is the total energy less the energy of the corresponding unoxidized material of the feces.

The term fuel value is also applied, in the same signification, to the body materials oxidized.

TABLE 6.—FECES: FOUR ATHLETES, 7 DAYS.
DIGESTION EXPERIMENT No. 191.¹

Laboratory No.	SUBJECT.	DAY OF STUDY.							Total 7 days.
		1	2	3	4	5	6	7	
		Gms.	Gms.	Gms.	Gms.	Gms.	Gms.	Gms.	
3,219 A.....		74.0	79.0	219.0	148.0	47.0	96.0	69.0	732.0
3,220 B.....		130.5	193.5	167.0	108.0	347.0	136.0	151.0	1,233.0
3,221 C.....		162.6	137.0	158.0	174.0	275.0	76.0	194.0	1,166.6
3,222 D.....		238.0	310.0	268.0	257.0	224.0	203.0	237.0	1,737.0

¹ That is the 191st experiment of the series referred to on page 601.

TABLE 7.—AVAILABILITY (DIGESTIBILITY) OF NUTRIENTS AND ENERGY OF FOOD EATEN BY FOUR ATHLETES:

DIGESTION EXPERIMENT No. 191.

FOOD.	Total Grams.	Organic matter, grams.	Nitrogen, grams.	Protein, grams.	Fat, grams.	Carbohydrates, grams.	Energy, calories.
Average eaten per man per day,	2,898	786	25.3	154	159	473	4,279
FECES PER MAN PER DAY.							
Subject A.....	165	21	1.3	8	4	8	125
Subject B.....	176	27	2.0	12	7	8	168
Subject C.....	167	27	2.0	13	6	8	173
Subject D.....	248	35	2.3	14	11	10	228
Total 4 men per day....	696	110	7.6	47	28	34	694
Average per man per day.....	174	27	1.9	12	7	9	174
Energy lost in urine per man per day....							178
Average of amounts available per man per day.....	...	759	23.4	142	152	464	3,927
Coefficients of availability.....	Prct.	96.6	92.5	92.2	95.6	98.1	91.8

¹ As these weights include water, they are of minor importance.

Coefficients of availability.—The difference between the income of each ingredient in the food and the outgo in the feces shows the amount available. The coefficients of availability of nutrients are found by dividing the amounts available by the total amounts in the food. The same principle applies in estimating the available energy, which is the total energy of the food less that of the feces and urine, and is here taken as the measure of the

fuel value. The coefficients of availability of the energy of the food and of the several kinds of nutrients are found by dividing the available by the total energy.

Results of the digestion experiment.—The weights of feces are given in Table 6 and the composition in Table 2. The weights and composition of the urine are stated in Table 9. Table 7 summarizes the results of the digestion experiment. The figures for food eaten per man per day are taken from Table 4; those for feces are calculated from the amounts and the composition.

It will be remembered that the amounts of food eaten by the four men collectively were weighed each day, no attempt being made to learn just how much each individual man ate. The amounts of feces excreted by each individual during the whole seven days were weighed, so that the amounts for each were determined separately.

The figures for feces per man per day are found by taking the total intestinal excretion of each man for seven days, as computed from Tables 2 and 6 and dividing by 7; this gives the averages per day for each of the four men in Table 7. The averages of these four individual averages are taken as the general averages per man per day in Table 7.

The figures for the heats of combustion of food and feces are calculated from the results of actual determinations with the bomb calorimeter. The energy lost in the urine in like manner represents the heats of combustion of the unoxidized materials of the urine.

The amounts of available nutrients are obtained by subtracting the quantities in the feces from those in the food. The corresponding figures for energy are found by subtracting the sum of the heats of combustion of the unoxidized materials of feces and urine from the total heats of combustion of the food. The coefficients of availability for both nutrients and energy are obtained by dividing the amounts available by the total amounts.

According to the figures of the table, 92.5% of the nitrogen and 92.2% of the protein of the food are available to the body. This slight difference is explained by the fact that the factors used for computing the protein from the food differ somewhat in the different food materials, as explained in Table 8 beyond. The discrepancy is of no practical consequence.

Availabilities of nutrients and energy of food.

—The main result of the experiment is found in the coefficients of availability. According to the figures of Table 6 these four athletes in the last days of active training for the boat race, on a simple and ample diet digested their food so as to make the following proportions of the several constituents available to their bodies for the building and repair of tissue and the yielding of energy:

Protein.....	92.2%
Fats.....	95.6%
Carbohydrates.....	98.1%
Energy.....	91.8%

Two questions naturally occur. The first is: Was there any considerable difference in the pro-

portions of food digested by individual men? The second is: Did these men, with severe muscular exercise for about three hours each day and a diet which supplied, on the average, 154 grams of protein and 3,926 calories of energy per day, digest their food, on an average, more or less completely than do men in ordinary occupations with ordinary diet?

Average coefficients of availability.—There are now on record the results of nearly 200 American digestion experiments with men, mostly with mixed diet, and perhaps an equal or larger number of European experiments with single food materials and mixed diet. From the data thus obtained factors have been derived¹⁸ which represent more or less nearly the average coefficients of availability of the nutrients of different kinds of food materials when eaten by ordinary men in health and at ordinary occupations. In working out these coefficients for availability food materials were divided into the following groups:

- (1) Animal food materials, as meats, fish, milk, eggs, etc.
- (2) Cereals, such as wheat, rye, barley and buckwheat flours, corn (maize) meal, etc.
- (3) Sugars and starches.
- (4) Vegetables, as potatoes, cabbage, turnips, etc.
- (5) Fruits.

Referring to the original discussion for explanations we give the coefficients in Table 8, and with them the nitrogen factors for protein referred to above.

TABLE 8.—FACTORS FOR COMPUTING PROTEIN FROM NITROGEN AND COEFFICIENTS OF AVAILABILITY OF NUTRIENTS OF DIFFERENT GROUPS OF FOOD MATERIALS.

	Nitrogen factor for Protein.	Coefficient of Availability.		
		Protein, Per cent.	Fat, Per cent.	Carbo-hydrates, Per cent.
Animal food	6.25	97	95	98
Wheat, rye, barley, and their manu- factured products	5.70	85	90	98
Maize, oats, buckwheat, rice, and their manufactured products	6.00	85	90	97
Dried seeds of legumes	6.25	78	90	98
Sugars and starches	5.65	83	90	95
Vegetables	5.40	85	90	90
Fruits				

The accuracy of these assumed coefficients of availability can be tested by the results of actual digestion experiments. This may be done by taking the diet used in a given experiment, computing the amounts of available nutrients by use of these assumed coefficients, and comparing the results with those of the actual experiments. In the average of 93 American experiments, in which the computed quantities of available nutrients were compared with those actually found by experiment, the following results were obtained:¹⁹

¹⁸ The Availability and Fuel Value of Food Materials, by W. O. Atwater and A. P. Bryant, Report of Storrs Experiment Station, 1899, p. 73.

¹⁹ Atwater and Bryant, Report Storrs Experiment Station, 1899, p. 87.

AVAILABILITY OF NUTRIENTS OF ORDINARY MIXED DIET.

	Protein, Per cent.	Fats, Per cent.	Carbo-hydrates, Per cent.
Computed by use of coefficients	93.6	94.5	98.1
Found by actual experiment	93.3	95.8	98.7

While it is not to be supposed that the coefficients given in Table 8 represent the actual availability of the nutrients of the different kinds or classes of food materials under all circumstances, the close agreement between results found by experiment and computed by these factors does imply that they represent a fairly close approximation to the actual availability in the average mixed diet of ordinary people in health.

This brings us to the question whether the availability of the food as digested by the four athletes in the present experiment agreed with that of the food eaten by men at ordinary occupations. By applying the coefficients of availability of Table 8 to the diet of the athletes, we can find what proportions of the total nutrients would probably have been made available if the same kind of foods had been eaten by men at ordinary occupations. Comparing the coefficients as thus calculated with those found in the experiments with the athletes, will show the agreement or disagreement. The results follow:

AVAILABILITY OF FOOD EATEN BY FOUR ATHLETES.

	Protein, Per cent.	Fats, Per cent.	Carbo-hydrates, Per cent.	Energy, Per cent.
Computed by use of coefficients of availability with ordinary men	93.7	94.2	97.1	91.0
Found by actual experiment with athletes	92.2	95.6	98.1	91.8

It will be remembered that the diet of the athletes furnished on the average 154 grams of protein, and had a fuel value of 3,925 calories, while in the diet of men at ordinary occupations the protein would not have averaged much over 100 grams, or the fuel value much over 3,300 calories per man per day.

It would thus appear that the athletes obtained just about the same proportions of available nutrients from their food as do men at ordinary occupations. This is equivalent to saying that the athletes on the average digested their food just about as completely as the average man does.

Differences in the digestion of food by the four individual men.—The above statements apply to the average results with the four men. The figures of Tables 6 and 7 bring out a striking difference in the amounts of nutrients rejected in the feces by the different subjects. The total

weights of the feces varied from 105 grams per day with A to 248 grams with D. The variation in the organic matter, from 21 to 35 grams per day, is somewhat smaller. The nitrogen varied from 1.3 grams per day with A to 2.3 grams with D, which is again a very wide difference. The range in the fats, from 4 to 11 grams, is in still wider proportion. With the carbohydrates on the other hand, the quantities are nearly alike. These differences may be explained on either of three suppositions:

(1) A may have eaten much less food than D. This is possible, but seems hardly probable. Actual observation at the time gave the impression that A ate fully as much as the others, and that if any one ate noticeably less than the rest, it was C; but of course no exact weighings of the quantities served each man were made.

(2) In the digestion of the food by A much smaller quantities of digestive juices may have been secreted than in the case of D.

(3) A may have a power of digesting food much more completely than D.

It may be that two or perhaps all three of these causes united to bring about the differences noted. The quantities of organic compounds and of energy in the feces per day come much nearer to the general averages with B and C than with A and D.

So far as this particular experiment is concerned, it is greatly to be regretted that the circumstances did not permit of separate determinations of the amounts of food eaten by each of the subjects. Such determinations would have shown the exact proportions of available and unavailable nutrients for each man. It would be interesting to know whether there was any difference in the physical conditions of the subjects corresponding to the apparent differences in the digestion of the food.

Two further points should be noted. The first is that on Sunday, June 24th, no work was done, and the amount of food eaten was less than on other days. It is hardly to be supposed, however, that this fact would materially affect the percentage of organic residues in the feces; still in estimating the digestibility and availability of food eaten during intense work, it would be more satisfactory to use the data for working days only. In this case the feces corresponding to the food of Sunday could not well be distinguished from the rest.

The second is the wide variation in the amounts of feces in the individual days, as shown in Tables 6 and 7. This illustrates the importance of extended and repeated experiments of this kind for obtaining reliable averages.

Importance of examining feces of men in training.—The feces were examined macroscopically at each collection. It was expected that with the large appetites of men with such severe muscular exercise and with the habit of rapid eating so common to athletes, that a not inconsiderable portion of the food, especially meats, would be swallowed so rapidly as to escape proper masti-

cation. This rapid eating we have observed with athletes elsewhere.

On one day in this experiment the men ate canned corn at the evening meal. The next day all four had a marked diarrhea, and the feces contained undigested kernels of corn. These appeared in one case in less than twelve hours and in others within twenty-four hours after the ingestion. Thereafter canned corn was avoided. Here is an instance where an observation of a kind commonly neglected was of great practical importance.

In every way other than that just mentioned the feces appeared normal, and no large particles of undigested food were observed. We were told that the men had been advised to eat slowly and masticate their food well.

The above considerations lead to two suggestions; one is as to the desirability of the examination of feces of men in training, in order to detect indications of imperfect digestion and other irregularities. This has to do with the health and welfare of the men in training, and interests the attendant physician and the trainer. The other is the desirability of microscopical and chemical studies of the feces of athletes in training, for the purpose of obtaining information of possible value regarding the general effect of diet. This is a matter for the physician and the physiological chemist.

AMOUNT AND COMPOSITION OF URINE.

The urine from each subject was collected separately, and the nitrogen, urea, uric acid and heat of combustion of the dried residue of the urine were determined for each day of the experiment. The statistical results are shown in Table 9.

Quantities of total urine and constituents.—The most noticeable feature of the data in this table is found in the very small quantities of total urine and of the constituents determined. This is particularly marked in the case of A on the last two days, B on the last day and C on the third, fourth and sixth days. The quantities of total nitrogen, urea and uric acid and the heat of combustion are correspondingly small with the same subject on the same day. The question of the small daily excretion of nitrogen in the urine will be touched upon in the discussion of the income and outgo of nitrogen.

Urea and uric acid.—The ratio of these constituents in the urine does not differ sufficiently from day to day to warrant any inferences as to the effect of either the diet or the exercise upon their elimination. A considerable amount of labor was devoted to the determinations of urea and of uric acid along with those of the total nitrogen, in the hope that the data thus obtained might possibly throw some light upon the general question of the relation between their amounts and the amount and severity of the exercise taken. Despite the interest taken in this phase of the subject by Dr. Brown, and the detail and accuracy of the determinations of urea and uric acid made by him, the conclusions warranted are

more negative than positive. It is hoped, however, that the results here obtained, together with the results of other investigations which have been collected by Dr. Brown, may be published in another place.

There was a loss of urine from one of the subjects, C, on the sixth day, which was Sunday. He feels positive, however, that the amount which thus failed of collection was small, and that at no other time did such an oversight occur. Each of the other subjects is certain that there was no such loss in his own case. An attempt has been made to correct the figures for C on the sixth day in the following way: The average daily excretion of nitrogen in the urine by A, B and D for the six days, exclusive of the sixth, was 20.2

NITROGEN BALANCE.

In striking a balance of income and outgo of nitrogen, it is customary to subtract the amount in the feces and urine from the amount in the food each day. The figures thus obtained in this experiment are given in Table 10, and show a gain of body nitrogen each day. The average gain per man per day is thus computed to be: Nitrogen 3.9 grams, protein 24 grams.

These estimates of amounts excreted are affected by three errors, each of which tends to diminish the estimate of amount of nitrogen excreted, so that the figures in the table make the amount of nitrogen stored in the body larger than was actually the case.

TABLE 9.—AMOUNT AND COMPOSITION OF URINE: EXPERIMENT WITH FOUR ATHLETES.

Lab. No.	Subject and date.	Amount.	Specific Gravity.	Total Nitrogen.		Urea.		Uric Acid.		Heat of Combustion.	
				Grams.	Pr ct.	Grams.	Pr ct.	Grams.	Pr ct.	Pr gram.	Total.
5,092	A:	Grams.								Calories.	Calories.
	June 19-20	1,086	1.031	1.81	19.7	3.48	37.8	.085	.92	153	166
	20-21	1,216	1.032	1.93	23.5	3.86	.045	.75	.171	208	
	21-22	1,213	1.032	1.91	23.2	3.60	43.7	.065	.79	169	194
	22-23	1,169	1.028	1.74	20.3	3.30	38.6	.074	.87	149	174
	23-24	1,275	1.029	1.60	20.4	2.99	38.1	.035	.45	135	172
	24-25	937	1.030	1.76	16.5	3.60	39.9	.031	.57	148	159
	25-26	927	1.033	1.82	16.9	2.85	26.4	.079	.73	170	158
	Total	7,823			140.5		262.4		4.88		1,211
5,093	B:										
	June 19-20	1,180	1.027	1.47	17.3	2.61	30.8	.051	.60	127	150
	20-21	1,244	1.029	1.72	21.4	2.83	35.2	.043	.54	149	185
	21-22	1,108	1.029	1.78	19.7	3.50	38.8	.043	.48	146	162
	22-23	1,456	1.025	1.42	20.7	2.69	39.2	.042	.61	121	176
	23-24	1,357	1.025	1.51	17.8	2.55	34.6	.028	.38	116	157
	24-25	1,201	1.024	1.36	16.3	2.52	30.3	.038	.46	115	138
	25-26	855	1.029	1.58	13.5	3.12	26.7	.040	.34	147	126
	Total	8,401			126.7		235.6		3.41		1,094
5,094	C:										
	June 19-20	1,076	1.031	2.09	22.5	4.02	43.2	.069	.74	166	179
	20-21	1,209	1.030	1.79	21.6	3.10	37.5	.053	.64	150	181
	21-22	962	1.028	1.52	14.6	1.81	17.4	.038	.37	129	124
	22-23	826	1.028	1.50	12.4	2.83	23.4	.041	.34	134	111
	23-24	1,582	1.027	1.45	22.9	2.76	43.7	.033	.52	124	196
	24-25	892 ¹	1.028	1.85	16.5	3.46	30.9	.036	.32	161	144
	25-26	1,327	1.028	1.46	19.4	2.76	36.6	.055	.73	137	182
	Total	7,874			129.9		252.7		3.06		1,117
5,095	D:										
	June 19-20	1,743	1.027	1.44	25.1	2.71	47.2	.052	.91	125	218
	20-21	1,358	1.028	1.40	19.0	2.75	37.3	.043	.58	123	167
	21-22	1,738	1.028	1.47	25.5	2.96	51.4	.029	.68	119	207
	22-23	1,720	1.022	1.21	20.8	2.25	38.7	.028	.48	105	184
	23-24	1,529	1.024	1.24	19.0	2.39	36.5	.035	.54	105	161
	24-25	1,857	1.020	1.08	20.1	2.11	39.2	.031	.58	109	165
	25-26	1,284	1.029	1.48	19.1	2.88	37.0	.058	.75	135	173
	Total	11,229			148.6		287.3		4.52		1,272

¹ Corrected for probable loss. The actual amount of urine was 822 grams. See this page.

grams, and the amount on the sixth day was 17.6 grams. The quantity excreted by C on the other six days averaged 18.9 grams per day. Assuming that for C the ratio of the quantity for the sixth day to the average quantity for the other days would be the same as the average ratio for the other three men, the quantity of nitrogen excreted by C on the sixth day would be found by the proportion 20.2:17.6 18.9:x (=16.5). Assuming the percentages of nitrogen and other ingredients and the specific gravity of the whole urine of C for the sixth day to be the same as in the 822 grams actually saved and analyzed, the figures would be as given in Tables 9 and 10.

The first error was due to an actual loss of urine from one of the subjects, C, on the sixth day. A correction for this was made in the figures of Table 9, which are used in Table 10.

The second serious loss is in the drying of the feces for preparation for analysis. This results in the volatilization of a small amount of nitrogenous material. Experience in this laboratory leads us to believe that this amount will not much exceed .1 gram in the total feces per man per day.²⁰ This error is so small as to be usually neglected, and no allowance is made for it here. Even if it were as high as .2 of a gram of nitro-

²⁰ See page 21 of Bulletin 69 of the Office of Experiment Stations, U. S. Department of Agriculture.

gen, it would make an error of only 1.25 grams of protein per man per day.

The third loss is in the nitrogenous compounds thrown off from the body in the water of perspiration, and may be of more consequence. Schäfer²¹ cites various determinations of the quantity of urea and nitrogen excreted in the water of perspiration. Thus Favre found .044 grams urea per 1,000 cc. perspiration, and Funke 1.55 grams urea in 1,000 cc. of perspiration. Argutinsky found .363 and .410 grams of urea in 225 and 330 cc. of perspiration respectively. The same investigator also found .7 of a gram of nitrogen by extracting with distilled water the clothes worn by subjects actively walking or climbing during a considerable portion of the day. C. C. Esterbrook²² found, in some experiments upon himself, that the perspiration contained from .1 to .3 per cent urea. In experiments with the respiration calorimeter,²³ in which the subject worked upon a stationary bicycle for eight hours each day, the amount of nitrogen found in the clothes by extraction with distilled water varied from .2 to .4 of a gram per day.

A still more pronounced elimination of nitrogen in the perspiration was found by Eikjann²⁴

TABLE 10.—INCOME AND OUTGO OF NITROGEN IN EXPERIMENT WITH FOUR ATHLETES. AVERAGES PER MAN PER DAY.

	In food.	In feces.	In urine.	Gain.	Corresponding gain of body N x 6.25.
	Grams.	Grams.	Grams.	Grams.	Grams.
June 16.....	27.5	1.9	21.1	4.5	28
" 20.....	29.9	1.9	21.4	6.6	41
" 21.....	24.5	1.9	20.7	1.9	12
" 22.....	25.4	1.9	18.6	4.9	31
" 23.....	24.2	1.9	20.9	2.3	14
" 24.....	19.6	1.9	17.4	0.3	2
" 25.....	35.9	1.9	17.2	6.8	43
Average for 7 days.	25.3	1.9	19.5	2.9	18

in three experiments with Malay medical students in the tropical climate of Java. The first experiment lasted three hours, during which .222 gram of nitrogen was excreted. The second experiment continued twenty-four hours, during which time there was found in the perspiration .761 gram of nitrogen. The third experiment likewise continued twenty-four hours, and there was an elimination of nitrogen in the perspiration amounting to 1.362 grams. The subjects were engaged in light occupation.

It will be noticed that the largest quantity of nitrogen excreted in the perspiration in any of the instances above cited, was with men with light bodily exercise in the very warm climate of Java.

This was estimated at from .8 to 1.4 grams per day. The excretion of perspiration by the members of the crew in the periods of practice is very profuse, as may be understood when we consider that the total loss of weight during a row of from twenty to thirty minutes reaches as high as three or four pounds. How much nitrogen is contained in this perspiration we have no means whatever of determining.

If we were to take the loss of nitrogen in drying the feces at .1 and that in the perspiration at 1.9, we should have a total average of 2 grams, which would correspond to 12.5 grams of protein. This would reduce the gain of protein as indicated by the figures of Table 10, from 24 grams to 11.5 grams, or a little over one-third of an ounce²⁵ per man per day. Assuming the fat-free muscular substance to be one-fourth protein and three-fourths water, this would correspond to 46 grams, or a little over 1½ ounces of muscular substance daily. Such a gain of protein suggests two lines of queries. (1) Does the gain of nitrogen indicate an undesirable bodily condition? Is a man in the best physical condition for severe muscular strain when his body is gaining protein so rapidly? Does not ripeness of muscular development require that the body shall have attained approximate protein equilibrium? Could such a lack of nitrogen equilibrium have anything to do with staleness? How much stress is to be laid upon these questions we do not presume to judge, still less would we assume to say that the figures of Table 10 prove that the men were not in the best training. Least of all would we affirm a connection between nitrogen balance and tendency to staleness. But we do consider the subject of sufficient interest to call for further study. (2) Was the amount of protein found in the study excessive? The figures of Table 5 (page 605) compare the quantities of nutrients in the food of the athletes in these experiments with the food of other athletes and of men at ordinary occupations. It is noticeable that all of the diets of men subject to intense muscular strain supply large quantities of protein as well as energy. Indeed, the proportion of proteins to fats and carbohydrates is larger than in the diet of people at ordinary occupations.

Tradition in athletic quarters says that a man cannot "get into condition" without eating large quantities of meat, and especially of lean meat. It appears to be a general usage of athletes and prize fighters in Europe and the United States to eat large quantities of nitrogenous food. How generally this is true in Asiatic countries the statistics we have been able to find do not fully explain. The theory suggested by Zuntz²⁶ that intense muscular effort involves a large protein supply seems intrinsically rational, and is supported by a large amount of evidence. It is, however, a question whether the amount of protein eaten by these athletes was or was not the most appropriate.

In this connection the apparent usefulness of sugar as a supplementary food for men subjected

²¹ Schäfer's Textbook of Physiology, vol. I, p. 671, 673.

²² Scottish Medical and Surgical Journal, 1900, VI, 120.

²³ The writers and associates, Bulletin 69, Office of Experiment Stations, U. S. Department of Agriculture, and unpublished data.

²⁴ Virchow's Archiv, 131, p. 179. Also abstracted in Bulletin 45 of the U. S. Department of Agriculture, Office of Experiment Stations, Digest of Metabolism Experiments, by W. O. Atwater and C. F. Langworthy.

²⁵ One ounce avoirdupois = 28.5 grams.

²⁶ U. S. Department of Agriculture, Experiment Station Record VII (1895-1896), p. 650.

to an intense muscular strain, is worthy of notice. The experiments of Stovis,²⁷ Zuntz and Schumburg,²⁸ Prantner and J. Stowasser²⁹ and others, as to the beneficial value of sugar in muscular work has had practical corroboration in experiments made on a large scale on certain Dutch rowing clubs³⁰ and on soldiers.³¹ We do not presume to make any suggestions concerning the value of sugar as an article of diet during training, but the results cited above would seem to indicate that the question is at least worthy of consideration and careful investigation.

SUMMARY.

In June, 1900, a study was made of the actual amounts and composition of food eaten by four members of the Harvard University crew during one week of active training immediately preceding a race. The data obtained also include the statistics of the quantity and composition of solid and liquid excreta during the same period. The investigation thus included a dietary study, a digestion experiment, a study of the excreta, and a nitrogen metabolism experiment.

Dietary study.—The four men ate on the average 154 grams of protein, 139 grams of fat and 473 grams of carbohydrates, with a fuel value of 3,925 calories per man per day. These results compare with those of other studies as follows:

PROTEIN AND ENERGY IN FOOD PER MAN PER DAY.

	Protein.	Energy.
	Grams.	Calories.
Four men of Harvard University crew, New London, 1900.....	154	3,925
Harvard University crew, New London, 1898.	160	3,945
Average, Harvard and Yale University and Freshmen crews, Cambridge, New Haven and New London, 1898.....	155	3,955
Average, 38 dieters of men at ordinary occupations, United States.....	102	3,319

It thus appears that the four men ate just about as much as the Harvard and Yale crews in 1898, and that their food had about 50% more protein and 16% more energy than that of the men at ordinary occupations in the United States whose dieters have been studied.

Digestion experiments.—Comparison of the amounts of nutrients in the food with those in the solid excreta shows the amounts that were actually available. These are nearly, but not quite, the same as the amounts actually digested. They differ from the latter by the amounts of metabolic products in the feces. The average coefficients of availability in these digestion experiments were:

Protein.....	92.2%
Fat.....	95.6%
Carbohydrates.....	98.1%
Energy.....	91.8%

These figures are very nearly identical with those obtained by taking the coefficients of availability of food as found by experiments with men

on ordinary diet and at ordinary occupations, and applying them to the diet of the men in the present experiments. This means that the four athletes, on the average, digested their food just about as completely as the average man does. There were, however, marked differences in the amounts and composition of the feces of the different men, such, indeed, as to imply wide differences in their capacity to digest their food.

Studies of the excreta.—No especial studies were made of the composition of the feces. Comparisons of the urea and uric acid in the urine failed to bring any results such as to warrant conclusions regarding the effect of severe muscular exercise upon their amounts.

Nitrogen balance.—One notable feature of the experiments was found in the fact that the nitrogen excreted by the kidneys and intestines was considerably less in amount than the total nitrogen of the food. This means that there was a considerable storage of nitrogen in the body. The amount was such as to correspond to an average of not far from 24 grams of protein per day, if no allowance is made for the excretion of nitrogenous compounds in perspiration through the skin. Even after making allowance for a very considerable excretion of nitrogen through the skin, this gain is so noticeable as to suggest the queries whether men who are storing nitrogen to such extent are in the best physical condition, and whether the amount of protein in the diet was the most appropriate for the purpose.

Need of further research.—Perhaps the most important conclusion to be derived from the experiments is that further and more detailed investigations are needed to show what diet is best for men under such severe muscular strain as that of oarsmen in training for races.

SOME FORMS OF INTESTINAL OBSTRUCTION DUE TO ADHESIONS.¹

BY A. T. CABOT, M.D., BOSTON,

Surgeon to the Massachusetts General Hospital.

IT is not my purpose to consider in this paper the subject of internal strangulation behind bands, but rather to present the results of some personal experience in cases where, as the result of extensive adhesions, the functional activity of different parts of the alimentary canal has been interfered with.

Adhesions may cause this sort of interference with the functions of the stomach and intestines by limiting the motility of these organs that require the greatest freedom of motion, or by holding them in such awkward, twisted positions that the passage of their contents is impeded. Such an interference with the functions of the stomach is often seen as a result of adhesions following inflammations about the gall bladder and the pancreas, or occurring as a secondary effect of ulcers of the stomach or duodenum. These

²⁷ Dietetic and Hygienic Gazette, 12 (1896), p. 31.²⁸ Deut. Zuck. Ind., 12 (1897), pp. 560, 592.²⁹ Centr. f. ion. Med., 20 (1896), p. 119.³⁰ U. S. Department of Agriculture, Farmers' Bulletin, 93, p. 18.³¹ Leitenstofer. Deut. Mil. Aertzt Ztschr., 27 (1898), p. 305.¹ Read before the Surgical Section of the Suffolk District Medical Society, February 6, 1901.

conditions are of great importance, and give rise to manifold symptoms which well repay close study. This is, however, a chapter of the surgery of the stomach, which I do not propose to enter upon here, for it would open up a wider subject than I propose for myself in this brief paper.

I shall confine myself here to certain chronic conditions of obstruction in the intestinal canal, consequent upon partial twists and kinks in the bowel, which are prevented from untwisting themselves by adhesions which tie them to the parietal peritoneum.

Under these conditions the symptoms of obstruction are usually not constant, for if the bowels

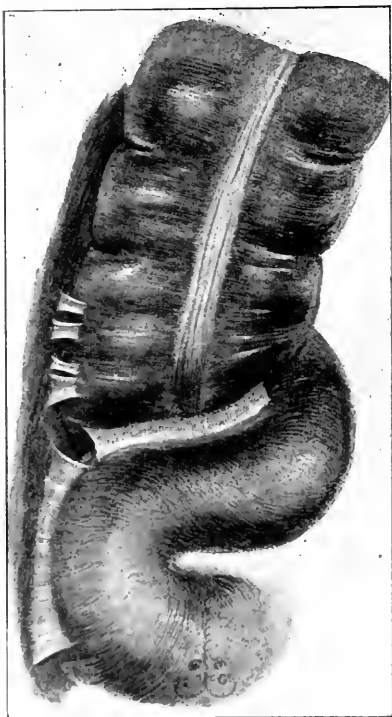


Figure 1.

are in good order they are able to pass their contents comfortably through the partially obstructed coil. When, however, they become overloaded, or when, in consequence of neighboring inflammation, the intestinal peristalsis is interfered with, there may be produced all the symptoms of an acute stoppage. In the cases of this sort which I have seen, the seat of obstruction has been either in the ileum, close to its entrance into the cecum, or in the sigmoid flexure.

Has this experience been accidental, or is there a reason why these two portions of the intestinal tract should be more liable to this form of obstruction? A little consideration will, I think, convince us that this localization is not the result of accident. The other portions of the small intestine are so movable that they can shift about and adapt themselves to any coil which becomes fixed by adhesions. In the large intestine, on the other hand, its relatively fixed position prevents its being thrown into kinks, so that, even if it is fixed by adhesions, it keeps a more or less normal position. At both of the above-named points, however, we have a movable portion of the intestine running into a more fixed part—the ileum into the cecum, and the sigmoid flexure into the rectum. As we shall see presently, this relation of a movable to a fixed portion is favorable to the production of the form of obstruction about which we are speaking.

In studying the mechanism of this form of obstruction let us first consider that taking place in the ileocecal region. At the ileocecal valve the ileum—which up to that point has had the greatest mobility—passes into the cecum, which is relatively fixed. The appendix, close by, makes this region peculiarly liable to inflammation and consequent adhesions. If now, during an attack of appendicitis the ileum sags downward or across the lower end of the cecum, it is liable to become attached to the parietal peritoneum in such a way as to make it form a sharp turn at its entrance into the large intestine. When an operation is undertaken on a case of this sort, the cecum is found tied down by adhesions so that it cannot be readily drawn up into the wound. On following the linea tendinea downwards they are seen to disappear beneath a coil of small intestine anchored by adhesions over the lower end of the cecum. This coil is firmly adherent to the parietes along the pelvic brim outside of the cecum, and must often be dissected with the knife from these attachments before it can be freed and pushed towards the middle line. When it has been thus freed it is seen to be the lower portion of the ileum, and the appendix is usually found buried beneath it or curled back under the head of the cecum. I have met with several such cases; and, by operation for the removal of the appendix between attacks, have had the opportunity of verifying the above-described pathological condition.

A review of the clinical history in several of the cases thus observed has convinced me that this malposition of the ileum produces a decided obstruction, and distinctly modifies the symptoms in inflammatory attacks in this region.

Such a buried appendix is subject to exacerbations of inflammation of a subacute type, and during such an attack, if the evidences of obstruction, namely, the obstipation and pain, are quite out of proportion to the fever and other signs of inflammation, we are justified in suspecting that a mechanical obstruction is superadded to the appendicitis. This suspicion will be confirmed if a mild but thorough catharsis gives immediate relief.

It might be thought that the separation of adhesions and the restoration of the ileum to a more normal position would be sufficient for the relief of such cases. This is, however, not the case. In the year 1894 I operated on two patients having this condition. In neither of them could the appendix be found by a search which, at the time, seemed to me thorough. I therefore contented myself with a thorough separation of adhesions. Both of these patients experienced some temporary relief from the operation, but presently the attacks returned. One of them was lost sight of; but upon the other I did a second operation, and found that the adhesions had re-formed. After again separating them, the appendix was sought by a difficult dissection, and found buried in cicatricial tissue beneath the cecum. It was removed, and this operation was followed by complete relief. From that time I have never failed to find and remove the appendix in these interval operations, and have never seen any recurrence of adhesions to a sufficient degree to cause obstructive symptoms.

Since this paper was read I have met with one other case of adhesion about the cecum, probably dependent upon appendicitis, which presented unusual features and is worthy of record here.

CASE A. E. P. D., a man of thirty, entered the Massachusetts General Hospital March 3, 1901, with an acute attack of appendicitis. He had had but one previous attack that he could remember, and this occurred last Christmas evening, when he had severe vomiting and pain in the abdomen, but was up and at work the next day. From that time he was subject to slight pains in the abdomen till the night before entrance, when he was again seized with pain and vomiting, which persisted up to the time when I saw him.

As soon as preparations could be made, he was operated on. The appendix was found to be large, tense and congested, with flakes of lymph surrounding it. It was quickly removed, and then the following further condition was found: About midway between the base of the appendix and the hepatic flexure the ascending colon was bound to the lateral wall of the abdomen by a firm, well-organized adhesion. The colon beyond this point was of full size and contained gas, the small intestine was congested and moderately distended, while the cecum was totally collapsed and pale in color. As the adhesion was separated the colon gradually expanded and rolled towards the middle line, and the cecum filled and assumed its normal proportions. When the separation was fully effected, it was seen that the upper part of the adhesion had been attached to the intestinal wall on the inner side of the colon not far from the ileocecal valve. Thus it was plain that by the gradual pull of the adhesion the intestine had been rolled out until the inner wall—that is, the wall which should have looked inward towards the middle line of the body—was held tightly against the lateral wall of the abdomen in the right loin.

To explain this curious condition of an empty

cecum lying between a distended small intestine and a full ascending colon, we must conclude that the band of adhesion, besides encircling and closing the large intestine, also so pulled upon the ileocecal valve as to obstruct the passage through it as well. The insertion of the adhesion close to that valve would make this supposition seem the probable explanation. The exact manner in which this obstruction was brought about could only have been determined by opening the caput coli before cutting the adhesion. This naturally was not thought of. After a complete division of the adhesion the abdomen was tightly closed, and the patient made a quick and almost a febrile convalescence. The speedy occurrence of free and full evacuations of the bowels showed how entirely the obstruction was relieved.

This is one of the cases which shows how a mechanical obstruction, which has not before amounted to a complete occlusion of the bowel,



Figure 2.

may lead to a total stoppage, when an inflammatory or other condition causes an undue distention of the intestines in its neighborhood.

ADHESIONS OF THE SIGMOID FLEXURE.

On the opposite side of the abdomen the sigmoid flexure again presents a movable portion of the intestine entering below into a more fixed part. When the mesentery of the sigmoid is long this portion of the gut readily sags down into the pelvis, and, if an inflamed condition of the peritoneum supervenes, may readily become attached in that region. When this happens a sharp bend is formed at the junction of the sigmoid flexure with the rectum.

The writer has met with three cases in the past eighteen months in which such a malposition of the sigmoid has caused serious obstruction. Two of these patients were elderly men, and the third was a woman still young. The first case I will report in some detail, on account of special points of clinical interest.

CASE I. G. A. L., a spare man, fifty-four years of age, was seen on December 8, 1899, in consultation with Dr. H. W. Boutwell of Manchester, N. H., when the following history was obtained: In the previous April, without apparent cause, Mr. L. had a severe attack of abdominal pain, accompanied by obstipation. He was confined to the bed for several days, and during that time there was great sensitiveness to pressure in the left iliac region. Following this experience he had, within a short time, two similar attacks of less severity. He was then pretty well during the summer, but in September he had a fourth attack, ushered in this time by a chill. In addition to the obstipation, he now had also difficulty in urinating, not, however, amounting to a complete retention. On December 1st he had still

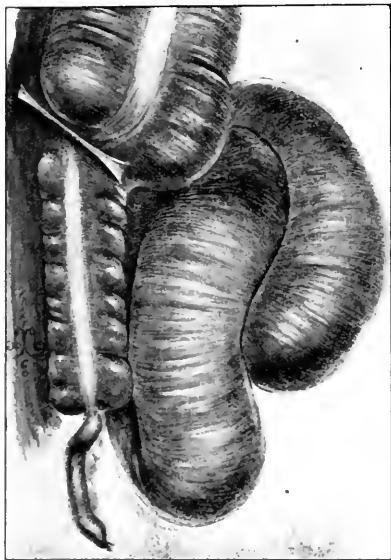


Figure 3.

another attack, with retention requiring the use of the catheter. Following this he had a constant uncomfortable feeling of desire for urination, and it was very difficult, even with laxatives, to keep the bowels open.

Examination of the urine showed it to be of good specific gravity (1.018), acid, with a slight trace of albumin, and a small sediment consisting of pus, large round and small caudate cells, with neither crystals nor casts. Nothing could be felt in the abdomen beyond a slight, even doubtful, sense of resistance in the left iliac region, which was a little sensitive to pressure. The examination of the rectum revealed nothing abnormal. The prostate was not large. A sound (No. 26 French) passed easily through the ure-

thra, but was grasped rather snugly by the constrictor urethra muscle. The diagnosis of some partially obstructive condition of the sigmoid flexure was made; but neither the nature of this obstruction nor the reason for the implication of the bladder could be made out.

Mr. L. came to Boston for further study of his case. His bowels were kept open with compound licorice powder and injections, but there was no improvement in his condition; and it was found that the injections always caused great pain throughout the bowels, apparently due to exaggerated peristalsis. Without an injection he was unable to have any movement at all. It was now noticed also that he had great sensitiveness over the base of the bladder.

The persistence of the condition of partial obstruction, and the very great discomfort it involved, seemed to demand an exploratory operation; and Dr. F. C. Shattuck, who now saw the patient, coinciding with this view, this course was decided upon.

On December 27th an incision was made in the median line. The upper part of the sigmoid flexure was adherent to the top of the bladder and to the neighboring portion of the pelvic wall on the left by firm adhesions. When these were separated so that this part of the sigmoid flexure could be lifted up, it was found that a very considerable portion of the flexure below this was carried down into the pelvis and held there by this fixation of its upper part. Searching for the cause which led to this condition, the appendix was found tied up and surrounded by adhesions, some of them more recent than that which existed around the sigmoid flexure. The appendix itself was very small, not larger than that of a new-born child, and its base was tightly constricted by fibrous bands around it. The appendix was removed, and further search failed to show any additional trouble.

The patient made a good recovery, and was relieved of the obstructive symptoms which had been so troublesome. Some months later he had a slight recurrence of discomfort in the region of the sigmoid flexure. This soon passed away, however, and was no more than might have been expected in a sigmoid flexure so long and lax as this was known to be.

CASE II. J. W. T., aged sixty-five. This patient at the age of thirteen had dysentery, which confined him to bed for several weeks. The following year he had another attack, which lasted two months. Off and on during the next thirty years he had mild attacks of diarrhea associated with slime and blood in the stools. During the past six years he has had no such symptoms. He was operated upon for fistula ani thirty-five years ago, and since that time has had three other operations for recurrent fistula. Thirty years ago he began to be troubled with tympanites, which he controlled by mild laxatives. This reappeared at intervals, however, up to the present time. Four months ago he had an attack of abdominal pain located in the left iliac region.

This pain was relieved by a free action of the bowels, but during the attack it was severe enough to cause vomiting. Since that time he has had four such attacks, each one being associated with vomiting, which gave great relief. During the attack pressure in the left iliac region would give relief, and there was no tenderness. In all the above attacks large enemata of water were used (three quarts being thrown in), and when the whole enema was in the bowels relief came at once. When the enemata came away they usually brought considerable fecal matter with them. On the 19th of May, 1900, in the morning, he had another of these severe attacks of pain. This time the pain was not relieved by enemata, though several were given. Opiates controlled the pain but partially.

I saw him after this condition had persisted for three days. The obstipation was complete.



Figure 4.

Operation was advised and at once accepted. The incision was made a little outside of the left linea semilunaris. The sigmoid flexure was found attached to the parietal pelvic peritoneum, exactly as in the last case, only the adhesion did not extend on to the bladder wall. No sign of inflammation about the appendix was found in this case. The past history of dysenteric symptoms suggested the probability that the adhesions were due to inflammation about the descending colon and sigmoid. This adhesion was separated, and the operation was followed by complete relief and a rapid convalescence.

CASE III. A woman of thirty, who had borne children and had had much pelvic distress, with a strong tendency to retroversion and prolapse of the uterus, had a ventral fixation done for the remedy of this condition. At this operation

the sigmoid flexure was found tied down to the pelvic brim, much in the manner described in the other two cases. The Fallopian tube lay close beneath the adherent sigmoid and was slightly attached to it, indicating the probability that the inflammation which led to the adhesions was a mild grade of salpingitis. A subsequent inquiry elicited the fact that serious and obstinate constipation had troubled her for a long time, and that often the bowels resisted in the most obdurate manner all efforts to bring about a movement.

The form of obstruction in all of these cases was intermittent and incomplete; and in all of them, except Case A, the condition found had the same characteristic relation of a movable portion of the intestine twisted and adherent in a false position just at its entrance into a fixed part of the bowel.

The observations are too few, perhaps, to establish any rule, but their similarity is so striking as to fix the attention and to stimulate further study.

DESCRIPTION OF CUTS.

Figure 1 represents diagrammatically the condition found by the author in a number of cases of chronic appendicitis. The lower end of the ileum is drawn across the lower end of the cecum, covering the appendix.

Figure 2 represents the adhesions of the sigmoid flexure found in Case I. The fingers are represented as pressing down the top of the bladder, to which the sigmoid flexure is attached. The adhesions run along the brim of the pelvis, well out on the side of the abdominal cavity.

Figure 3 represents the adhesion in Case A before it was separated, and Figure 4 represents the same after the appendix was removed and the adhesion dissected off. The rough line crossing the cecum represents approximately the site of the attachment of the adhesion.

CATHARSIS IN ABDOMINAL SURGERY.

BY L. R. G. GRANDON, M.D., BOSTON.

THE comparative effects of different cathartics and enemata, before and after operation, in surgical cases where the abdomen is the part of the body affected, is a study, the practical importance of which no one will question. I give the results of observations made during my service as house officer at the Boston City Hospital, and only regret the study is not a more exhaustive one. All the cases here considered were under the care of Drs. Gavin, Burrell and Monks, and are reported with their kind permission.

As in every clinical experience, so in this one, it is impossible to put a check on results to make conclusions absolute. Conditions cannot be controlled beyond a certain measure, and one is continually hampered by the personal factor of the patient. A record of facts, then, and a reasonable interpretation is all one can hope to give.

It has been proved by a number of studies in normal intestine and by use of purgatives, that peristalsis is almost entirely a reflex action. Direct experimentation as to how far up in the small intestine a wave may be started reflexly by stimulation of the large intestine alone has apparently not been done. The lower half of the ileum has been determined to be the part where the intestinal contents move fastest.¹ It has been found that the vagus nerve, when stimulated reflexly or directly, increases peristalsis, and that moderate stimulation of the splanchnic nerve decreases it. Any decrease, then, in the normal activity of the nerves and nerve centers must result in constipation.

It has been shown by experiments also that the circulation of the blood through the intestines greatly influences peristalsis, and disorders in the blood supply readily bring on intestinal disorder.² "Hepatic torpor," so called, or a diminished flow of bile, has its constipating effect partly in diminishing an irritant which may stimulate peristalsis, partly in diminishing a saponifying agent. Since the work of Pfaff and Balch our chologogues have been apparently reduced to one; namely, bile, human or bovine.³

The most important conditions, then, under which peristalsis may take place along the small intestine are (1) a relatively healthy condition of the whole thickness of the intestinal wall, and (2) the integrity of the reflex arc. In surgical cases the wholeness and irritability of the reflex arc are similar to that of the whole nervous system in the given case, and therefore depend only on the general condition of the patient, and not on the local surgical lesion. The first requirement of peristalsis—that is, the soundness of the intestinal wall—is the more important one, and this study was therefore directed toward the relation between the various forms of local stimulation and the condition of the part stimulated; namely, the gut. It was directed toward the best means of keeping the alimentary contents moving, in each case having in mind, however, a picture of the local condition of both large and small intestine. The object was to obtain the advantages of drainage and depletion which follow catharsis, and at the same time to obtain rest for the parts affected, the least loss of strength and the greatest comfort for the patient.

It may be urged that the comfort of the patient is a small consideration compared with real profit to him that may be incompatible with such comfort; but on further thought, the experience of anyone dealing with acute surgical conditions in the abdomen will tell him that gripping pain from cathartics, with its consequent restlessness and loss of sleep, may be just enough in some cases to turn the patient back, to prevent him from starting on that reaction of rest so essential after surgical procedures.

In the series which I wish to present there are

179 abdominal or pelvic cases, which are divided as follows:

	Total.	Lived.	Died.
Peritoneal and pelvic inflammations and ovarian cysts.....	148	109	39
Tuberculosis.....	8	8	0
Malignant disease.....	2	0	2
Obstruction (mechanical).....	21	14	7
	179	131	48

There are two principal ways for artificially inducing a movement of the bowels in a patient sick in bed; (1) by drugs by mouth (either in one large dose or in many small doses), and (2) by enemata. The cases in this series are accordingly divided into several classes, each of which, as will be seen, has its special bearing on the question as to the best means of moving the bowels:

(A) Inflammatory conditions of the abdomen before operation.

(B) Diseases of the female pelvis—outside the intestinal tract—before operation.

(C) All abdominal and pelvic affections after operation.

(A) In the first division come acute and recurrent appendicitis, and general peritonitis from perforation of the gut. In a large proportion of these cases before they were brought to the hospital the old rule of Dr. Holmes had been followed. This rule was to "give a cathartic, then go home and read up the case." For example, in 70 cases of appendicitis, 47 had had Epsom salts and 14 some other drug, the compound cathartic pill and calomel being the favorites. Over half of these had perforation of the appendix. Cases of this sort are common. I give two as illustrations.

CASE I. N. S., female, twenty years old. Four days before admission there appeared the first onset of general abdominal pain, nausea and fever. The pain soon became fixed in the right iliac region. There had been no movement for thirty-six hours before the onset. There was some spasm, no tumor. She had then been given calomel, one-half grain every hour for six doses. At the end of twelve hours she had a sudden gripping, ripping pain in the appendix region, with considerable relief in half an hour, followed by a loose movement. Examination on admission shows a definite right iliac mass and considerable general spasm. Operation fifteen hours later reveals abscess from perforation of appendix; recovery.

CASE II. F. W., male, thirteen years old, third day of second attack. Forty-eight hours before admission he was given about an ounce of Epsom salts, with a good movement soon after. Examination on admission shows distended spasmodic abdomen, general tenderness, most intense in the right iliac fossa. Operation discovers the proximal half only of a gangrenous appendix, free fluid and feces in the peritoneal cavity—practically no adhesions; fatal result.

One cannot say in cases of this class that perforation is caused by active catharsis, for it may

¹ Sabbatani and Fasola; Arch. Ital. de Biologie, 1900, xxxiv, II.

² Harre. Practical Therapeutics.

³ Journal Experimental Medicine, 1907, II, 49.

be that increased movements of cecal contents free the outlet of an obstructed and distended appendix, and so prevent rupture. One may fairly say, however, that in many instances after laxatives by the mouth, symptoms are aggravated. This exacerbation of symptoms may be due to the increased peristalsis causing strain on newly formed adhesions in the iliac fossa, and consequent extension of inflammation. Movements of the wall of the small gut are particularly undesirable at this time. Peristalsis has been inhibited by the neighboring inflammation as a protective measure. Or, the aggravation of symptoms following a cathartic, if not due to the stirring up of an inflamed part, may be caused by increased tension in the appendix or rupture of it. To pour the accumulation of twenty feet of small intestine into the cecum must raise the tension in that organ, especially if it be already distended with feces or gas. All this may be avoided, and the appendix drained if possible at the same time, by emptying the large gut from below by an enema. The liquid contents of the small intestine may then come down naturally, when peristalsis can no longer do harm.

(B) In the second class are included pelvic diseases before operation; that is, cases of pelvic peritonitis through tubal infection, salpingitis, ovaritis and acute endometritis. There are 44 in the list. Most of these cases had had cathartics by mouth before coming to the hospital, and all had an enema on admission. It was only rarely that symptoms did not abate in twelve hours; there were free movements, an appreciable drop in temperature, and a disappearance of pain, spasm and tenderness. Here, then, the alimentary tract being so little affected, we are at liberty to empty the large intestine by enema, and at the same time to empty the upper bowel by drugs given by the mouth, thus getting the benefits of depletion and drainage by increased peristalsis in the upper part of the intestinal tract.

When the uterus, or tubes, or pelvic tumors have been removed, that is to say, in noninflammatory pelvic cases, it is unquestionably better, for fear of mechanically disturbing the adjacent wounds, not to distend the rectum with enemata, but rather to induce peristalsis from above. A small oil enema, however, in these cases prevents straining.

(C) It is the third class, namely, all abdominal cases after operation, upon which most interest and importance hang. Amongst these are included 132 celiotomies, 10 of which are for disease of the internal female genitals. In about one-fourth, or 30 cases, calomel was given after operation in two ways: either one-tenth grain every hour to 10 or 20 doses, immediately after recovery from the anesthetic, or one-half grain every three hours to 5 doses at the end of the second day. Of the 30, six complained of "gripping cramp-like pain," 5 of these having had the larger and less frequent doses; 3 had movements as result of small doses, 12 as result of the larger doses; 15 had no movements; 18 had abdominal

discomfort described as "rumbling," "feeling blown-up," "all-gone feeling," etc. Two had sore mouths (in these cases powdered calomel was placed upon the tongue, but no water was allowed on account of persistent vomiting, the patient being obliged to swallow the calomel as best he might with the help of saliva). Twenty-seven had dirty, bad-tasting tongue, with consequent aggravation of thirst. In only one case did it seem that there might be a connection suggested between free use of calomel and an untoward result.

CASE III. Male, fifty-four years old; subacute appendicitis; operated; no pus; one-tenth grain calomel every hour to 20 doses; after thirty hours a profuse diarrhea started and persisted in spite of most strenuous therapeutic efforts, till his death at the end of four days. No general peritonitis.

In 51 cases after operation absolutely no cathartic was given by mouth till at least ten days after operation, and in many not till late in the third week. The bowels were moved solely by enemata. Seldom earlier than twenty-four hours after operation, but usually then, an enema was given through a No. 30 French soft rubber catheter, passed along the finger high into the rectum and into the sigmoid, if possible. The enema was made up of:

B

Epsom salts (50% sol.).

Turpentine.

Glycerine,

Water,

aa $\frac{3}{5}$ ij.
 $\frac{3}{5}$ vj.

This enema, which is in constant use in the hospital, is held as long as possible by the patient, and usually produces a good movement of soft feces and gas, with no tenesmus. The sacrum and buttocks should be well oiled before this enema, to protect the skin from blistering, if it gets wet from the turpentine. The enema is repeated, as a rule, possibly three or four times on consecutive days, and after that movements are readily induced by an enema of suds and glycerine—a pint to two ounces. In the turpentine enema the proportions above given seem to produce a maximum result with minimum discomfort.

The remaining 51 cases were treated usually by enemata alone, occasionally combined with calomel, a saline, or with other cathartics, and present varying results, the patient's comfort being, on the whole, proportionate to the number of movements by enema alone.

Figures as to the effect on temperature of either method of inducing a movement, from above or below, can have no value, because so many elements serve to determine each patient's condition at a given time. It may be said, however, that a defecation by enema will lower a temperature $\frac{1}{2}^{\circ}$ to 1° within two hours, and coincidentally produce subjective relief where drugs by mouth take three to twelve hours.

In the entire list given is one case of general peritonitis that recovered, and there are many, of course, where there was beginning inflammatory

reaction, as shown by the general spasm before operation, and the fibrinous flakes discovered during it. In all these after operation the bowel was emptied by stimulation from below; that is, by enemata, rather than by irritation of the many feet of small intestine above. There are 5 instances of appendix so thoroughly gangrenous that there was no stump to be tied off or invaginated. In these the inflamed bowel was kept empty by enemata, and yet given surgical rest. In none of these did a fecal fistula appear.

Another class of cases to which much of this reasoning applies are those which are operated for radical cure of inguinal hernia. An effective enema avoids straining at stool, and prevents the pull on the newly sutured muscles. In no case was there apparently developed a dependence on enemata after convalescence. In the third week cascara was given occasionally, and later natural movements were soon established.

This method—that is, using enemata alone after operation and before operation in all cases where the alimentary tract is involved—combines the best in both the so-called medical and surgical treatment: peristalsis is checked, quiet for the diseased part is obtained, and drainage by the shortest way is assured. In the line of treatment by enemata the fecal receptacle—the large intestine—is kept empty; distention with gas, most of which is formed in the colon, is never considerable; inspissated rectal contents cannot remain, and so block the exit of feces or gas from above; straining at stool, with consequent pull on the abdominal wound or new adhesions, never occurs; the rectal tube for the further relief of gas, if necessary, does not get plugged, and such nourishment as the stomach and intestine have been induced to accept is not unduly hurried along at a time when the patient needs all the strength he possesses.

The conclusions which seem to me warranted are that: (1) In acute pelvic peritonitis both enemata and drugs by mouth should be used to produce catharsis before operation; drugs by mouth and oil enemata after operation. (2) In all acute inflammatory conditions of the abdomen where the alimentary tract is involved, the bowels should be moved by enemata alone, before and after operation, the enema of salts, turpentine and glycerine being the best.

Clinical Department.

A CASE OF MEASLES COMPLICATED BY APPENDICITIS.¹

BY HAROLD WILLIAMS, M.D., BOSTON.

M. P., aged twelve years, first complained of feeling ill on March 31st. He was never a strong boy, and had frequently suffered from attacks of gastro-intestinal disturbance. He had had measles some years previous. The symptoms of present

attack consisted of nausea and general malaise. Temperature 100°. He was put to bed and dieted.

April 1st. He was less comfortable, though no new symptoms appeared. Temperature 101°.

April 2d. Patient complained of slight sore throat and vomited once. Temperature 102°.

April 3d, I first saw him. Patient not so comfortable as upon days previous. Temperature 103.4°. Had vomited once or twice; complained of abdominal pain; cough, weak eyes and sore throat. Inspection: Conjunctivæ slightly injected; mouth red, with striking congestion of alveolar processes; congested appearance of posterior pharynx and a catarrhal inflammation of right tonsil to which uvula was adherent. Koplic sign not present. Careful examination of the abdomen showed some tenderness in different places; always fleeting and never localized.

April 4th. Well marked eruption of measles on face and behind ears. Eruption confluent; conjunctivitis more marked; cough still slight; abdominal symptoms as before. Temperature 104°.

April 5th. Eruption well marked and extending over neck and trunk. Temperature 104.4°. Early in the morning patient had complained of pain in right side. This pain had steadily increased in severity. At 10 A.M., when I saw him, it was exactly located at a point an inch above Ponpart's ligament; it was increased on the slightest pressure, and the locality was indicated by patient with one finger. There was neither dullness nor induration. The diagnosis of an acute inflammation of the appendix was made. Dr. Arthur T. Cabot was called, and the case was placed in his charge. It was also thought advisable that Dr. J. H. McCollom should give us the benefit of his wide experience in measles, the association of which disease with a fulminating appendicitis in a boy of delicate physique seemed a matter of some gravity. Dr. Cabot, in view of the probable rapidly advancing process, decided upon immediate operation, in which decision Dr. McCollom and I concurred. The operation was performed by Dr. Cabot two hours later, with the assistance of Dr. Hugh Cabot.

April 6th. Temperature fell to 99° during night, and remained at this point throughout a remarkably satisfactory convalescence.

Pathological examination of the appendix by Professor Mallory is as follows:

April 6, 1901. Appendix; gross examination: Appendix 4.5 cm. long, varied from .6-.8 cm. in diameter. Somewhat swollen in middle two-thirds. Serous coat injected, especially at tip; fresh fibrin adherent in places, forming irregular yellow areas. Mesentery injected. Split open nearly to tip; contains a fecal concretion size of small bean. Proximal end of mucosa swollen, lumen quite small and partly filled with creamy, tenacious, purulent material; beyond this is a definite enlargement of the lumen, in which the concretion closely fits; the mucosa here is dark red to greenish, and is evidently becoming gangrenous; beyond this dilatation the mucosa is thickened, and there is some mucopurulent secretion.

Anatomical diagnosis.—Acute appendicitis.

Microscopic examination of a longitudinal section shows an acute exudative process, most marked on the

¹ Read before the American Pediatric Association, Niagara Falls, May 29, 1901.

outer surface of the appendix. The mucosa is fairly well preserved, but is infiltrated in places with numerous polynuclear leucocytes.

The event proves, so far as we can judge from a single case, that the complicating presence of measles is not a contraindication for the operation of appendicitis under circumstances in which the highest surgical skill is obtainable. The combination of the two pathological processes is, so far as I know, a rare one.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D., AND PAUL THORNDIKE, M.D., BOSTON.

NON-OBSTRUCTIVE, POST-OPERATIVE ANURIA.

F. TILDEN BROWN¹ makes use in this article of a case in which anuria followed upon nephrectomy, to illustrate the subject of post-operative anuria in general, and does it in a pleasing way.

Death resulted from heart failure and renal suppression, and the causes of these conditions in this case are inquired into. The three probable factors concerned in them he states as (1) chloroform anesthesia; (2) compression of the kidney and vessels of its pedicle and subsequent hyperemia, produced by a long-continued pressure from the position of the body placed on its side over sand bags; (3) some essential vasomotor reflex started by ganglionic pressure, or through the renal plexus, from removing the fellow kidney, or a congestion incidental to an increased physiological demand. The remaining kidney showed at autopsy the following condition: Weight 6½ ounces; rather pale. Some congested stars on the surface; surface smooth. Glomeruli congested. Markings indistinct; pyramidal markings somewhat exaggerated. Pelvis slightly distended. Mucous membrane congested and shows petechial spots. The urine from this kidney had been tested and found of good quality and quantity at intervals of a month before the operation. Post mortem showed nothing beyond congestion.

The writer goes on to give the grounds for assuming a reflex vasomotor paralysis and consequent passive congestion as the cause of the renal suppression. The effect of posture of the patient is emphasized, and the probable ill effects from pressure on the kidney of the side opposite to that one operated on are noted; and the use of a double inclined plane with an interval opposite the kidney, which removes all pressure from it, is urged. Such a contrivance is illustrated in the article.

CONSERVATIVE OPERATIONS FOR RENAL RETENTION.

Christian Fenger² contributes a valuable contribution to the surgery of the ureter and of some of its most modern developments. It introduces some operations that will be new to the

general surgeon and medical practitioner and, unhappily, some new and rather tortured nomenclature, to describe them.

Obstructions of the ureter and the choice of methods for their relief are discussed and illustrated by the reports of cases; cases of retention from calculus, and its removal by movable kidney and nephropexy, nephrotomy and drainage, and drainage by ureteral catheter from below, are omitted from consideration. The following cases are reported:

(1) Obstruction located in the kidney; namely, in the calyces or one branch of the ureter; partial cystonephrosis. This operation consists in the bisection of the kidney and division of the partition walls between the sacs and the pelvis, thus making a unilocular.

(2) Obstruction situated at the exit of the ureter from the renal pelvis. The condition found causing obstruction in cases of this kind has been a valve formation without stricture, due to unilateral dilatation of the pelvis and consequent oblique insertion of the ureter on the side of the dilated pelvis rather than at its lowest point, or else stricture of the ureter at its exit, with insertion at the lowest part of the pelvis or on the side higher up. The operations which have been applied to these conditions are to attack the obstruction through the pelvis or bisected kidney in case of the valve-like formation—transpelvic operation; or from without—extrapelvic operation. Finally, the distorted shape of the pelvis has been made the operation—"pyeloplication" and "capitonnage." These operations are described briefly. The two terms above quoted are spoken of as follows: "Pyeloplication,"—plastic operation on the renal pelvis (Israel) ("pelvioplication Albarran"). In lateral implantation, when the ureteral orifice is of normal caliber, the passage of urine would be free were the ureter inserted at the lowest part of the pelvis, or if the normal shape of the pelvis were re-established, which has been accomplished by the following operations on the pelvis: (a) Shortening the excess of the pelvic wall by folding it toward the lumen of the pelvis and uniting the folds by sutures; (b) excision of part of the wall of dilated pelvis and closure by sutures ("capitonnage Albarran").

(3) A case of obstruction below the renal pelvis relieved by an operation, to which the name "uretero-lysoorthosis" is given.

The article ends with a series of conclusions, which include (1) the choice of operation; (2) the danger to life; (3) the effect of operation; and with a table of the operations done up to the present time.

A NEW METHOD TO EXPOSE THE SEMINAL VESICLES AND PROSTATE, FOR PURPOSES OF EXTIRPATION AND DRAINAGE (A PRELIMINARY REPORT).

Eugene Fuller,³ M.D., New York, points out the defects and inadequacy of the hitherto employed methods of approach to the prostate and

¹ Annals of Surgery, March, 1901, p. 225.

² Chicago Annals of Surgery, April, 1901, p. 369.

³ The Journal of the American Medical Association, May 4, 1901, p. 1228.

seminal vesicles for the purpose of radical operations upon them, and then goes on to describe his own plan of procedure, which is as follows: To render the parts easy of access and less movable during dissection than they are in other postures, the patient is placed as follows: The legs are flexed as for lithotomy, the body turned over on its face, the buttocks raised on one end of a Trendelenburg table with the thighs astride of the elevated part. This puts the perineal tissues on the stretch and affords the firmest and widest surface of them on which to operate. The bladder is emptied just prior to operation, but no catheter is left in during the succeeding steps. The rectum is filled by a tampon pressed high up into it, in order to prevent its contents from reaching the field of operation. The incision is now made thus: As the surgeon is seated the patient's buttocks raised as described are directly opposite him; the incision consists of two somewhat oblique incisions, one on either side of the perineum, beginning on a level with the tip of the coccyx; and just inside the ischium the two lateral branches are carried forward longitudinally through the perineum, and are united by a transverse cut at their other ends, about three-quarters of an inch beyond the anterior margin of the anus. The longitudinal branches are extended into the deep tissues, and then the transverse one also. The flap so formed is turned back, and the deep dissection completed through the space thus gained.

RESECTION OF THE EPIDIDYMIS AND ANASTOMOSIS OF THE DIVIDED TISSUES.

Seaduto⁴ discusses the possibility of restoring the function of a testis in cases where it has been interfered with by disease or necessary operation. The work is based upon 14 operations, performed upon dogs, and the author was successful enough, in one case at least, to feel that further experimentation should be conducted on similar lines. His method was to make the resection and anastomosis, the technique of which he describes with some care, and then after several weeks to remove the testis and cord, inject the latter with hot, colored gelatine, and harden in alcohol. He then made microscopic sections to determine the patency of his operated area and its neighborhood.

TREATMENT OF TUBERCULAR EPIDIDYMITIS BY LIGATURE OF THE VAS DEFERENS.

Maclaure⁵ reports 18 observations upon the results of the treatment of tubercular epididymo-orchitis by ligature and section of the spermatic cord, and concludes: (1) Good results may be obtained when the tubercular area is not fistulous or suppurating; (2) in the suppurating cases the results are not good, because the process continued (in his cases) and invaded the tunica and other neighboring tissues.

A NEW METHOD OF PERFORMING PERINEAL PROSTATECTOMY.

P. J. Frey⁶ recommends the old Dittel incision with a preliminary perineal incision into the

urethra as a substitute for the suprapubic cystotomy of Nicoll. That is to say, he removes the prostate by the perineal route through the Dittel incision; but instead of doing a preliminary suprapubic cystotomy, as Nicoll does in his operation, Frey makes a preliminary perineal opening into the urethra and claims the following advantages in so doing:

(1) The preliminary urethrotomy permits the introduction of the finger into the bladder, which, with another finger in the rectum, enables the surgeon to define accurately the size, shape, density and extent of the growth without the performance of a suprapubic cystotomy.

(2) The finger can be hooked over the enlarged lateral lobe, and the latter pushed well into the ischio-rectal wound, thus obviating the deep and dangerous dissection of Dittel.

(3) With the tumor pushed into the wound the capsule is easily incised, and the cutting forceps and scissors easily applied.

(4) The finger in the bladder warns the surgeon when the cutting instrument is approaching dangerously near that organ, so that the whole growth can be removed, except a thin layer for the support of the mucous membrane of the bladder and prostatic urethra, without opening the latter, thus avoiding infection of the wound and formation of a permanent fistula.

(5) The perineal drainage tube inserted into the urethral opening carries off the urine and prevents sepsis of the perineal wound.

AN IMPROVED METHOD FOR PERFORMING SUPRAPUBIC CYSTOTOMY.

C. L. Gibson⁷ affirms that the improvement consists in adapting to the bladder the principle which underlies the so-called Kader operation for permanent gastric fistula. The writer hopes that the procedure will accomplish three things: (1) Effective bladder drainage without leakage; (2) rapid closure of the fistula when the drainage is discontinued; (3) the creation of a permanent sinus if desired, which should allow of permanent but periodical catheterization of the bladder, and in the intervals, owing to its valve action, prevent the escape of urine, and do away with the discomforts of wearing a tube or dressing.

THE URETERAL CATHETER A PERMANENT AND CURATIVE TREATMENT OF RENAL FISTULE.

Albarran's interesting paper was read at the Thirteenth International Medical Congress in Paris last summer, and is summarized in the *Annales des Maladies des Organes Genito-Urinaires*, 1900, page 799. The author describes how renal fistula which have refused to heal because of a more or less impermeable ureter can be made to heal by proper drainage through a ureteral catheter. He reports cures of two such cases in from fifteen to twenty days. He believes that such fistula may often be prevented by a similar use of the ureteral catheter at the time of operation.

⁴ *Ann. des mal. des Organes genito-urinaires*, March, 1901.

⁵ Thirteenth Congress. Internat. de Med., Paris, 1900.

⁶ *British Medical Journal*, 1900, p. 628.

⁷ *Journal Cutaneous and Genito-Urinary Diseases*, March, 1901.

DETERMINATION OF THE CONGEALING POINT OF THE BLOOD AND URINE IN ORDER TO ASCERTAIN THE FUNCTIONAL ACTIVITY OF THE KIDNEYS.

Kummel,⁸ Von Korányi and others have demonstrated the fact that the congealing point of the blood in a physiological condition remains at about -56° C. The moment the kidneys cease to functionate properly the congealing point goes below -56° C. In all cases (tumors, pyelitis, pyonephrosis, tubercular kidneys, nephritis of various sorts, etc.) which the writer examined or operated, this proved true. The congealing point of urine may be made useful in a similar way, and the urine from each kidney may be tested separately in any case where one kidney is diseased and the other possibly not affected.

RADICAL TREATMENT FOR CURVATURE OF THE PENIS.

Fuller⁹ describes an interesting operation for the cure of curvature of the penis (on erection), which exceptionally follows internal urethrotomy to such a degree as to prevent sexual intercourse. The operation consists in making a very long median perineal incision, and through it dividing the urethra in the bulbous region very obliquely and in such a manner that when the penis is bent back over the pubes a maximum amount of separation of the cut urethral ends is obtained. The penile cut end is then stitched in place to the surrounding tissues. The bladder end needs no fixation. A perineal drainage tube is tied in place for some time. In Fuller's case the result was good two years after the operation.

RARE AND INTERESTING CASES.

- (1) A case of complete anuria of seven days' duration with no symptoms of uremia.¹⁰
- (2) A case of complete retention of urine and rupture of the urethra in a case of gonorrhea without organic stricture of the urethra.¹¹
- (3) Another of the rare cases of torsion of the spermatic cord.¹² Diagnosis was verified by operation.

TWO NEW CYSTOSCOPIC INSTRUMENTS.¹³

(1) A modification of the original Nitze cystoscopic lithotrite and foreign body forceps. The instrument consists of a cystoscope, lying in and freely movable in the forceps. In the Nitze instrument the movable jaw moved toward the prism and so obstructed the field of vision. In this instrument the posterior jaw is fixed and fenestrated, and the anterior jaw is the movable one. This improvement leaves the visual field comparatively unobstructed.

(2) A cystoscopic foreign-body forceps. The cystoscope lies in a tubular canal on the posterior surface of the instrument, and is freely movable in it, though its mobility can be controlled by a screw. The forceps open laterally, leaving the field of vision clear.

⁸ Ann. des Mal. des Organes Genito-Urinaires, 1900, p. 795.

⁹ Annals of Surgery, June, 1900.

¹⁰ Louis Renon: Soc. Méd. des Hopitaux, February 2 and 9, 1900.

¹¹ Danlos: Soc. Méd. des Hopitaux, February 2 and 9, 1900.

¹² G. Nani: Rev. de Chir., September, 1900.

¹³ Frederic Bierhoff: Journal Cutaneous and Genito-Urinary Diseases, March, 1901.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. G. BALCH, M.D., SECRETARY.

REGULAR meeting, Wednesday, February 6, 1901, Dr. J. C. MUNRO in the chair.

Dr. J. B. BLAKE showed a case of

SARCOMA OF THE HUMERUS AND SCAPULA.

This patient came to the City Hospital in December, 1897. At that time she was thirty-one years of age, and the history briefly was that of a fall on the right side, a year previously, and pain and disability of the left shoulder. This was followed by increasing limitation of motion, and within a week or two before entrance she found for the first time a small tumor occupying the position of the coracoid process. She was in good general condition, the arm limited very considerably in its motion, and presented near the tip of the left coracoid process a tumor not distinctly fluctuating, and distinctly not pulsating. Diagnosis was reserved, but sarcoma was considered probable.

Operation.—A curved incision was made, and separating the pectoralis major and the deltoid a rounded tumor was found occupying the entire end of the coracoid process; that is to say, the pectoralis minor and coracobrachialis went directly into it. The brachial plexus and axillary artery were laid bare, and at that time the tumor began to break under the fingers and to bleed very profusely. Clinically it had all the aspects of a sarcoma of very hemorrhagic type. It broke away like a rotten sponge. It bled so rapidly that at one time it was feared that we might lose the patient from hemorrhage. The tumor, including the tip of the coracoid, head of the humerus and part of the glenoid cavity, was removed and a mass of sharp spicules of bone was left. So far as I could see the tumor mass was entirely removed and the place occupied by it was packed firmly with gauze. The patient was taken off the table in fair condition.

About two weeks after that the Coley treatment was started, commencing with a half-minim dose, increasing gradually, and continued while she remained in the hospital. She went out in July, the wound being practically healed, except a small sinus.

She came back to the Surgical Out-patient Department several times until December, 1898. She is now in a household of five, in which she is the only servant. The motions of the arm are entirely free, except extension upward, which is slightly limited.

Six months after the original operation Dr. Cushing dissected out two or three small glands just above the clavicle. Pathological examination showed them to be chronic inflammatory. The pathological report signed by Dr. Mallory and Dr. Bottomly showed the original tumor to be giant cell sarcoma.

During the operation, in the hurry of the dissection I nicked the musculo-cutaneous nerve. She never had any symptoms following it. There are no glands in the axilla. Her general health is about as good as when she entered the hospital.

Dr. A. T. CABOT read a paper entitled

SOME FORMS OF INTESTINAL OBSTRUCTION DUE TO ADHESIONS.¹

Dr. MUMFORD: In his very suggestive paper Dr. Cabot has illuminated one corner of a wide field most important to all surgeons operating inside the abdomen. That a great number of obscure symptoms—pain, dragging, tenderness, constipation, dyspepsia, renal incompetence, etc.—are not infrequently due to adhesions, the result of inflammatory processes in or around the various abdominal viscera, is undoubted. The phenomena grouped under the general term "enteroptosis" play an important part.

Some years ago I reported a case of "stercoral ulcer," a process which I then thought, and still think, to be in a greater or less degree more common than is generally supposed. Long-standing fecal accumulations with resulting erosion, localized necrosis and adhesive peritoneal inflammation, such as I described in the above-cited case, are the undoubted forerunners of adhesions. The stomach, gall bladder, bladder, uterine annexa and other hollow viscera may be the seat of these processes, as well as the intestinal tract; giving rise, in their appropriate locations, to such adhesions as Dr. Cabot has described; and in many cases, of course, with the subsidence of the primary process, no gross evidence remains to indicate its seat.

With advancing age, numerous pregnancies and great loss of flesh, such inflammatory adhesions may aid in establishing and rendering permanent those conditions of enteroptosis with which we are familiar. The two conditions may then act and react upon each other *ad infinitum*.

As to the two examples of intestinal adhesions which Dr. Cabot has described, I confess that they, in their immediate and serious sequelae, had not forcibly occurred to me before. Perhaps the most common seat of adhesions within the abdomen is about the caput coli, causing most frequently, doubtless, a gluing down of the coils of the ileum. But just how this might cause a constipation, or even an obstruction, had never occurred to me until I saw Dr. Cabot's instructive diagram. I remember being present at the first operation on the patient whose case he described, and it seemed to me then that the matting down of the ileum was quite enough to cause serious pain and disturbance. The long course of the disease in that case rendered most plausible Dr. Cabot's supposition that the appendix had been destroyed by natural processes.

As for the interesting sigmoid cases mentioned by Dr. Cabot, I have no personal experience of their like; but after his instructive statements I have no doubt that I shall suspect and discover them in my future work.

Undoubtedly freeing of the adhesions is all that we are justified in doing, and in most cases that is sufficient. Sometimes denuded surfaces may be turned in with a few Lembert stitches. This is rarely necessary; and we must suppose, in view of the subsequent history of these cases, either that no new adhesions form, or that if formed they are so placed as not to impair function.

Dr. Cabot's cases are certainly an interesting and important contribution to our knowledge of this subject.

Dr. LUND: I was very much interested in the picture. I did not hear the description of it, as I came in late. I have operated for obstinate constipation following operation for removal of the appendix, in which the small bowel was found drawn across the front of the cecum and adherent to the under side of the abdominal wall, so that the patient said the scar drew in when the bowels moved. There were one or two broad adhesions and two bands leading upward. Those were separated; and where the broad adhesions were separated I took one or two catgut ligatures to close the surfaces. Soon after the operation she went to Ireland. She was entirely relieved of her pain.

Dr. GARCEAU: I have had one case exactly like the ones Dr. Cabot has described. It occurred in a young girl in whom I suspected tubercular peritonitis. I operated and found the abdomen full of adhesions, and this condition was found. The adhesions were so general that I can very readily understand how they could travel across the abdomen and fix the sigmoid flexure in the way that Dr. Cabot has described.

Dr. MUNRO: This seems to me one of the most important subjects we have had brought out for a good while. I have been in the position a number of times of having a family doctor protest against operation for adhesions, on the basis that they would be just as bad after operation as before. It is a comfort to hear that it is not so, and to have Dr. Cabot's experience as a basis. Not long ago one of our orderlies at the hospital came with a story of repeated mild attacks such as Dr. Cabot has described. At operation we found that the appendix itself had atrophied to a longitudinal band, except for one-fourth of an inch at the base; there were adhesions which were broken up; and now, after some months, there has been no return of the old trouble. I never have seen the adhesions of the sigmoid described by Dr. Cabot, but I can easily believe it would cause consternation in the abdomen.

Dr. CABOT said that in trying to limit the discussion to these particular points he had left out a great deal that could be said about abdominal adhesions. One of the most interesting and curious facts is the way adhesions disappear. During an operation for some intra-abdominal condition everything may be found matted together, and by an operation on the same patient later it will be found that there are almost no adhesions left. At other times the adhesions persist in certain localities, as we have seen, and sometimes cause much trouble. Of adhesions about the stomach

¹ See page 635 of the Journal.

much might be said. The stomach is an organ that is constantly filling and emptying, altering its size and weight more than any other part of the intestinal tract. Close by we have the transverse colon, which is again a part of the intestine which constantly alters its size and is often filled with heavy contents. Inflammations are common in this upper part of the abdomen, originating in the gall bladder, the biliary ducts, or more rarely in the stomach or duodenum. As a result of such inflammation these heavy viscera, the stomach and transverse colon, are apt to become adherent to the gall bladder and the under surface of the liver, and to constantly pull on these very sensitive parts. If these adhesions cause a stoppage of the biliary ducts, or confine the pylorus or duodenum so as to interfere with the passage of ingesta, we may have symptoms distinctive of such obstruction. In many cases, however, where no such mechanical obstruction is brought about, the constant drag on the under surface of the liver and the delicate parts thereabouts keeps the patient in uneasy consciousness of discomfort in the epigastrium. Such a condition in a neurasthenic patient is favorable to the production of stomach crises, manifesting themselves either by pain or vomiting, or both.

DR. MUNRO: I would briefly report a case, although Dr. Blake really knows more about it than I do. A young undertaker, thirty-three years of age, came to the hospital in 1897. At that time he had a mass of glands in both triangles of the neck down to the clavicle, starting under the second or third rib about two years before and steadily increasing upwards. He came in for operation for pressure against the trachea, and I removed the glands down to the clavicle; but below that it was useless to go, as the sheath of the vessels was involved and the growth extended downwards indefinitely. A violent staphylococcus infection followed operation, but he left the hospital in the course of a few weeks, relieved. After that there was recurrence, and his mother or grandmother rubbed on goose oil or some family remedy, with relief temporarily. He then went to the Massachusetts General Hospital, but the growth was so far advanced that all the surgeons who examined him refused to operate. He then adopted his own remedy,—rum, and since 1898 he has been practically full of rum all the time. Within the last month he came to the hospital with what we call an "edge" on, but the tumors had practically disappeared. Meanwhile Dr. Blake, I think, has dissected out the axillæ, which were occupied by sarcoma.

DR. BLAKE: I met this patient on the street, and he had on a No. 18 collar and looked as if he had stuffed his shirt with something. That was just before his mother recommended goose oil or St. Jacob's oil. The next time I saw him he was wearing a No. 15½ collar. In the spring of last year I dissected out the axillary glands. They ran well back under the *lassissimus dorsi*. When he came back he had one small gland in the middle of the axilla and one or two small

ones near the inner part of the left clavicle. While treated in the out-patient department he had an eruption which for a time suggested syphilis. Dr. Dwight looked him over carefully, but could not be satisfied he ever had syphilitic infection. He looks to me about as well as two years ago.

DR. MUNRO: I had an apparent cure from erysipelas in a Russian Jew, fourteen years old, who entered the medical side with universal lymphosarcoma. One evening he began to choke up and was transferred to the surgical service at once. I expected to find a deep cervical abscess, but instead found soft broken-down glands without pus, very much swollen, and evidently in the beginning of a streptococcus infection, because almost at once a severe erysipelas developed and his universal lymphosarcoma disappeared. He went out apparently well, but in a few months came back with a recurrence and died.

DR. CAROT said that in the cases reported were three different kinds of sarcoma, which had very different tendencies to recurrence. The last case was probably lymphosarcoma, and he recalled one case in which an enormous lymphosarcoma in the neck of a small boy disappeared under the use of stimulants with good food. He had known of other cases in which lymphosarcoma had disappeared, apparently as the result of the exhibition of arsenic.

In Dr. Blake's case the tumor was a giant-cell sarcoma, which is a variety unlikely to recur after a thorough removal. It is not possible, therefore, to regard this case as furnishing any evidence of the efficiency of the streptococcus serum.

Among the sarcomata we have tumors of very widely different characteristics. Some of them are most malignant, and some have but little malignancy. We need to know more about the classification of sarcomas before we can draw conclusions from their behavior with this or that method of treatment.

DR. BLAKE: The patient with the sarcoma of the neck went to New York and saw Dr. Coley, who said while he could promise him nothing, he was willing to treat him. The man, however, had not the requisite means, and returned without treatment.

I recall a case of what I supposed to be a wen, of thirty years' standing, removed in the surgical out-patient department from the head of an old woman, which the pathologist reported to be sarcoma.

DR. PAINTER: I recall the case of a homeopathic physician from a neighboring city who was advised to try the hot-air treatment for a large tumor of the thigh, and came to consult us for that purpose. Clinically it was strikingly suggestive of malignant tumor of the thigh; a typical spindle-shaped growth, which occupied the upper third of the thigh in a very large man, who did not show any particular cachexia; but the "feel" and the appearance of it, together with the history of its development and the absence of

any specific history, which was carefully searched for, suggested pretty definitely the diagnosis of sarcoma, and we advised that he have an x-ray; and as this showed the thickening we expected to see from the clinical appearances, we advised him to consult a surgeon and ascertain what was best to be done. He went to an eminent surgeon, who advised amputation at the hip joint. He said if that must be done he would go to his own school. He went to the Homeopathic Hospital and received the same advice. An exploratory operation was performed and a piece of tissue removed. Their pathologist was not prepared to express an opinion on it. A piece of this tissue was sent to the Harvard Medical School, and there the pathologist would not definitely commit himself. He asked for more of the growth. A second exploratory operation was performed, and a specimen more nearly the center of the tumor was obtained, and then both pathologists thought it was probably osteomyelitis. After a time the tumor entirely disappeared and has not recurred. This was about three years ago.

Another case that interested me a good deal, from the fact that I have heard from Dr. Coley in regard to it, is that of a young man of about eighteen, sent from the out-patient of the Massachusetts clinic to the orthopedic clinic at the Carney with diagnosis of hip-joint disease, in which we agreed, believing it was probably the acetabular type. He had no shortening; limitation of motion on abduction and extreme flexion of the limb and considerable pain, and a history extending over seven or eight months, more or less intermittent as regards the limp and pain. He had in addition to this a tumor in the left iliac region, just above Poupart's, which we supposed was an abscess coming from the acetabulum. I cut down upon that tumor, expecting to come into a pus pocket, but instead I got into a sort of currant-jelly mass which was very vascular. I put my finger in and came up against the side of the ileum, and could push through the ileum with perfect ease. It proved on examination to be round-cell sarcoma; and while he was convalescing from the operation the tumor increased in size to such an extent it was decided to send him to Coley for treatment. A few days ago I received a note saying he had commenced treatment, but that osteosarcomas in his experience were not the most suitable cases for that treatment.

DR. GARCEAU: I have had a similar case. I sent to Dr. Coley a woman about forty years of age, with osteosarcoma of the arm. She was treated about two months, came back and had the arm amputated at the hospital. The treatment did absolutely no good at all.

AMERICAN MEDICAL ASSOCIATION.

PROCEEDINGS OF THE FIFTY-SECOND ANNUAL MEETING, HELD AT ST. PAUL, MINN., JUNE 4-7, 1901.

GENERAL SESSIONS.

FIRST DAY.

The association met in the Metropolitan Opera House, and was called to order at 10.20 A.M. by the chairman of the Committee of Arrangements, DR. JOHN F. FULTON of St. Paul. Prayer was offered by BISHOP H. B. WHIFFLE, after which Dr. Fulton introduced the Hon. R. A. SMITH, Mayor of St. Paul, who delivered an address of welcome. Following the address came the introduction of the president of the association, DR. CHARLES A. L. REED of Cincinnati. On taking the chair he invited the vice-presidents and all ex-presidents of the association who were present to take seats upon the platform.

DR. PHILIP MARVEL of Atlantic City, third vice-president, took the chair, and PRESIDENT REED delivered his address.

PRESIDENT'S ADDRESS.

He referred feelingly to three of his illustrious predecessors who had been called from their worldly activities to the realms of rewards, Alfred Stille, Lewis A. Sayre and Hunter McGuire, each a former president of the association, died within a single week. Their lives were known of men, their records are ornaments of medical history, and their achievements are their eulogies.

The foreign relations of the American Medical Association were next touched upon briefly.

He passed on and considered the fiscal affairs and the *Journal*, stating that from the joint report of the treasurer and of the Board of Trustees there was a cash balance at the end of the last fiscal year of \$31,004.67, being an excess of \$3,696.66. He believes that the present generous policy in promoting the welfare of the *Journal* should be continued; that the dues of the association should not be decreased; and that the question of establishing and defraying the expenses of certain commissions for special scientific investigators should be taken under serious consideration. The question of tuberculosis is not yet a closed chapter. The causation of cancer is yet a sealed mystery. The problems of tenement-house reform are not yet solved. The prevention of various endemic diseases has not yet been made practicable. These are a few among the many objects of a specific character which demand and should receive the fostering care of the association.

The era of effective legislative control of medical practice came as the natural reaction from the demonstrated failure to accomplish the same result through voluntary organization, but it came as the result of the sentiment which had been propagated largely through the influence of the association.

MEDICAL DEGREES AT HARVARD UNIVERSITY.

—At the annual commencement at Harvard University, held June 26th, 116 candidates received the degree of Doctor of Medicine; of these, about thirty were graduated *cum laude*.

Touching the reorganization of the association, President Reed stated that great results can be achieved only by the unification of a national profession. These could not be attained under the present organization of the association. The disproportionately rapid growth of the *Journal* as compared with that of the association could have no other significance. The weakness of the Committee on Legislation at Washington was a question neither of personnel nor of industry, but arose purely from the fact that there was no efficient organization in the rank and file of the profession by which speedy and effective influence could be brought to bear upon members and senators. The demand for more effective organization of the association had come from all over the country, and resulted in the adoption of a motion at Atlantic City authorizing the appointment of a committee of three to report a plan of reorganization at this session. Another motion was adopted authorizing the creation of a supplementary committee of one from each state and territory, entitled a Committee on Reorganization, which has been filled by appointing for the most part the retiring presidents of state societies for the current year. The Committee on Reorganization had given to the important question entrusted to it a most careful and painstaking consideration. It had laid before the association the results of its deliberations. In doing so it had emphasized the principle that this association had its origin in the organized profession of the respective states. It emphasized the fact that the delegate body should be so small that it can remain in prolonged session and give to various subjects under consideration that deliberate attention which has not been possible under the existing scheme of organization during the past forty years. It recognizes the paramount importance of the scientific feature of work by relieving the general meetings and the sections alike of the troublesome details that now consume the limited and valuable time of the sessions. It remedies the glaring and serious defects in the present constitution. It prepares the association, by perfecting the organization, to meet important and pressing questions. These considerations, together with the fact that the existing constitutional provision relative to delay of action on pending amendments has been met by the appointment a year ago of a committee for the avowed and published purpose of reorganization, and by the action of the committee in laying the results of its work before every member of the association—these considerations prompted him to advise the adoption of the proposed Constitution and By-Laws in their entirety at the present annual session of the association.

The changes which the speaker had advocated are essential for the attainment of the purposes of the association and for the fulfillment of the high destiny of the national profession. They are demanded by the changes that have taken place during the past fifty years. The legislative functions have passed from voluntary organiza-

tions to the congress and the legislatures where they belong; but it still devolves upon the profession in the organized capacity to stimulate, to restrain or otherwise to control the law-making power. The responsibility of the profession is increased rather than diminished. Science has come to have a clearer meaning. He who now proclaims a dogma cries alone in the night while the world sleeps. They who demand a creed may read its varying terms only in the progressive revelation of natural laws. Practice has changed. The depletions, the gross medications, the absurd attenuations, the ridiculous anti-mineralism have given way to a refined pharmacy and to a more rational therapy. Education implies research and discovery, and all may delve.

President Reed's peroration was as follows: "I proclaim, events proclaim the existence of a new school of medicine. It is as distinct from the schools of fifty years ago as is the Christian dispensation from its pagan antecedents. It is the product of convergent influences, of diverse antecedent origin. It acknowledges no distinctive title; it heralds no shibboleth. It is a school of human tolerance, of personal independence, of scientific honesty. It is the slave of neither prejudice nor preconception, and abandons the accepted truth of yesterday, if it only be the demonstrated error of today. It places no premium upon personal prerogatives, and extends no recognition to individual authority. It makes no proclamation of completeness, no pretention to sufficiency. It recognizes that truth is undergoing progressive revelation, not ending today, but continuing through the ages. It yields its plaudits to achievement, and recognizes that he is the greatest among men who reveals the most of truth unto men. It greets as a friend him who thinks, though he think error; for, thinking, he may think truth and thereby add to the common fund. It heeds all things, examines all things, judges all things.

"To you, the exponents of this new school, of this new generation, of this new century; to you, representatives of the democracy of science; to you, citizens of the republic of letters, I extend greetings; and here, in our parliament assembled; here, where our will is supreme, I this day invoke upon our deliberations the spirit of liberty, the spirit of courage, the spirit of progress, the spirit of truth."

The president's address was referred to the Executive Committee with instructions to report back to the association on its recommendations.

Dr. J. R. PENNINGTON of Chicago made a brief speech, during which he presented and unveiled the portrait of Dr. N. S. Davis of Chicago, the veteran of the association and founder, amid a storm of applause. The portrait of Dr. Davis was accepted by the association, and thanks extended to Dr. Pennington for his presentation.

The secretary, Dr. SIMMONS, read his annual report, in which he referred to the continued increase in membership and the prosperity of the association. The membership at the present time is something over 10,600, which shows an increase

over last year of between 1,500 and 1,600. The report was referred to the General Executive Committee.

DR. BULKLEY of New York read the report of the General Executive Committee, in which it was recommended that hereafter no titles of papers be printed in the program unless the required abstract is furnished and printed in connection with the same.

The next order was the joint report of the treasurer and the Board of Trustees, which was read by Dr. T. J. HAYTEL of Tennessee. The report showed as profits for 1900, \$13,344.91. The report was adopted as read.

The report of the Committee on National Legislation was read by Dr. H. L. E. JOHNSON, chairman, which dealt with matters of interest to the profession. The report was a very lengthy one, and was referred to the General Executive Committee.

The report of the Committee on Reorganization was read by Dr. J. N. MCCORMACK of Kentucky, and at its conclusion, on motion of Dr. HARRIS of New York, the report was referred to a joint committee composed of the General Executive Committee and the enlarged Committee on Reorganization, with instructions to report the following morning.

SECOND DAY.

The association met at 11 A.M., with PRESIDENT REED in the chair. His Excellency, S. R. VAN SANT, Governor of Minnesota, was introduced, and welcomed the association on behalf of the State.

The joint committee, consisting of the General Executive Committee and the Committee on Reorganization, upon the report of the Committee on Reorganization, made its report, it being read by the chairman of the joint committee, Dr. H. O. WALKER of Michigan.

The most important features of this report are the following:

This association shall consist of delegates, permanent members, members by invitation, honorary members and associate members. Permanent members shall consist of such members of the state societies, together with their affiliated local societies, entitled to representation in this association as shall make application for admission in writing to the treasurer, and accompany said application with a certificate of good standing signed by the president and secretary of the society of which they are members, and the annual fee. Members by invitation shall consist of distinguished physicians of foreign countries who may be invited by the officers of sections or of the association. They shall hold their connection with this association until the close of the annual session to which they are invited, and shall be entitled to participate in all of its affairs, as in the case of permanent members, but they shall not be assessed the annual dues. Honorary members shall be physicians of foreign countries who have risen to pre-eminence in the profession of medicine. Representative teachers and students of the allied sciences, not physicians, may become associate members by the vote of the House of Delegates.

The House of Delegates of the American Medical Association shall consist of (1) delegates elected by permanently organized state and territorial medical societies in affiliation with this association; (2) two

delegates elected by each of the component sections of this association; (3) one delegate each from the medical departments of the U. S. Army and U. S. Navy, and one from the U. S. Marine Hospital service.

The total membership of the House of Delegates shall not exceed 150, and the delegates representing the State societies shall be apportioned among the several affiliated state and territorial medical organizations in direct ratio to their true membership.

The House of Delegates shall have authority to provide for and create such branch organizations as may be deemed essential to the promotion of the welfare of the medical profession.

The regular meetings of the association shall be held annually. The place of meeting shall be determined, with the time of meeting for each next successive year, by vote of the House of Delegates.

The officers of this association shall be a president, four vice-presidents, a secretary, a treasurer and nine trustees.

The officers of this association shall be elected by the House of Delegates. Each officer, with the exception of the secretary and the Board of Trustees, shall hold office for one year or until his successor is elected and installed. Three trustees shall be elected annually by the House of Delegates for a term of three years.

No member of the House of Delegates shall be eligible to any of the offices mentioned in the foregoing sections of this article.

The General Session shall have the right to discuss questions referred to it by the House of Delegates, and it may, by a two-thirds vote, order a general referendum on any question pending before the House of Delegates.

The House of Delegates shall, upon a two-thirds vote of its own members, or upon a two-thirds vote of the General Session, submit any question either through the *Journal* or by mail, to the general membership or final vote; and if the persons voting shall comprise a majority of the members, the majority of such votes cast shall determine the question, and shall be binding upon the House of Delegates.

The House of Delegates shall have authority to amend any article of this constitution by a three-fourths vote of all the members composing the House of Delegates; provided, that such amendment shall have been proposed in open meeting of the House of Delegates one year previous to being acted upon, shall have been published at least three times in the *Journal* during the interim, and shall have been officially transmitted to each affiliated state and territorial society for consideration at their annual meetings.

The General Session shall include all registered members and delegates, who shall have equal rights to participate in discussions and to vote upon pending questions. Each General Session shall be presided over by the president, or, in his absence or disability, by one of the vice-presidents. Before it there shall be delivered upon the opening day of each annual meeting the address of the president, whose recommendations shall thereupon go to the House of Delegates for action, and on each following session such addresses on scientific subjects as are assigned to orators selected for the purpose. It shall have power to create committees or commissions for scientific work of special interest or importance, and to receive reports of the same; provided, that any expense incurred in connection therewith by the association must first be authorized by concurrent action of the House of Delegates and the Board of Trustees.

The House of Delegates, as far as may be consistent with the articles of incorporation, shall be the legislative and fiscal body of the association. Its sessions shall be open to the members of the association; but except upon invitation of the House of Delegates, they shall have no right to participate in its proceedings. Each state and territorial society entitled to representation shall have the privilege of sending to the association one delegate for every 500 of its resident regular members, and one for any additional fraction of that number; but each affiliated state and territorial society shall be entitled to at least one delegate.

The House of Delegates once in every three years shall appoint a committee of five on reapportionment, of which the president and secretary shall be members. It shall be the duty of this committee to examine the membership lists of all the affiliated state and territorial medical societies, and to determine therefrom the number of delegates to the association to which each state or territory shall be entitled for the ensuing three years, beginning with the annual meeting next succeeding that at which the reapportionment is approved by the House of Delegates.

Members of the House of Delegates shall be elected for a term of two years, and those state and territorial societies entitled to more than one representative are requested to so arrange such election that one-half of their delegates, as near as may be, shall be elected each year.

In order that each state and territorial medical society may properly provide for a full delegate representation at each meeting of the association, it shall have the authority to elect alternates, who, upon presentation of the proper credentials, shall be empowered to serve as delegates in the absence of the regularly elected delegates. Provided, that in case of the absence of the regularly appointed delegate or alternates, then the permanent members from that affiliated society, who are present at that meeting, shall select one of their number, who shall represent that society; and provided further, that when only one permanent member is present from any society, that member shall represent that society.

No one shall serve as a member of the House of Delegates who has not been a permanent member of the American Medical Association for at least two years.

Every delegate from a state or territorial society, before being permitted to take part in the proceedings of the House of Delegates, must deposit with the secretary or other designated officer or committee, a certificate signed by the president and secretary of the state society from which he receives his authority, stating that he has been regularly and legally elected a delegate to the American Medical Association for a definitely stated term, and the delegates from the sections shall present credentials signed by the president and secretary of the section they represent. This certificate shall be subject to review by the Judicial Council, and all disputes as to credentials shall be investigated by the Judicial Council, and determined by vote of the House of Delegates.

The House of Delegates shall approve all memorials and resolutions, of whatever character, issued in the name of the American Medical Association before the same shall become effective.

The House of Delegates shall present a summary of its proceedings to the last general session of each annual meeting of the association, or it shall publish the same in a bulletin to be issued each day during the annual meeting.

A majority of the members composing the House of Delegates shall constitute a quorum for the transaction of business. All elections shall be by ballot. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the annual meeting. Only those in attendance at the annual meeting at which the election occurs shall be eligible for election. The officers elected at each annual meeting of the association shall be installed at the closing general session.

The Judicial Council shall be composed of nine members, three of whom shall be chosen annually by the House of Delegates, and shall serve for three years. All questions of a personal character, including complaints, protests and credentials, shall be referred at once, after the report of the Committee of Arrangements or other presentation, to the Judicial Council without discussion. The said council shall organize by choosing a president and secretary, shall keep a permanent record of its proceedings, and shall report its findings to the House of Delegates at the earliest practicable moment.

The Committee on Medical Legislation shall consist of one delegate from each state, to be appointed annually by the president of the association. It shall be the duty of this committee to represent before Congress and elsewhere the wishes of this association in regard to pending medical and sanitary legislation. It shall be the duty of this committee to consider and act upon all proposed national, state or local legislation that in any respect bears upon the promotion and preservation of the public health, or upon the material or moral welfare of the medical profession. It shall have power to fill any vacancies that may occur in its membership, and to act *ad interim* when necessity arises.

The Committee on Legislation shall report to the House of Delegates at each annual meeting its action during the previous year, and shall recommend such action regarding pending legislation as it shall deem proper.

The Committee on Nominations shall consist of nine members, not more than one from one state or territory, selected annually by the House of Delegates. It shall be the duty of this committee, after consultations with the members of the association, to hold one or more meetings, at which the assignment of the offices of the association for each ensuing year shall be carefully considered. The committee shall then on the morning of the third day of the annual meeting report the result of its deliberations to the House of Delegates in the shape of a ticket, providing one, two or three names for each office; but not more than one candidate for each office shall be named from any one state or territory. Nothing in this section shall be construed to prevent additional nominations being made by the members of the House of Delegates.

The general sessions of the American Medical Association shall be held at 11 A.M. and 7.30 P.M. of the first day of the annual meeting, at 7.30 P.M. of the two subsequent days, and at 12 noon of the concluding day.

The various sections of the association shall hold their first session of each annual meeting at 2 P.M. of the first day, and on subsequent days of the annual meeting they shall be in session from 9 A.M. to 12 noon, and from 2.30 P.M. to 6 P.M., until their respective programs are completed, or as the sections themselves may otherwise provide.

The House of Delegates shall hold its first session of each annual meeting at 2 P.M. of the first day, and on subsequent days at such time as may be necessary to complete its business; provided, that it shall not meet at hours that will conflict with the general session of the association.

The officers of each section shall be a chairman, a secretary and an executive committee. The latter shall consist of the last three retiring chairmen. At the commencement of the afternoon session of the third day of each annual meeting, each section shall elect its own officers to serve for the ensuing year, their duties to commence with the close of the annual meeting at which they are elected, and to continue until their successors are elected and qualify. Each section shall elect annually two representatives to the House of Delegates. In each section a nominating committee of three members shall be elected by open ballot on the first day to make nominations for section officers.

After the reading of the report DR. HARRIS of New York moved that the full report of the joint Committee on Reorganization, including the revised Constitution and By-Laws, be received and adopted. After considerable discussion the report was adopted by a large majority.

DR. MCCORMACK of Kentucky then moved to reconsider the vote by which the report was adopted, and that the motion to reconsider be laid upon the table. Carried.

On motion, the Constitution and By-Laws were ordered to be printed in separate form for pocket use, and a copy distributed to every member.

Dr. JONAS A. WYETH of New York was introduced, and delivered the oration on Surgery.¹

Dr. F. H. WIGGIN of New York made a verbal report in behalf of the Committee on Senn Medal, saying that the committee had received two papers during the year, neither of which was sufficiently meritorious to warrant any award.

The next order was the report of the Committee on the Rush Monument Fund, which was read by Dr. HENRY D. HOLTON, showing that \$11,941.88 had been contributed towards this fund. On motion, the report was received and filed.

The report of the Committee on Scientific Research was read by the secretary in the absence of Dr. Wm. H. Welch, in which the hope was expressed that the grant of \$500 appropriated by the association last year would be continued, and if possible an additional \$500 added to it. The report was referred to the General Executive Committee and Board of Trustees, with instructions to report back to the association.

THIRD DAY.

The association met at 11 A.M.

Dr. GEORGE M. GOULD of Philadelphia offered a resolution, in which the Board of Trustees was authorized to pay the bills of expenses incurred by the Committee on Reorganization.

The president announced as the Committee on National Legislation, Drs. H. L. E. Johnson, Wm. L. Rodman and Wm. H. Welch.

Dr. BULKLEY read the report of the General Executive Committee, in which it was urged that the sections on physiology and dietetics and on pathology and bacteriology be merged into one section. On motion, the report was adopted.

Dr. BULKLEY also read the report of the General Executive Committee of June 6th, which related to the recommendations contained in the president's address. It was recommended by the committee that the association appoint a committee to draft appropriate resolutions commemorative of the lives and distinguished services of the recently deceased presidents of the association; that action be taken to secure suitable portraits of deceased ex-presidents; that the incorporation of the association be confirmed; that a committee of three be appointed to revise the Code of Ethics, with instructions to report at the next annual meeting; that the association pass resolutions of disapproval of the action of Congress in failing to pass the bill which provided for the proper and adequate recognition of the medical corps of the U. S. Army.

In regard to the request from the Committee on Scientific Research, the General Executive Committee recommended to the association that the \$500 appropriated for this committee last year and not expended be used by that committee this year in place of the further appropriation of \$500.

A communication from Dr. ARTHUR MACDONALD, as to the establishment of a psycho-physical laboratory in the Department of the Interior at

Washington, was received by the committee and fully discussed, and it was recommended that the following resolution be adopted with reference to the same:

Resolved, That we are in favor of the establishment of a psycho-physical laboratory in the Department of the Interior at Washington, for the practical application of physiological psychology to sociological and abnormal pathological data, especially as found in institutions for the criminal, pauper and defective classes and in hospitals, and also as may be observed in schools and other institutions.

The committee recommended that an appropriation of \$500 be made for the pathological exhibit for the coming year.

On motion, the report of the General Executive Committee, with its various items, was adopted, with the exception of that section pertaining to the appointment of a committee to revise the Code of Ethics.

Dr. N. S. DAVIS, JR., of Chicago, then delivered the oration on Medicine.²

Dr. TUCKERMAN of Ohio offered an amendment to the By-Laws as follows:

SECTION 3. Committee on Legislation: The Committee on Legislation shall consist of three members appointed by the president of the association for a term of three years. One member shall be a resident of Washington, D. C., one of Baltimore, and one of Philadelphia. It shall be the duty of the committee to represent before Congress the wishes of this association regarding any proposed legislation that in any respect bears upon the promotion and preservation of the public health, or upon the material or moral welfare of the medical profession. This committee shall also invite to a conference once a year, or oftener if need be, one delegate each from the Medical Service of the U. S. Army, the U. S. Navy, and the Marine Hospital service, one from the Bureau of Animal Industry, and one from each affiliated state or territorial medical society; such conference to meet in Washington to consider questions of medical and sanitary legislation, and to report back to this association and to the several state and territorial societies. (Referred to the House of Delegates.)

Hereafter, by action of the Board of Trustees, the railroad expenses of Dr. W. B. Atkinson will be defrayed to and from each future meeting of the association.

FOURTH DAY.

The association met at 11 A.M., with the president in the chair.

Dr. GEORGE M. KOBER of Washington, D. C., delivered the oration on State Medicine. He selected for his subject

THE PROGRESS AND TENDENCY OF HYGIENE AND SANITARY SCIENCE IN THE NINETEENTH CENTURY.

He said that hygiene is a department of medicine whose object is the preservation and promotion of health, and deals, therefore, with all the factors likely to influence our physical welfare. It is not an independent science, but rather the application of the teachings of physiology, chemistry, physics, meteorology, pathology, sociology, epidemiology and bacteriology to the maintenance of the health and life of individuals and

¹ See Journal, June 6, 1901, p. 541.

² See Journal, June 13, 1901, p. 571.

communities. The subject is very properly divided into personal and public hygiene.

The speaker then referred to the pests and unsanitary conditions of the Middle Ages. He said the nineteenth century can boast of many advances in hygiene, particularly since the European invasion of cholera in 1830. The English towns which had been visited by this disease, and those fearing similar scourges, were willing to profit by their sad experience, and freely instituted sanitary reforms in the establishment of sewers, public water supplies, sanitary homes, etc.

He passed on to the consideration of the progress of sanitation in the United States, making reference to health boards, the effects of voluntary organization on sanitation, and a national board of health. He likewise referred to national and international quarantine. He spoke of the influence of sewers and public water supplies, the influence of improved water supplies, sewage disposal and river pollution, pure food and drug legislation, laws regulating the sale of drugs and poisons, patent and proprietary medicines, industrial hygiene, sanitary dwellings for wage earners, sanitation of prisons, hospitals, sanatoria and dispensaries, school hygiene, smallpox and compulsory vaccination, venereal diseases, the management and control of infectious diseases, etc. He gave a forecast of the result of the census work upon the mortality statistics, after which he concluded his oration in the following words:

"Without wishing to underrate the brilliant achievements in surgery of the brain, stomach, intestines, liver, gall bladder and other abdominal organs, and even wounds of the human heart which have been successfully sutured in four of the nine cases reported, what after all are the ultimate benefits compared with the results obtained by improved methods in sanitation?"

"Since our knowledge of the nature of infectious diseases has been more and more defined, scientific methods for their prevention have been applied. We have learned, too, that in addition to the germ there must be a suitable soil for its proliferation, and that sanitation will not only destroy the environments for its development without the body, but also place the system in the best possible condition to resist its toxic action.

"The application of this knowledge has saved millions of lives, besides an incalculable amount of human suffering and distress, not to mention the economic aspect of the question. When we remember all this, and the fact that Jenner's discovery, at the close of the last century, of a fundamental and practical method of producing artificial immunity, has been far eclipsed in the last twenty years, and that we possess today not only curative, but also protective, sera for diphtheria, erysipelas, tetanus, plague, and possibly cholera, tuberculosis, typhoid fever, pneumonia, and a number of other immunizing agents for diseases of man and lower animals, we have reason to believe that the solution of the problem of immunity is only a question of time, and we may indeed

expect great possibilities in our battle against infectious diseases.

"To the solution of this problem the labors of Salmon and Smith, Sternberg, Welch, Osler, Councilman, Reed and other Americans engaged in experimental medicine have contributed their full share. Progress has crowned our past; we will not retrograde. Let our conduct raise no blush on the cheek of posterity. Let us hand in hand, with heart and mind, join in promoting the welfare of American medicine, until she has reached the proudest pinnacle in the world of science, until she has become the fountain-head of knowledge for the benefit of mankind. Then, when at last we are called upon to pass through the portals beyond, Minerva Medica, in her sweeping robes of state, will proudly but reverently present us to the Supreme Healer of the universe as types of the true physician."

The General Executive Committee recommended to the association the adoption of the following resolutions from the Section on Pathology and Bacteriology:

Whereas, Mr. John D. Rockefeller of New York, appreciating the great importance and humanitarian utility of pure scientific medical research, has recently donated the sum of \$200,000 for the promotion of original investigation, and has placed the control of this sum in the hands of a committee composed of representative medical scientists, under the able chairmanship of Prof. William H. Welch of Baltimore; be it

Resolved, That the medical profession, represented by the American Medical Association, desires to express its profound appreciation of this generous gift, and of the gratifying fact that the importance and needs of scientific research in medicine are so clearly realized by the donor; also its appreciation of the wise selection of the chairman of the committee having charge of the same; be it further

Resolved, That the secretary of the American Medical Association be instructed to transmit a copy of these resolutions to Mr. Rockefeller.

On motion, the report was adopted.

The report of the Judicial Council was read by Dr. F. H. WIGGIN of New York, and contained two or three references to members of the association whose names have been dropped from the roll of members for noncompliance with the By-Laws.

DR. H. L. E. JOHNSON made a report on behalf of the Committee on National Legislation, which was adopted.

The committee considered the following resolution, which was proposed at a previous session by Major Louis L. Seaman, U. S. V.:

Resolved, That this body deprecates the action of Congress in abolishing the army post exchange or canteen, and in the interests of discipline, morality and sanitation, recommends its re-establishment at the earliest possible date.

The committee declared the resolution to be wise and proper, and of importance to every citizen of the Republic. The resolution is the outgrowth of careful study and observation by the Medical Department of the U. S. Army, is concurred in by the commanding officers at the several posts, and is intended to correct serious abuses under the present law which result in drunken-

ness, desertion, insubordination, dishonorable discharge, crime, poverty, appalling increase in venereal disease and invalidism among the soldiers of the U. S. Army.

It was recommended that the association adopt the above resolution, and that the Congress of the United States be petitioned to repeal at the earliest moment the objectionable law which prohibits the army post exchange.

On motion, the association concurred in the report of the Committee on National Legislation, and the above resolution was adopted.

The following officers were elected for the ensuing year: President, Dr. John A. Wyeth, New York; First Vice-President, Dr. Alonzo Garelon, Maine; Second Vice-President, Dr. A. J. Stone, Minnesota; Third Vice-President, Dr. A. F. Jonas, Nebraska; Fourth Vice-President, Dr. James A. Dibrell, Arkansas; Treasurer, Dr. Henry P. Newman, Illinois; Secretary, Dr. George H. Simmons, Illinois; Librarian, Dr. George W. Webster, Illinois; Board of Trustees, term expiring 1904: Drs. W. W. Grant, Colorado; John F. Fulton, Minnesota; T. J. Happel, Tennessee. Judicial Council: Drs. George Cook, New Hampshire; H. H. Grant, Kentucky; John B. Murphy, Illinois; Philip Marvel, New Jersey; Louis H. Taylor, Pennsylvania; John L. Dawson, South Carolina; N. Fred Essig, Washington. To deliver oration on Surgery, Dr. Harry Sherman, California. To deliver oration on Medicine, Dr. Frank Billings, Illinois. To deliver oration on State Medicine, Dr. J. M. Emmert, Iowa.

Saratoga Springs, N. Y., was selected as the place for holding the next meeting of the association; chairman of Committee of Arrangements, Dr. George F. Comstock.

Before the close of the fourth general session over 1,800 members had registered. The sections were well attended, the papers were of a high scientific order, and the discussions pointed and animated. In a word, the fifty-second annual meeting of the association was one of the most successful in its history from every standpoint.

(To be continued.)

Recent Literature.

The Medical News Pocket Formulary. Containing 1,700 prescriptions representing the latest and most approved methods of administering remedial agents. By E. QUIN THORNTON, M.D., Demonstrator of Therapeutics, Pharmacy and Materia Medica in the Jefferson Medical College, Philadelphia. Third edition. Philadelphia and New York: Lea Bros. 1901.

We have had occasion to notice this book in its earlier editions. This third edition is similar in form and contents to those already published. It is attractively bound in leather, and in connection with each prescription after the usual directions as to administration, the indications for its use are given. Such books have a definite, if somewhat limited, field of usefulness.

THE BOSTON Medical and Surgical Journal.

THURSDAY, JUNE 27, 1901.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

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ATHLETIC TRAINING.

WE are again in the midst of the period of strenuous athletic life in the large colleges. Of all the contests which have now become fixtures of college life, probably none, not excepting football, are productive of so great a physical strain as the boat race about to be rowed at New London. It is, therefore, particularly fitting that we should at this time call attention to the work concluded in this number of the JOURNAL, done by Dr. E. A. Darling of Cambridge, W. O. Atwater and F. G. Benedict of Middletown, Conn., on the effects of training upon the physical conditions of the contestants.

In our issue of June 6th Darling gives the results of his investigations on the general subject of training, with particular reference to football and rowing. In the first place the fact is noted that examinations of value are made only under unusual difficulties; the men, as a rule, who are actively engaged in practice or games, are in such a state of excitement and impatience that they find it a hardship to submit to the time-taking tests which are often requisite. The paper before us is the second on the same general subject, the first having appeared in our issues of August 24 and 31, 1899, and concerns itself chiefly with the condition of the heart and kidneys. In a comparison of the effects of rowing and football, Darling finds they do not essentially differ; that in both sports the training appears to accustom the heart, kidneys and other organs to the unusual strain being put upon them in the course of the athletic season, and finally concludes that he was able to find no ill effects from the severe training nine months later.

At the instigation of the Harvard Athletic Committee through Dr. Darling, Atwater and Benedict undertook an elaborate investigation into the food and excreta of four members of the 1900 Harvard University crew during the days

immediately preceding the race. The writers of this paper call attention to the fact that such studies have hitherto not been frequently made, either in this or other countries. For the details of this exhaustive research we would refer the reader to the original papers appearing in our issues of June 20th and 27th. Like many difficult problems, however, which have as yet not been thoroughly investigated, the writers conclude their paper by urging the need of more work along the same lines. "Perhaps the most important conclusion to be derived from the experiments is that further and more detailed investigations are needed to show what diet is best for men under such severe muscular strain as that of oarsmen in training for races."

It is to this latter point that we desire particularly to refer. Valuable as the researches before us are, they are only beginnings; a very large number of examinations must be made before statistical conclusions of value may be reached. It is a peculiarly laborious piece of work on account of the conditions under which it must be undertaken, as indicated by Darling; but we are nevertheless convinced that until such studies are made, proving by accurate scientific means the danger or harmlessness of violent athletic contests, a large portion of the laity will maintain an attitude of scepticism regarding the supposed benefit to the individual contestant. We await the verdict of those capable of judging, and it is becoming clearer every year that conscientious clinical and laboratory investigation must be the final arbiter. It has long been apparent that training based on any other than physiological principles is capable of doing much harm both to the individual and to the general cause of athletic sports. We see in these studies, to which we have alluded, one of the first systematic attempts to place athletic training where it belongs,—in the hands of men qualified to determine what is actually taking place in the athlete's body, and not only what appears on the surface. A much neglected field of investigation, also, is a more detailed study of the nervous system than has hitherto been made. We are strongly inclined to think that the qualities which make the successful athlete more often lie in his mental make-up than is ordinarily supposed to be the case. This more subtle but highly important side of the general question will no doubt be considered when the last word on athletic training shall have been said.

A CENSUS OF TUBERCULOSIS.

It is said that an attempt is soon to be made in New York State to determine by as accurate a census as possible, the number of persons suffer-

ing from tuberculosis in that State. We shall await the result of the investigation with great interest, particularly since it is to be officially conducted by the State Board of Health. That such a census will be of much value as a standard by which the growth or decrease of the disease may be estimated, is self-evident; that it will be a most difficult undertaking to carry to a successful issue, is equally self-evident. Apart from the wilful tendency to deceive, which will certainly be a source of annoyance, there will undoubtedly be a large element of error among persons in whom the disease is in an incipient stage, and in whom, it may be, the diagnosis has never been made. There are many such persons in every community, who may never have consulted a physician, and of whose disease there is absolutely no official record. At best the matter is a delicate one, and one which will require much tact, as well as assiduity, to get at anything like all the facts. No doubt this has been taken into consideration, and men especially adapted for the work will be chosen. At any rate such an investigation should be productive of valuable results, however wide it may be of actual conditions. As the education of the masses goes on with regard to tuberculosis, a time will, no doubt, come when the difficulties of recording all cases will be very greatly diminished. In the meantime the undertaking of the New York Board of Health is a step in the right direction, provided it be carried out with tact and discretion. We hope that other states may see fit to follow this example, to the end that we may know how many living tuberculous persons there are, as well as how many die.

MEDICAL NOTES.

OFFICERS OF AMERICAN ORTHOPEDIC ASSOCIATION.—The following officers of the American Orthopedic Association were elected at the last meeting held at Niagara Falls: President, H. Augustus Wilson, M.D., Philadelphia; First Vice-President, William J. Taylor, M.D., Philadelphia; Second Vice-President, G. G. Davis, M.D., Philadelphia; Secretary, John Ridlon, M.D., Chicago; Treasurer, E. G. Brackett, M.D., Boston. Philadelphia was chosen as the place for the next meeting in May, 1902.

A BIT OF JOURNALISTIC EXCESS.—Among the news items in a recent number of one of our New York contemporaries appears the following statement under the heading "Proposed Slaughter of the Innocents": "A Denver despatch states that a prominent member of the Colorado State Medical Association introduced at the annual meeting of that society, held this

week, a proposed legislative enactment providing that, on the application of the parents, imbecile children be painlessly put to death. The proposed law is too wishy-washy. The children should be killed, whether the parents consent or not, and the latter also had better be put out of the way, lest they procreate other children of feeble intellect."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, June 26, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 56, scarlatina 21, measles 180, typhoid fever 7.

A CENTENARIAN.—Mrs. Mary Drew Peavey, who was one hundred and six years old May 16, died in South Boston, June 23. Mrs. Peavey was the oldest resident in the state, and had lived in three centuries. She leaves six children, more than a dozen grandchildren, forty great grandchildren, and also many descendants in the fifth generation.

SMALLPOX.—Two deaths from smallpox have occurred in Providence, R. I., since the appearance of the disease there. No more deaths are anticipated, and the disease is rapidly disappearing. Five cases of smallpox are said to have developed among the passengers of the Portuguese schooner "Zulamira," who are now under observation at Gallop's Island. No other cases are expected to develop. Cases are still appearing in various parts of the state, and about 100 cases have been reported since the middle of May.

NEW YORK.

LAXITY OF HEALTH DEPARTMENT IN BOROUGH OF QUEENS.—Dr. Obad L. Lusk, sanitary superintendent for the Borough of Queens, has been indicted by the Grand Jury of the county for alleged neglect of duty in connection with the case of John Charlton, who died of smallpox at Woodside, Long Island, on May 4th, and whose body lay unburied for fifty-two hours. The Grand Jury has also made a presentment regarding the spread of smallpox in the Astoria section of Long Island City and the lack of facilities for the handling of cases of infectious diseases. The presentment sets forth that "an alarming condition of affairs" exists in the administration of the Health Department in the Borough of Queens; stating that no dead wagon is locally attached to the sanitary bureau of the borough, and that there is no reception hospital for emergency cases.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—Dr. Henry L. Elsmar, president of the Medical Society of the State of New York, announces the appointment of his business commit-

tee for the ensuing year, consisting of Dr. Nathan Jacobson, chairman, 430 S. Salina Street, Syracuse; Dr. George Ryerson Fowler, 301 DeKalb Avenue, Brooklyn, and Dr. William C. Krauss, 371 Delaware Avenue, Buffalo. All letters and inquiries pertaining to papers and scientific communications for the semi-annual meeting to be held in New York City, Oct. 15 and 16, 1901, and the annual meeting to be held in Albany, January, 1902, should be addressed to the chairman.

INVESTIGATION OF WATER SHEDS.—At a conference held in the mayor's office on June 11th, at which Controller Coler and the chief engineers of the Finance and Water Supply Departments were present, it was decided to devote \$100,000 to a preliminary investigation of water sheds, for the purpose of securing an increased supply, for which the city is to expend at least \$30,000,000 during the next five years. At a meeting of the Board of Estimate and Apportionment, held June 13th, Commissioner Dalton of the Water Supply Department was authorized to acquire seventy acres of land in Forest Park, Long Island, on which to build a new distributing reservoir for the borough of Brooklyn.

BEBERIE ON A SCHOONER.—When the schooner "Alert," from Lagos, on the west coast of Africa, by way of St. Martin's, West Indies, arrived in port on June 19th, it was found that the captain was suffering from beriberi. During the voyage from Lagos to St. Martin's there were three other cases of the disease among the crew, and two of the patients died and were buried at sea. On arriving at St. Martin's the vessel was stocked with fresh water and provisions and shipped five new men; no cases developed thereafter.

SMALLPOX IN GOSHEN JAIL.—Six cases of smallpox (two of them of the confluent form) have recently developed in the jail at Goshen, N. Y. The patients were removed to the pest house at Orange Farm, and the remaining fifty-four prisoners quartered in the prison yard under a strong guard. The outbreak is believed to have originated from a prisoner who was a member of a gypsy camp.

REMOVAL OF STOMACH IN A DOG.—At the New York Veterinary Hospital an operation for complete removal of the stomach, for malignant disease, was recently performed on a fox terrier, which was a great pet in the family owning it. The animal is reported to have made an excellent recovery.

SMALLPOX AT YONKERS.—Up to two weeks ago there had been an occasional case of smallpox at Yonkers, on the Hudson, but since June 15th the disease has spread rapidly, and of late about five new cases have been reported each day.

INFLUENZA AMONG HORSES.—Veterinary surgeons report that there is a severe outbreak of influenza among the horses of the city, and that about ten thousand animals were affected.

Miscellany.

HARVARD MEDICAL ALUMNI ASSOCIATION.

THE annual meeting of the Harvard Medical Alumni Association was held at the Harvard Medical School, at 12 noon, on June 25th. There was no dinner this year, but simply an informal lunch immediately after the meeting, which was served in the medical school. The laboratories and museum were open for inspection, and the plans for new buildings were on exhibition.

The following changes in the constitution were adopted:

(1) The dinner in June shall become a triennial affair, being held in the year in which a new president of the association is chosen.

(2) Since it seems advisable to have some method whereby distant graduates may be kept informed of the sayings, writings and doings of our fellow alumni, and since the most practical plan that has yet been suggested seems to be to publish, once every three months, such items of news and notes pertaining to the medical school or graduates as may from time to time be available; to this end it would be well to appoint the president, assisted by the secretary, as a committee to collect such information and publish it. The council has already made this appointment.

It was voted that the office of "correspondent" be instituted, to the end of obtaining items of interest from various cities throughout the country, which should be published by the association.

Correspondence.

FURTHER OBSERVATIONS ON THE BROWN-TAIL MOTH.

Boston, June 24, 1901.

MR. EDITOR: In the BOSTON MEDICAL AND SURGICAL JOURNAL of June 13, 1901, there is a most interesting letter from Dr. James C. White, "Dermatitis Produced by a Caterpillar." In this letter he says there is a uniform history of the removal of caterpillars from the affected parts just preceding the eruption, and that as no such cases had previously occurred under his observation, he concludes that the larvæ must be some recently introduced species.

According to the entomologists, the brown-tail moth (*euproctis chrysorrhœa*) is not a recently introduced species, but has been seen in this country since 1892. The moth is of common occurrence in Europe, being found in all parts except the extreme north. During the latter part of May, 1897, these caterpillars occurred in large numbers in Somerville, in a large part of Cambridge and Everett, and part of Medford and Malden. In Somerville they occurred in especially large numbers, orchards being defoliated, the caterpillars swarming into houses, so that on Park street the washing down and sweeping out of caterpillars from the walls and piazzas of houses was of daily occurrence.

"The full-grown caterpillars are from an inch and a quarter to an inch and three-quarters in length. The head is pale brown mottled with dark brown, with reddish brown hairs scattered over the surface. The body is dark brown or black, with numerous fine, dull orange or gray spots scattered over the surface; long reddish brown, finely-barbed hairs arise from all the tubercles, and white branching hairs arise from the upper side of the lateral tubercles."¹ The hairs are very brittle and easily detached, and on coming in contact with the skin produce an intense irritation.

A number of these cases have come under my observation. The eruption is urticarial in character, appears on the face, back of neck, flexor surfaces of extremities and on the nates.

Dr. White speaks of the lesions as being arranged "in long continuous tracts, as if following the course of the creature over the skin." I cannot say that I have noticed this; the eruption can be produced by simply rubbing the hair of the caterpillar on the skin. Hairs become detached, remain on the hand; other parts of the body are rubbed by this hand, and in this manner the eruption is spread.

Truly yours,

EDITH R. MEEK, M.D.

JOHN W. PRAY PRIZE—A CORRECTION.

CONCORD, N. H., June 21, 1901.

MR. EDITOR: On page 625 of your journal issued June 20, 1901, I note as follows: "The John W. Pray Prize, offered by the trustees of the New Hampshire State Hospital for original work on any branch of medicine, has been awarded to Dr. Albert E. Brownrigg for an essay on 'The Clinical Significance of the Cheyne-Stokes Symptom-Complex.'"

It is very kind of you to make mention of the fact that Dr. Brownrigg has been awarded the prize, but this prize was offered by the trustees of the New Hampshire Medical Society, and not by the trustees of the New Hampshire State Hospital. It is true that Dr. Brownrigg is at present an assistant physician at the New Hampshire State Hospital, but the New Hampshire State Hospital is not offering prizes for original work in any branch of medicine.

Allow me to say that Dr. Pray left \$1,000 to the New Hampshire Medical Society, the income of which was to be devoted to offering a prize for original work in medicine, whether in the State or anywhere else. While the income upon \$1,000 at the present rates is not \$100 a year, yet so many years have occurred in which no paper was offered considered to be worthy of the prize, that we have in the treasury sufficient, so that for the ensuing year the trustees offer a prize of \$100 for a paper in original work in any branch of medicine.

Believing that you wish to make a correct statement in any such matter, I am

Very truly yours,

G. P. COXN, M.D., Secretary.

LONDON CONGRESS ON TUBERCULOSIS.

BALTIMORE, MD., June 19, 1901.

MR. EDITOR: I should like, through your journal, to call the attention of members of the profession to the important Congress on Tuberculosis, which will be held in London from July 23d to 26th. It is much to be desired that a large contingent from the United States should participate in the work. Many prominent physicians have signified their intention of joining the congress. Members of the profession wishing to do so should send their names, enclosing \$5.00, to Dr. St. Clair Thomson, 20 Hanover Square, W., London.

Sincerely yours,

W. OSLER, M.D.

¹Special Bulletin, The Brown-Tail Moth, Massachusetts Agricultural College.

METEOROLOGICAL RECORD

For the week ending June 15th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.		
	Daily mean.	Daily maximum.	Daily minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.	
	Daily mean.	Daily maximum.	Daily minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.	
S., 10, 23.57	58	66	50	57	56	56	W	W	16	5	F.	O.	T.	
M., 10, 30.02	64	75	53	56	43	50	N	W	18	12	C.	C.		
T., 11, 31.12	68	66	57	60	61	41	50	N	W	8	11	F.	C.	
W., 12, 36.10	70	70	62	60	63	62	W	W	5	5	C.	C.		
T., 13, 30.22	67	74	60	59	48	54	N	W	12	12	C.	C.		
F., 14, 23.06	70	80	60	60	48	80	N	W	14	13	C.	C.		
S., 15, 30.14	62	73	51	51	84	84	N	W	20	3	O.	O.		
2.59° 30.06		75	56		62									

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
- ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 15, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.		Percentage of deaths from					
			Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and croup.			
New York.	3,437,202	1,158	262	26.85	8.55	3.45	4.50	3.37		
Chicago.	1,638,575									
Philadelphia.	1,230,537									
St. Louis.	575,258									
Baltimore.	568,957	168	54	23.80	7.14		4.76	2.97		
Cleveland.	351,708									
Buffalo.	352,387									
Cincinnati.	325,902									
Pittsburgh.	321,616									
Washington.	258,718									
Milwaukee.	255,315									
Providence.	175,527	42	20	23.51	11.90		7.14	7.14		
Boston.	560,862	171	14	30.40	12.86	2.92	2.92	3.50		
Worcester.	118,421	29	5	27.60	3.45		3.45	—		
Fall River.	104,063	26	8	28.55	20.92		3.85	—		
Lowell.	94,963	33	8	18.00	9.00		6.00	9.00		
Cambridge.	91,886	20	4	30.00	10.00		5.00	10.00		
Lynn.	68,513	15	3	26.66	6.66		6.66	6.66		
Lawrence.	62,559	8	2	25.00	12.50		—	—		
New Bedford.	62,442	26	8	38.46	3.85		3.85	—		
Springfield.	62,059	12	1	—	—		—	—		
Somerville.	61,443									
Holyoke.	45,712	3	1	—	—		—	—		
Brookton.	40,063	3	2	33.33	—		—	—		
Haverhill.	37,175	7	2	57.14	—		—	—		
Salem.	35,666	7	2	14.28	—		—	—		
Chelsea.	34,072	11	4	36.36	—		9.09	—		
Malden.	33,661	7	2	14.28	14.28		—	—		
Newton.	33,587	6	1	33.33	—		—	—		
Fitchburg.	31,531	4	4	—	25.00		—	—		
Taunton.	31,036	4	1	—	25.00		—	—		
Gloucester.	26,121	7	—	—	—		—	—		
Everett.	24,336	8	3	12.50	12.50		—	—		
North Adams.	24,290	1	2	25.00	—		—	—		
Quincy.	23,890	4	2	25.00	—		—	—		
Waltham.	23,181	5	2	20.00	—		20.00	—		
Pittsfield.	21,766	3	—	—	—		—	—		
Brookline.	19,935									
Chicopee.	19,167	6	1	—	16.67		—	—		
Medford.	18,244	4	2	75.00	—		—	—		
Newburyport.	14,478	4	1	—	25.00		—	—		
Melrose.	12,962									

Deaths reported 1,821, under five years of age 519: principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 172, acute lung diseases 190, consumption 225, scarlet fever 47, erysipelas 5, typhoid fever 16, whooping cough 6, measles 13, cerebro-spinal meningitis 7, smallpox 16. From whooping cough, New York 3, Boston 2, Quincy 1. From cerebro-spinal meningitis, New York 4, Boston, Worcester and Brockton 1 each. From scarlet fever, New

York 40, Boston 5, Lynn and Chelsea 1 each. From typhoid fever, New York 8, Baltimore 2, Boston 3, Worcester, Lowell and New Bedford 1 each. From erysipelas, New York 3, Boston 1, Salem 1. From smallpox, New York 11, Worcester 2, New Bedford 3.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,435,187 for the week ending June 1st the death rate was 16.3. Deaths reported 3,580; acute diseases of the respiratory organs (London) 240, whooping cough 83, diphtheria 44, measles 118, fever 29, scarlet fever 46.

The death rate ranged from 9.3 in Brighton to 22.6 in Preston; Bickenhead 15.9, Birmingham 17.9, Blackburn 19.2, Bolton 17.3, Bradford 16.8, Bristol 12.6, Burnley 17.7, Cardiff 16.7, Croydon 19.8, Derby 17.2, Gateshead 19.3, Halifax 11.9, Huddersfield 18.7, Hull 22.5, Leeds 14.3, Leicester 13.0, Liverpool 19.5, London 15.4, Manchester 19.0, Newcastle-on-Tyne 19.1, Norwich 11.6, Nottingham 17.4, Oldham 20.9, Plymouth 13.5, Portsmouth 12.6, Salford 15.3, Sheffield 18.1, Sunderland 19.8, Swansea 14.9, West Ham 14.4, Wolverhampton 15.6.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING JUNE 13, 1901.

WHITE, J. H., surgeon. To report at Washington, D. C., for conference. June 7, 1901.

WILLIAMS, L. L., surgeon. Granted leave of absence for three days from June 6, 1901. Granted two days extension of leave of absence. June 8, 1901.

PETTUS, W. J., surgeon. Granted leave of absence for three days from June 13, 1901. June 11, 1901.

NYDEGGER, J. A., passed assistant surgeon. Granted leave of absence for 30 days from June 8, 1901. June 8, 1901.

SPRAGUE, E. K., passed assistant surgeon. Granted leave of absence for thirty days from May 30, May 31, 1901.

WICKES, H. W., passed assistant surgeon. Granted leave of absence for four days from June 3, May 31, 1901.

DECKER, C. E., assistant surgeon. Granted leave of absence for ten days, on account of sickness. June 6, 1901.

KING, W. W., assistant surgeon. Granted leave of absence for four days. June 11, 1901.

BRADY, J. E., acting assistant surgeon. Granted leave of absence for one day from June 11, 1901.

ECROYD, HENRY, acting assistant surgeon. Granted leave of absence for ten days from June 8, June 6, 1901.

MASON, W. C., acting assistant surgeon. Granted leave of absence for six days from June 23, June 10, 1901.

SMYTH, F. K., acting assistant surgeon. Granted leave of absence for three days. By Bureau telegram of May 31, 1901, rechecked June 10, 1901.

STANTON, J. G., acting assistant surgeon. Granted leave of absence for fifteen days from June 3, June 6, 1901.

BOARD CONVENED.

Board convened to meet at Washington, D. C., on June 7, 1901, for the physical examination of an applicant for cadetship in the U. S. Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon H. D. Geddings, Chairman; Assistant Surgeon B. S. Warren, Recorder.

RECENT DEATH.

ARTHUR JAMES DEWEESER, M.D., M.M.S.S., died in Tewksbury, June 12, 1901, aged twenty-eight years.

BOOKS AND PAMPHLETS RECEIVED.

Twenty-first Annual Bulletin of the Denver College of Medicine, Medical Department of the University of Denver. Session 1901-1902.

Principes du Diagnostic Gynécologique par le Docteur G. Fraisse. Livre I. Petit Meun. Paris, 1901.

Transactions of the American Association of Obstetricians and Gynecologists. Vol. XIII. For the year 1900. Illustrated. Philadelphia: Wm. J. Dorman, 1901.

Surgical Experiences in South Africa, 1898-1900, being mainly a clinical study of the nature and effects of injuries produced by bullets of small calibre. By George Henry Makins, F.R.C.S. Illustrated. Philadelphia: P. Blakiston's Son & Co., 1901.

Société Française d'Otologie et de Laryngologie. Reprint. Illustrated. 1901.

Operative Surgery. By Joseph D. Bryant, M.D. Vol II. Illustrated. New York: D. Appleton & Co., 1901.

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E. W. TAYLOR, M.D., ASSISTANT EDITOR

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Address.

MEDICAL PROSPECTS.¹

BY GEORGE E. FRANCIS, M.D., WORCESTER.

MR. PRESIDENT AND FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY: AS our society gathers for its first meeting in the twentieth century, the thoughts of all of us are naturally turned into one channel. A year ago we were led to survey the wonderful achievements of the century just ending; today brings the far different task of attempting to foresee what the future has in store for the profession of medicine.

I have not been so presumptuous as to attempt to predict the *scientific* advances which medicine is about to make; my purpose today is simply to note some conditions and tendencies which are now to be observed in the *practical* side of medicine, and to forecast, if may be, some of the changes which they will bring about.

The most obvious, and perhaps the most important new factor in medical life, is, of course, Specialism. I speak of it as new, because many of us remember the time when practically it was not, and have almost witnessed its birth and its growth. It is doubtful if in the year 1861 there was a single member of our society who limited his practice to any specialty except that relating to the eye. In the Harvard Medical School of that date every professor was to some extent a general practitioner, the one exception to this statement being the illustrious professor of anatomy. If Oliver Wendell Holmes had ever actively engaged in medical life we may be sure he would have shunned and scorned any appearance of putting a fence about the range of his studies or his work. In one of his latest books,² he makes a good deal of fun over some of the abuses of specialism; but were Dr. Holmes with us today, he would be among the first to give hearty and grateful recognition to the magnificent additions to our science which the workers in special lines have lately given, and still give, and very certainly will continue to give.

We have been speaking of specialism as an innovation, forgetting that it is but a revival from very ancient times. Baas, in his "History of Medicine," tells us that in Egypt, "according to the account of Herodotus, there were physicians (who were all priests) for every part of the body. This specialism is *per se* an evidence of a civilization of high development, indeed of one tending toward its downfall, and in Egypt it attained a perfection which our own system, with all its completeness, has not yet reached. We know that the sick were visited and treated at their homes by the physicians. The latter must first, however, be sent for to the president of the temple, who selected and dispatched to the patient the specialist best suited to his case."

It seems to be true that specialism is absolutely essential to progress in every department of hu-

man thought and activity. As knowledge has broadened, it has become more and more impossible for a single brain to keep up in all, or in many, of the lines of advance, especially in science. Today we are leaving scientific progress out of the discussion, and are considering how the practical side of medicine is likely to be affected by such a new condition.

When specialism is applied to manufacture, it is termed "division of labor." It seems to be demonstrated that the best results at lowest cost are only to be had when each artisan and operative has become trained in a narrow specialty, so that he can do his own little range of work with the utmost rapidity and accuracy. The making of shoes is one of our great industries, and many of our people earn their living thereby. Each shoe is the final result of successive bits of labor by scores of specialists. There seems to be no doubt that this is the cheapest way to make good shoes. But among all the skilled workmen who combine to make the finished product, there is not one who is taught to make a whole shoe by his own labor. There seems to be no place for the cordwainer of former days.

Is there perchance a useful parable here?

All specialism, whether mental or manual, seems to narrow the range of one's powers. It is simple prudence, therefore, to study this possible danger threatening our profession, and to do what we can to counteract the injurious effects which are likely to attend the spread and sway of specialism. We cannot expect, even if any have the desire, to check this spread and sway; the new way is necessary; it is inevitable. By it alone can scientific progress be made. And yet it bears with it some dark and threatening shadows.

Imagine, if you please, a visit made about this time to his Alma Mater Medica, by R. Van Winkle, M.D., Harvard, 1861. Picture to yourself his amazement at the growth and development of the school he once knew so well. What, do you think, would be his predominant feeling? Not wonder at the growth; not admiration of the development; not envy of the superior advantages of every kind, though no doubt all these thoughts arise in turn; his final sentiment, if I mistake not, would be of pity for the unfortunate student of today, whose tasks have become so much more extensive and difficult.

The purpose of a good medical school is to fit each graduate thoroughly and completely for the successful practice of medicine; and to accomplish this result two distinct processes have to be carried on at the same time. Each pupil must be *educated*, in the strict sense of the word; that is to say, all his faculties of body and mind must be developed and trained, so that when he enters upon his life's work he can observe accurately, can compare things rightly, can reason and decide logically, and can dexterously carry out the details of treatment.

At the same time it is equally necessary that he be *informed*; that his memory be stored, crammed full, with facts of many kinds which

¹ The annual discourse read before the Massachusetts Medical Society, June 12, 1901.

² Over the Tea Cups.

it is essential that he should retain, ready for instant use, through his whole professional life. These medical facts are not self-evident things; they must be learned laboriously, and laid away in the storehouse of the memory with care and system. Every school of applied or practical science is forced to keep in view this double object, of educating the faculties and of storing the memory with selected facts for future use.

Now, all the changes and improvements which have been made in the medical schools — the laboratory work, teaching in small sections, individual clinical training, and the rest — all these conspire to bring about this result among others: That from the hour of his matriculation until he receives the coveted parchment, the student is scarcely ever free from the close personal influence of *specialists*. All the instruction he receives which is fresh to him, not to be found in the textbooks, is from specialists. Every case which is in any way striking or unusual, is sure to be referred to some specialist for diagnosis and treatment. In passing we may observe how strongly all this is likely to bias the youthful mind and to foster the early choice of a specialty as a career.

Medical training on these lines is admirable from many points of view. It provides a teaching staff not only thoroughly well-informed, but full of fresh enthusiasm and vitality. The pupil is inspired by the consciousness that he is in the very current of progress.

An oft-quoted maxim is to the effect that the ideal professional man should know all about one thing and something about a great many things. This is really a paraphrase of what has just been said, that the student in practical science must be educated and also informed. There is probably no better way of getting the education than by good advanced work in one, but only one, special line. We can appreciate how difficult are the problems which the heads of medical schools have to solve, in this matter of limiting judiciously the amount and variety of advanced special work done by undergraduates, and especially in properly guiding the choice of facts which are to be memorized.

There comes to mind a plaything of childish days, which we used to call the "dissected puzzle." A map or picture was pasted upon a thin piece of wood, which was then artfully cut up into a number of pieces of very irregular outline. We used to think it amusing to fit these parts together. In the medical schools we find the domain of medical knowledge divided up, more or less artificially, into many separate departments, which vary greatly in size and importance. The practical problem or task is to combine these parts into a complete, harmonious and useful whole.

The comparison is far from perfect, as we appreciate in a moment, and yet it may serve the present purpose. The various branches of medical instruction are not bounded by clean-cut lines of division; they overlap in many places; but this need not disturb the simile. The important dis-

tinctions are, that in the toy of our childhood the number of detached pieces was moderate, and each one by itself was not made attractive or interesting, except as it fitted its neighbors and helped make up a whole. In the medical school the divisions have already become a multitude, and each year witnesses further addition and subdivision. And all the while every endeavor is being made, by every instructor, to render each fragment so interesting in itself, that in the plenitude of attractive objects of study, few of the students are likely to keep in mind that the main object of the four years of hard work is not the microscopic study of some or all of the component parts, but that study of the separate departments is preliminary and subsidiary to the study of medicine as a whole, and man as a whole. Medicine, viewed as a science or as an art, is something far higher than a patchwork of its separate departments, precisely as man is far more than the joining together of a certain number of organs. To know the structure and the working of each detached organ and tissue of the body in health and disease is essential, but it is not the sum or the summit of medical knowledge. Nor is this a sufficient equipment for entering into practice. Nothing less is demanded than the further knowledge of the many obscure, complicated, and most important inter-relations between the component parts. With infinite regret we must recognize that to properly impart this sort of knowledge seems to become every year more nearly impossible, mainly, as I think, on account of the increasing numerical preponderance, in the teaching staff, of specialists over the men trained to view things broadly.

How is specialism likely to affect the established lines of medical life in the years which are before us? Many possibilities suggest themselves, of which the most startling is that the family doctor is doomed to practical extinction, soon to be sought for as a rarity in some remote or poverty-stricken region.

In large cities it is very obvious that the children in many wealthy families grow up with almost no experience of medical treatment save at the hands of specialists. It might be amusing to make a list of the various kinds of experts who have in turn looked after the health of a modern heir, combining to do the work which was not so badly done forty years ago by the one general practitioner, who succumbed a family in those days. This habit, or vice, of employing the services of specialists for even trifling and commonplace ailments, already somewhat established among the rich, is as usual filtering down the scale of income and getting some hold upon that large and fortunate portion of our people who possess neither poverty nor riches. Among them it seems likely to extend, until, as seems inevitable, it is found to be altogether too costly a luxury. Just what will happen then, is wrapped in impenetrable mystery.

It is needless to discuss the relations of the really poor, this class is now so largely treated at the free clinics and dispensaries, where specialism has its freest scope.

This serious question of the future of the general practitioner has been receiving a good deal of attention during the past year, and has been particularly well discussed in a recent paper by Professor Caillé.³ Himself an eminent specialist, though still somewhat engaged in general practice, he expresses without reserve his appreciation of the usefulness of the family doctor, and adds: "I firmly believe that the family practitioner is not doomed to become extinct, and that in due time the people will again elevate him to the position of trusted family counselor." This paper is very interesting, but the remedies which he suggests do not seem to me to reach the root of the disturbance. His article ends with these sentences: "In conclusion, I would venture to express the opinion that all medical men should start as general practitioners. If, for any reason whatsoever they find it advisable to practise a specialty, they will be more generously informed and better equipped in every way, by reason of years of general practice and experience. I predict that the successful general practitioner of the future will be a *diagnostician, sanitarian* and *minor surgeon*, and will develop into a valuable and conservative general consultant." As an ideal, this is sound and admirable; but I must declare my protest that under the conditions now visible, and those which we foresee to be probable, such a mode of evolution is quite impossible. For, in the first place, it appears to be clear that to the young people now in the medical schools general practice seems to offer no prizes, and that those who are possessed of the capacity, energy, ambition and persistence which will finally make them eminently useful, all these make early choice of a specialty as a career. And, secondly, if it be not true today, it will soon become a hard and obvious fact, that it is not possible to gradually shift from general practice into a specialty. A high wall already stands between the two fields, and a man must be on one side of it or the other; he can clear the boundary only by a leap. The family doctors who still survive are sufficiently aware of their own interests not to take the risk of allowing a paying patient to seek special treatment at the hands of any one who still takes general practice; the temptation to absorb that patient and his family is so strong that to resist it requires a keen sense of honor.

Is it at all remarkable that a specialty should now seem far more attractive to the young graduate than general practice? The inducements seem to be in every way superior; from the scientific as from the financial side the prospect is far more alluring, and it is an easy and safe prediction that for many years to come the cream of each graduating class will join the ranks of the specialists.

The general question must be followed a little farther. Assuming that the number of well-qualified general practitioners is to gradually diminish because the natural vacancies are not adequately filled by new recruits, what will follow? Is it

likely that the public, or the general medical profession, will be satisfied with the resulting situation? On the contrary, it seems clear to me that a well-defined and imperative demand would soon arise for what is to us almost a new kind of medical man.

According to our present ideas, all scientific medical men practically belong to one of the two great groups; they are in general practice, or they are specialists. Assuming that the number of general practitioners is gradually becoming smaller, and of less merit and distinction, and that before many years have passed the specialists will decidedly predominate, then it will become the custom for the public to go directly to some specialist for advice and treatment. This means that the specialist will be selected by the patient or by some non-medical friend. It needs very little experience of disease to appreciate that in multitudes of cases the laity will be unable to rightly decide which particular brand of specialism is required. Few of us have not felt perplexed on this point, in the presence of an obscure case, for we cannot satisfy ourselves as to the organ which is primarily or most at fault. In such a dilemma specialism does not meet the need, and we have been accustomed to ask counsel of men of the broadest possible knowledge and experience; first, we call upon some one of our neighbors, whose skill we know; in important cases, and as a final resort, we apply to men who have become noted as general consultants, who are often teachers of general or clinical medicine and visiting physicians in the wards of large hospitals. On reflection it will be found that these invaluable counselors have all had their training in the school of general practice; they have all been family doctors. If this training school falls into desuetude, then we must provide some other source of general consultants and clinicians. Patients must have them, if only to select specialists for them, as did the president of the temple in Egypt so long ago. Specialists will require them to guard against the errors inevitable to their own more narrow knowledge. Hospitals cannot do without them, if only to assign patients to the proper wards. Medical schools will need many of such men as professors and instructors, if the purpose holds of turning out really educated graduates. Medical science calls loudly for men of the broadest training, for it is only from such that we may hope to obtain the one most important improvement which our art now requires; namely, a great generalization. Let some further order be established in the vast mass of recorded facts, and both the study and the practice of our art would become far easier, more reasonable and more successful.

I hope to live long enough to see the establishment here of a higher medical degree, somewhat corresponding to that of M.D. in England, which shall be a guaranty of very high attainment in a broad range of study, and shall mark the general consultants and clinicians of the future. If it should follow, as in England, that the services

³ American Review of Reviews, April, 1901.

of such accomplished men and women shall be sought for ordinary attendance upon the families of those who wish the best attainable skill, and are willing to pay high fees therefor, what an upheaval shall we witness of some notions which prevail today! The family doctor will become a luxury which only the wealthy can afford!

The distinction drawn so strongly in England between the functions of a physician and a surgeon seems to us rather strange and perplexing; but in origin and theory the matter is simple and rather suggestive. The *surgeon* is nothing else than the *chirurgæon*; and he, as the derivation of the word implies, was one whose occupation was a handicraft, or of that nature. Everything involving manual dexterity, from drawing a tooth or opening a vein, to a major amputation, was looked upon as handwork, and therefore on a much lower plane than the purely mental labor performed by a physician. Since most treatment involving manipulation is for lesions which can be seen or felt, everything on or near the surface of the body or its open cavities came to be considered as in the province of the surgeon. Judged by the ancient standard, it appears that most of the present specialties belong in the lower grade.

Few of us can recall the gradual change in the relation of dentistry to medicine. No doubt some of our oldest members remember when the only dentists were regular physicians; but for at least fifty years there has been so distinct a line of demarcation that we rarely think of dentistry as being included in the domain of medicine.

A very notable tendency of the times is toward increased stress of competition in our ranks, as in most other walks of life. No doubt this is going to increase; and indeed there is temptation to predict that it is likely to become a serious calamity before another generation has passed away. All the professions were becoming overcrowded, from causes which are obvious enough, even before the recent great disturbance in social conditions brought about by the growth of trusts and consolidations. The effect of competition in lowering fees and lessening incomes has long been felt and lamented in older communities in Europe, and sooner or later we shall have to face the same unfortunate state of affairs. A little careful study of some of the advertising pages at the back of the *London Lancet* or *British Medical Journal*, will show how pitifully small have become the fees which middle-class English people expect to pay to thoroughly educated medical men. And in almost every number of the same journals may be found letters describing some new club scheme for obtaining skilled advice at even lower rates.

No doubt there will still be room at the top, in the twentieth as in the earlier centuries. The recognized leaders and experts will continue to receive large fees, and many of them; but the rank and file of the profession seem destined to receive on the average a much smaller annual income. I fail to see how any action of ours can prevent or hinder the working of the inexorable

laws of nature; demand and supply are sure to settle this question in the end.

One other change of condition must not be overlooked, for it is likely to have very important effects upon the health of coming generations. I refer to the great modifications in the habits and in the physical and nervous constitutions of our patients, which the fast-increasing predominance of city life is bringing about. There is no time for discussion of this topic, and I can only say that adaptation seems to be a far more leisurely process than the recent and present rapid changes in environment; and that it is reasonable to expect that variation from the types we have considered normal is likely to increase both in frequency and in extent.

In a book once owned by every physician is to be found the history of a very ancient medical case; older probably than any other to which we have access. It tells us that a certain Syrian captain, who was a leper, made the journey to Samaria because he had heard that a great healer was to be found there; that he was directed by Elisha to wash seven times in the river Jordan; that with some reluctance he followed the advice and was healed. After more than twenty-five hundred years this narrative still offers much food for our thought.

It was not a mere coincidence that the healer was also a prophet; priests and prophets were the only healers at that time and place. All disease was then deemed to be owing to the anger of Deity, and to be cured only by supernatural means, through the mediation of the special servants of Deity or of the Temple. We read that "Naaman was wroth and went away and said, Behold, I thought, he will surely come out to me, and stand, and call upon the name of the Lord his God, and strike his hand over the place, and recover the leper." "And his servants came near, and spake unto him, and said, My father, if the prophet had bid thee do some great thing, wouldest thou not have done it? how much rather, then, when he saith to thee, Wash and be clean."

The evolution of the race has not yet lifted mankind out of the thought that recovery from disease is brought about by something more mysterious than the forces of nature. We find relics of this old belief everywhere; culture and education seem to affect it little; certainly they never quite wipe it out. The popular acceptance and approval of every wild new scheme for healing is usually in inverse proportion to the amount of common sense and truth on which the novelty is based.

"These little systems have their day,
They have their day, and cease to be,"

but the procession of them never pauses and never ceases. If ever medicine is accepted by the public as an exact science, with methods and results dependent only on natural laws, of course this relic of ancient superstition will cease to exist; but with it will vanish a trait of humanity which has been, and today is, far more powerful for good

than some of us are accustomed to think. I refer to the patient's personal faith in his doctor.

Of course, when any one of us considers his own relation to his patients, it is obvious enough that their confidence is solidly founded on merit; but if we take a broader view, embracing all the practitioners about us, I think we should agree that, in the case of many of them, there is no such basis of merit. And yet almost every one of these medical men and women, of every school and of no school,—of every degree of education and experience,—is possessed of clients who firmly believe that he is specially able to cure or relieve their ailments. Viewed in this general way, we must call this faith unreasoning, if not unreasonable; and yet upon it is founded one of our most effectual agents for good.

Every physician, without exception, helps his patients by the expectation of relief which his very presence brings; and most of us go further, and consciously or unconsciously use the very helpful power of direct suggestion, of a partially hypnotic character. It is curious to note that this faculty and habit of suggestion is the only feature which is common to all who attempt to heal the sick. When the last veil of mystery shall have been torn from our art by the advance of science, I fear that little will be left of our special power of suggestion, and that humanity will be much the poorer thereby.

We observe that the Syrian's leprosy was cured without the use of any drug. We may not all agree as to whether there is any visible tendency toward the disuse of medication; and certainly it would appear that the number of drugs in use or recommended for use, was never so great as now. On the other hand, we have learned that the virtues of much of the old *materia medica* were purely imaginary; while as to the value of the new synthetic compounds so pertinaciously thrust upon us, there appears to be widespread doubt. They are formidable weapons, indeed, but many of them have more than one cutting edge.

The growth of another doubt, of a more radical sort, is also to be noted—as to whether chronic organic disease is ever cured by drugs, if by cure we mean restoration to the normal state. Some form of compensation seems to be the extent of the benefit which is to be hoped in such conditions. This, at least, can be confidently affirmed: That in the chronic diseases which figure most largely in the bills of mortality, the use of drugs is decidedly on the wane.

If we are asked to name the specific whose power is most generally granted and least questioned, we should probably at once point to the control which quinine exercises against malaria; yet it seems exceedingly likely that the next century will see less and less use of this great remedy, simply because there will be less need of it—malaria is going to be prevented. Prevention is a watchword of great promise in the years which are before us; but the promise is to the community in general, and not to those whose incomes depend on the abundance of disease. Our pro-

fession prides itself on its constant and eager search for methods of preventing and diminishing disease, and we gain some public credit for our aims and achievements in that direction; but few seem to appreciate the full extent of our unselfishness, and that complete success means professional suicide. This sad result is not yet in sight, even of the prophetic eye we are using today.

Returning to the text from which we have wandered so far, we are struck by the statement that it was the little maid waiting on Naaman's wife who called attention to the skill or power of the healer. This little detail has a very modern and familiar sound.

We further read that the grateful Syrian attempted to reward his benefactor with gifts of value, but that the offer was refused. There is nothing modern about this statement. Even that new sect which boasts of its reversion to ancient modes of healing does not carry its reverence for antiquity to such an extreme; it demands the regular fees. Yet to find a modern analogue to the refusal of Elisha, we need only view some of our public and semipublic establishments for medical and surgical treatment. This very day, in almost any city in this State, any person, rich or poor, who is coming down with a fever, or needs a surgical operation, will be received into a city hospital, where he will get first-rate care and treatment. At his departure he will be asked to pay a proper price for his room, board and nursing, but for the professional services not a cent will be charged. What lesson is this likely to teach him and his friends, if not that the municipal supply of medical skill is an excellent and most economical idea, which might be carried further to great advantage.

This practice seems to me altogether wrong, not simply because it diverts much money from the pockets of doctors who deserve and need it, but because it so forcibly teaches a lesson in applied socialism which is very dangerous to the financial future of our guild.

Our text might easily guide us into many other lines of thought, but I mercifully refrain from further turning of the hour-glass, and will simply ask you to observe that this old story of the healing of the leper has long been known to the whole civilized world. Once, and not so long ago, this was a distinction almost unique; today every important medical case or discovery is promptly carried to the remotest regions of our globe. On this opening year of the twentieth century let us not withhold the tribute of gratitude and admiration due to the medical press, and particularly to medical journalism. Not all of these journals are admirable, and not all are truly scientific; perhaps in some might be suspected a slight bias from commercialism; but as a whole they are doing wonderfully good and useful work, and are to be ranked among the great improvements of modern times. Not all of us are called upon to write papers for them, but every one of us should look upon it as a duty, as well as a privilege, to subscribe to at least one good medical journal.

After all our searching and discussing, the summing up shows but a brief list of plausible predictions. That specialism will increase, and competition become more fierce, we may feel as confident as of any future event. That medical treatment will become more scientific in its basis and methods; that disease will be more effectively prevented; that hygiene agents will largely supplant drugs—all these seem to be among the strong probabilities. Very probably the family doctor is about to be eclipsed for a time; perhaps to reappear later in a more glorified aspect.

The darkest cloud which rests upon our future seems to arise from the combined forces of greatly increased competition and the growth of socialistic and co-operative ideas.

We must not forget that the past is the only test by which we judge the future. In his great vision, Dante observed that all the prophets had their heads turned backward. The most accurate inferences we can draw from experience are liable, indeed are almost certain, to be deranged by the entrance of new and unexpected factors. Let us therefore face the future with the hope and confidence which befit men who believe that creation is not without a plan, and that the grand trend of evolution is toward better things.

"New times demand new measures and new men;

The world advances, and in time outgrows

The laws that in our fathers' days were best."

Original Article.

A CITY ISOLATION HOSPITAL.¹

BY MAY SALONA HOLMES, M.D., WORCESTER,
Superintendent and Resident Physician.

It is unfortunate that certain infectious diseases are the unwelcome but ever-present guests of all organized communities today. Therefore it has become the duty of the boards of health of these communities to provide for their isolation. If there could be thorough co-operation of the citizens with the boards of health to this end, no doubt these diseases could be wiped out of existence in a comparatively short time. It is needless to say, however, that we cannot hope for this happy result until the millennium comes; for it is inevitable that many mild and atypical cases will not be recognized, that many will be wilfully concealed, and that, owing to the popular prejudice to hospitals of this kind, commonly called pesthouses, many more will refuse the isolation provided.

There has been in recent years considerable progress made by the municipal control of infectious diseases, which must inevitably have had its effect upon their spread. Owing to this recognition of the constant menace to life from disease in its cities, the Massachusetts Legislature in June, 1891, passed the following act:

SECTION 1. In any city in which no suitable hospital accommodations have been provided for the care and

treatment of persons suffering from contagious diseases dangerous to the public health, the Board of Health of such city may address a communication to the Mayor thereof, stating that, in the opinion of said Board, the safety of the inhabitants of the city demands that suitable hospital accommodations should be provided for the reception and treatment of persons suffering from such diseases, other than smallpox and those of a venereal nature. The Mayor shall, forthwith, transmit such communication to the City Council, and the City Council shall forthwith order such hospital accommodations to be provided, and shall make the necessary appropriations therefor.

SEC. 2. Every city in which hospital accommodations have been provided, in accordance with the provisions of this act, shall make an annual appropriation for the maintenance of such hospital accommodations, and said appropriation shall be expended under the direction of the Board of Health, unless otherwise ordered by the City Government.

In accordance with this act the Board of Health of Worcester sent to the mayor of this city, in January, 1895, a request that early provision be made for such a hospital. An appropriation of \$30,000 was accordingly set aside, the plans submitted and the erection of the hospital begun that same year. The site obtained for the hospital was a most fortunate one. Few cities are able to furnish a location so admirable in such a variety of ways. The distance from the center of the city is not great, and yet it is practically in the country, with an apple orchard in front and woods in the rear. There is plenty of land to cultivate for garden supplies. The patients have play-ground space a sufficiently safe distance from neighbors. The buildings are on the slope of a hill, of good elevation, with a southern exposure. Sunlight and the circulation of fresh air are unobstructed.

The plans of the buildings were made by Fuller, Delano and Frost of this city. There are four separate buildings arranged in a hollow square. The appropriation did not permit of making preparation for but two diseases. Scarlet fever and diphtheria were, therefore, selected as the two most common and most malignant of the infectious diseases, and, hence, the greatest menace to the welfare of the city. There has been really great demand made upon us to isolate measles also, but the City Government has not been able as yet to add to our appropriation a sufficient amount for that purpose.

The hospital, as at first erected, consists of an administration building; forty feet to each side of this, and somewhat to the rear, are the ward buildings, the one on the east for diphtheria and the one on the west for scarlet fever. These three buildings are connected by both over and under-ground corridors. In the rear is a separate building in which are the ward laundry, the sterilizing plant, a morgue and chapel. The wards are exactly alike in plan. Each provides two rooms which can accommodate from 12 to 16 patients, three private rooms and a nurses' serving kitchen. There are closets and bath rooms at the extreme ends of each ward building, separated from them by cross corridors for ventilation. With six beds in each ward, 80 cubic

¹ Read before the Massachusetts Association of Boards of Health.

feet of fresh air per patient per minute is provided.

The heating is by indirect radiation. In addition there are windows on opposite sides of the wards for cross ventilation, and there are fire-places. Fifteen patients can thus be comfortably cared for in each building. A few more, even, may be easily added, provided they will accommodate us in their division as to age, sex and degree of sickness. For the past year the average number daily in the hospital has been 25, to be divided between the two diseases. Our largest number at any one time was 45, 31 of whom had to be stowed away in the scarlet fever building. That was not comfortable, however. The basements are cemented throughout. Robing rooms are provided in them where nurses change their outer clothing on entering and leaving the wards, and where the attending physicians and necessary visitors don robes and caps.

The work of the hospital increased so rapidly that the administration building has already had to be remodeled and enlarged to provide for more nurses and for their better accommodation. More cold-storage room and a larger heating plant were also added.

We have also bought an adjoining cottage with additional land, at a cost of \$3,500. The cottage enables us to provide for our janitor's family and to separate the nurses in the scarlet fever wards from those in the diphtheria. We had never been able in any way to suspect any mixing of infection by the intermingling of our nurses; but as the hospital grew the danger increased, and we were much pleased when we were enabled to separate them. We have not yet been able to trace a case of infection to any of the employees.

Although the buildings are so thoroughly separate in their entire equipment, the patients themselves are not always accommodating, but will persist occasionally in having more than one infectious disease at the same time. To place such patients where they will do no harm to others, taxes our equipment exceedingly, especially in the winter months when we are crowded. We do feel a very urgent need for a separate building for mixed infections and hope that its realization is not far distant. Otherwise the plan of the hospital has proved to be very practical, and in the main satisfactory. This separate cottage plan is one we would always heartily recommend.

The entire cost of the hospital plant, including seven acres of land and the additions, has been \$50,000. The average net cost per year for maintenance has been \$6,849.

As the work of the hospital has increased, the administrative force has grown in proportion, until now it consists of a superintendent and resident physician, a housekeeper and a superintendent of nurses. There is an attending staff of four physicians and a pathologist.

The entire question of obtaining nurses has throughout been a serious one. We hope, however, that our latest plan, even though a bold one, of instituting our own training school, will solve

the problem. At first we depended upon the City Hospital, and a course in contagious diseases was made a part of the curriculum of their school. It became impossible for them, as time went on, to furnish a sufficient number, and we were obliged to hire nurses from other sources. The supply available was limited, however, and we were frequently at a loss to obtain enough who were sufficiently capable to carry on the work satisfactorily. We were, therefore, driven to the last resource of training our own nurses, and have so far been encouraged in our undertaking by the results. We expect to supplement the course in our own hospital by work elsewhere in surgery and obstetrics before awarding any diploma.

We are also able to continue the training of the City Hospital nurses and to admit a limited number of post-graduates from out of town hospitals for a four months' course. The number of these applicants is steadily increasing as the hospital becomes better known. The fear of contracting the diseases has had its influence more or less upon the peace of mind of the nurses. A certain proportion, perhaps half, have been immunized with diphtheria antitoxin. No one of these contracted the disease under six weeks time. The rashes have been rather disagreeable in some cases, and we have, therefore, ceased to urge the immunization. Should a nurse contract the disease we have no fear of being unable to control it with the help of antitoxin.

Since the opening of the hospital, 97 different nurses have been employed. Of this number 4 contracted diphtheria, 4 scarlet fever and 1 whooping cough. This makes the percentage for each of the two diseases 4.12% of the number employed, and for all diseases 9.2%. No other employees in any capacity have contracted disease with the exception of the superintendent, who had each in turn, and one member of the staff who contracted diphtheria. Even ward maids and laundry girls have so far been exempt.

Owing to the limited capacity of the hospital, the administration has been obliged to make rather rigid rules for the admission of patients, especially on the diphtheria side. No case of diphtheria is admitted until the bacteriological report supports the diagnosis, except in laryngeal cases. This rule has not always been approved by the profession, but we have felt that, taking into consideration our limited capacity, it was best for all concerned to adhere to it.

With the help of antitoxin there are few cases which cannot wait the few hours necessary for the report, which at most is only twenty-four, and in cases of special urgency can be reduced to six. The swab even, may be examined at once under certain conditions. The repeated admission of patients suffering from tonsillitis of nondiphtheritic origin can be thus avoided. We have no place to separate them from the diphtheria patients, and even though antitoxin renders them immune they have to submit to the sterilization of their clothing, and to the other disagreeable features necessarily attending isolation.

Antitoxin has been most generously supplied by the State Board of Health and is kept constantly on hand for distribution by the local board. The hospital has also had the benefit of this generosity on the part of the State board, and we wish to publicly express our gratitude to them for it. We feel sure that by its unstinted use we have not only saved lives, but have been able to swell the statistical records in its behalf.

Diphtheria patients are not discharged until two consecutive negative cultures have been obtained. We do not possess the same degree of scientific knowledge about the infectious period of scarlet fever, but no patient is discharged until the skin is absolutely smooth. No visitors are admitted to see the patients except when there are indications of a fatal termination of the disease. Then only the adult members of the immediate family are admitted, together with the spiritual advisor and such others as are absolutely necessary. Professional courtesy is always shown physicians.

As to our sterilizing plant, the steam sterilizer which was made for us by the Stewart Boiler Works has been very satisfactory. It consists of a jacketed cylinder large enough to admit mattresses. A brick partition crosses it in the middle, so that the infected material can be put in at one end and taken out of the other. By never opening both ends at the same time there is no communication between the infected and clean rooms. All materials that can be disinfected by the ordinary boiling in the laundry are done in that way. Blankets, mattresses and, until recently, the patients' clothing, were disinfected by the steam. We now use Formaldehyde when practicable. Steam under pressure necessarily affects the materials submitted to it to a certain extent. Cloth will shrink, stains will be set, and the peculiar odor of heated wool will be left. Our sterilizer is a good one, however, and we think these disadvantages are reduced to a minimum.

The hospital opened to admit patients Nov. 25, 1896, and from that date until the end of the year 11 patients were admitted. Seven of them had diphtheria, 2 had scarlet fever, and 2 did not have either disease. In spite of our vigilance patients occasionally get in who do not have either diphtheria or scarlet fever. Eruptions are often thought to be those of scarlet fever, which later prove to be due to some other cause; and sometimes patients are unceremoniously dropped at our door who do not belong there.

In 1897 there were 92 patients. That was our first complete year. In 1898 there were 99 patients; in 1899, 203; and in 1900, 338.

During the first year, 1897, there were 70 cases of diphtheria treated, which was 29.8% of the cases reported in the city. The next year 23.9% came in. In 1899, 29.7% entered and in 1900, 38.3%. Of scarlet fever cases, the first year we received 7% of the cases, in 1898, 9.7%; in 1899, 17.7%; and in 1900, 27.2%.

You will observe from these figures that not only have the actual numbers treated at the hos-

pital increased year by year, but the proportion of cases has increased also. In this city, as well as elsewhere, the mortality rate for diphtheria has been decreasing in recent years. This is due principally to the routine bacteriological examination of all sore throats, to the increasing popularity of antitoxin among physicians in private practice, and to the hospital.

There were 6 deaths from diphtheria the first year in the hospital, making the mortality rate 8.57, while the death-rate for the city that year was 17.62. Excluding the cases treated at the hospital, the rate was 20.24. Therefore the hospital lowered the city's mortality by 2.62. In the same way we find that the city's rate was lowered in 1898 by .85, in 1899 by 1.17 and in 1900 by .77; and that, too, in spite of the fact that most of the septic cases came to the hospital, as well as a large proportion of those requiring operation.

Since the opening there have been 479 cases of diphtheria treated, with 38 deaths, giving a mortality rate for the whole time of 7.93. The same good results were obtained also on the scarlet fever side. During the first two years there were no deaths from scarlet fever in the hospital. I would say here that the Board of Health has never yet compelled a case to enter the hospital. The hospital treatment is rather offered to them as a privilege, and their acceptance has been purely voluntary as far as the board has been concerned. Limited capacity has been one cause for this stand. Also, it was thought that the hospital would gain more patients in the end, would obtain the public confidence by its good reputation, and that the idea of it being a pesthouse, where all sorts of horrible, loathsome diseases are supposed to be huddled together, would gradually disappear. You can infer from the figures how successful this has been. The benefits derived from such a hospital are far greater, however, than are shown by simple mortality statistics. In fact, perhaps the most important ones are negative in visible results. By the complete isolation afforded these cases of infectious diseases, there is no question but that epidemics have been averted.

There are in Worcester, besides the public schools, many private institutions where large numbers of young adults are brought into close contact. There have been, in the past four years, repeated outbreaks of infectious diseases in these places. These have occurred especially in the private schools. Scarcely one has escaped, but by the immediate removal to the hospital of the cases as they appeared, the spreading of the disease was prevented. Not one of the institutions had to be closed. The appearance of these outbreaks in schools is acknowledged to be inevitable; but the facility offered by the city for the control of the same is sure to be appreciated by the patrons of these schools.

Therefore their reputation is enhanced, and indirectly that of the city also. Then, too, there are adults constantly being admitted from the boarding-houses and hotels, from factories and stores. Servants in private families are not

exempt. By these the privileges of the hospital are even still more appreciated.

Another important step gained by such a hospital is the advance which can be made by the properly directed study of these diseases in a suitable environment. The actual value of any particular method of treatment can be better determined in a hospital where the patients are constantly watched by trained observers, and where the officious interference of well-meaning friends and the other ill effects of home environment can be eliminated. Physicians, therefore, look to the hospitals for practical results of scientific research and discovery. The widespread use of antitoxin today is a striking example, and this hospital has done its share towards proving its life-saving powers.

Such, then, is the Isolation Hospital, its administration and the results, as we are able to judge of them at the end of four years.

We feel that the city government has the right to consider its money well appropriated, and that we can heartily encourage other cities, which have not already established such a hospital, to follow our example.

Clinical Department.

REPORT OF A CASE OF PORRO-CÆSAREAN SECTION FOR PLACENTA PREVIA CENTRALIS.¹

BY W. J. GILLETTE, M.D., TOLEDO, OHIO,

Professor of Abdominal Surgery and Gynecology, Toledo Medical College, Surgeon to Robinwood Hospital.

A REPORT of the following case of Porro-Cæsarean section for placenta previa centralis I think of sufficient interest to present to this society by reason of the bearing it may have upon the question whether or not Cæsarean section constitutes a justifiable new departure in its treatment.

Mrs. K., aged forty, American; father dead of Bright's disease; mother, one brother and one sister dead of tuberculosis; married twice; by first husband had four children; last marriage eight years ago, and this the first pregnancy as a result. Her labors had always been normal and very easy. During the first three months of present pregnancy suffered pain, and much of the time was not able to be about. During the first two months had occasionally discharges of blood, for which she could not account. Did not consider herself pregnant. After this there was no more bleeding till the fifth month, when it again appeared, accompanied by pain. This bleeding was not very profuse, and her physician, Dr. Lamona Shuey, was able to control it by rest in bed, and the administration of such remedies as are usual for hemorrhage. From this time on the patient could not be about, not only by reason of the hemorrhage, but the pain, which was unbearable when she stood on her feet. The first hemorrhage that created alarm occurred a week before Christmas, but was controlled as before.

Two weeks after another occurred, and so severe that Dr. W. W. Grube of this city was called in consultation. The nature of the trouble was recognized, and the induction of labor discussed; but it was finally decided to wait. On the Wednesday preceding the last hemorrhage, which proved so nearly fatal, another occurred, but was controlled as the others had been, and interference again not thought best. Following this were repeated small hemorrhages, but nothing that created great alarm until the evening of Jan. 26, when I was hurriedly called at about 9 in the evening to assist Drs. Shuey and Grube. The patient was said to be bleeding furiously and in great danger. I went at once and found the doctors much alarmed over her condition. When I reached them the bleeding had, however, for the time stopped. Tampons had been used to control it, but in spite of them the bed was soaked with blood, and the patient blanched white as marble from its loss. Her pulse was weak and from 130 to 140. The room had as much the appearance of a slaughterhouse as anything else. Curiously enough, at the meeting just prior, of our Lucas County Medical Society, the matter of the treatment of placenta previa was discussed, and I had mentioned then that Cæsarean section in my opinion was a justifiable procedure in some of these cases. To this Dr. Grube, among others, took violent exception, and was probably as pronounced as any one present in his condemnation of the operation; designating it as "a very unnecessary mutilation"; but now he was in the presence of "a condition and not a theory," two lives were depending on him for their safety, and he felt keenly (conscientious man that he is) his responsibility. He could not attack by any of the old methods with any prospect of success, for the os was dilated but little larger than a ten-cent piece, and every attempt at forcible dilatation was accompanied by hemorrhage, and tampons could not be packed tight enough, even with all the doctor's skill, to prevent blood escaping.

To the question from both physicians, "What shall we do?" I, with a good deal of hesitancy, having in mind Dr. Grube's very recent opposition to this operation, suggested Cæsarean section as an only hope; for in the condition of the patient, without any doubt, another hemorrhage would prove fatal. She could not lose more blood and live; and to dilate forcibly that cervix, bore through the placenta, turn the child and deliver, would be impossible without further great loss of blood, and I for one had not the heart to attempt it. To my surprise, a ready assent was given to my proposal, not only by the friends and Dr. Shuey, but by Dr. Grube as well. An ambulance was at once called, the patient hurriedly wrapped up, placed in it and taken to Robinwood Hospital, only a few blocks distant.

At 12.30 A.M., after a hasty preparation, in the presence of a number of invited physicians, I operated. Fortunately, in the meantime no further hemorrhage had taken place. When the patient was brought to the table the pulse was very

¹ Read before the Ohio State Medical Society at its meeting in Cincinnati, May 8, 9 and 10, 1901.

rapid—about 130. No examination of the fetal heart was made. Dr. Grube gave the anesthetic, ether,—and Dr. H. L. Green assisted me. The abdomen was hastily opened, after having been prepared by shaving, washing with green soap, then a solution of permanganate of potassium, followed by a solution of oxalic acid, and, finally, with mercury bichloride, $\frac{1}{10,000}$, and then alcohol. Similar solutions were used for the hands. No vaginal douche was given, and the tampons not disturbed for fear of exciting further bleeding. An incision was made in the median line, a rubber cord slipped quickly over the fundus of the uterus, around the cervix, and firmly tied; and now the patient was absolutely safe from hemorrhage. The abdominal incision was enlarged sufficiently to permit the uterus to be brought outside the abdominal cavity, and an incision made into it across the top from horn to horn, in hopes of thus retaining as much blood for the patient as possible, if perchance the uterus could be saved. The child, a seven and a half pound male, evidently near full term, was rapidly delivered, apparently anesthetized. It was placed in the hands of Dr. Becker, to whose skill in resuscitating it I have no doubt we owe its life. The cord was clamped at once and cut. Attempts were now made to induce the uterus to contract and free the placenta. Though it seemed to make feeble attempts to do so, yet they were feeble indeed. After waiting as long as was deemed wise, with reluctance I peeled the placenta from its attachments. It could not by any possibility have been more centrally placed over the cervix. Suspecting that the constriction of the neck might have some influence in preventing the desired contractions, after a few moments I loosened the rubber cord, but was compelled to tighten it at once; for as soon as loosened blood would well up from about the cervix in such quantities that, in the condition of the patient, it would no doubt soon have proved fatal.

Becoming convinced that the uterus could not, or would not contract firmly—and I understand it often will not when there has been great loss of blood—I amputated it above the rubber cord, passed two old-fashioned hysterectomy pins through the stump, washed out the abdominal cavity with normal salt solution, stitched the peritoneum with catgut about the stump, and closed the abdomen with buried catgut and interrupted silk-worm gut sutures. The time of operation was about thirty minutes; ten minutes was wasted in vain attempts at saving the uterus. I did not do the more modern hysterectomy, dropping the stump after separately ligating the arteries, for I did not feel that the interests of my patient warranted me in taking the extra time necessary.

The patient was placed in bed with a pulse that had suffered nothing from the operation, and it soon began to mend. No salt solution was injected subcutaneously, but an enema of one quart was administered soon after she was placed in bed, which was repeated again in an hour.

No stimulants were given at any time except $\frac{3}{4}$ gr. of strychnia sulphate just before the anesthetic was started.

The patient went straight on to recovery, the stump and rubber cord came away at the end of two weeks, and the opening left by them in the abdominal wall rapidly and firmly healed. She returned home at the end of four weeks; the only evidence of the fearful ordeal through which she had passed was her extreme pallor from loss of blood and anemic headaches, intense in character. She had no milk to nurse the child, but though artificially fed he has grown well, and is now, after about four months, a big healthy lusty baby.

The only other Porro done for placenta previa to my knowledge was by Lawson Tait, Dec. 21, 1898, and reported by him in the *Lancet* for Feb. 11, 1899.

FORCED FLEXION AND ADDUCTION IN CASES OF EXTREME SENSITIVENESS OF THE HIP-JOINT.¹

BY E. H. BEADFORD, M.D., BOSTON.

In a girl of seven years of age, at the Boston Children's Hospital, of acute hip disease with persistent night cries, which lasted without check for several months, various methods had been tried; namely, incision of the joint, traction as high as fifteen pounds (with additional lateral traction), fixation with plaster spica and the usual bed treatment. All these methods of treatment failed to fix the hip-joint absolutely, and failed also to counteract completely the resulting spasm of the muscles about the hip-joint. The injurious jamming of the head of the femur against the acetabulum, the cause of night cries, is not prevented, though it may be sufficiently checked to answer for successful treatment in all but exceptional cases. If the muscles connected with the spasm causing night cries could be put out of action by the position of the limb, and the limb fixed in this position, would not the night cries stop?

The child was etherized and a plaster-of-Paris bandage applied to the limb, forcibly flexed and slightly adducted, with a complete cessation of night cries. A month later the limb was again fixed in a straight position with traction, and a recurrence of the night cries took place. These were again checked by fixation in a position of forced flexion and adduction without traction.

In a second case, a child of three, with thirteen night cries each night, the effect of fixation in a flexed and adducted position of the thigh was equally marked.

The procedure seems applicable to such cases of an extreme type in which other measures fail. In how many instances it will be advisable is yet to be determined, but they are probably few. The measure is, of course, a temporary one, and is only successful when applied with care. The child is secured upon a bed-frame lying on the back, to prevent rolling, and the flexed and adducted thigh and leg, secured in a plaster spica, is slung

¹ Read by title before the American Orthopedic Association, 1901.

so that the weight may not be an inconvenience.

The measures mentioned have the merit of following the indications to be found in the pathological conditions of hip disease in Nature's attempt to protect and relieve the joint.

Medical Progress.

REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D., AND JOHN LOVETT MORSE, M.D.,
BOSTON.

MOVABLE KIDNEYS AND PALPATION OF THE KIDNEYS IN INFANCY.

WILHELM KNOEFFELMACHER¹ speaks of the difficulty of palpating the kidneys in infancy, as the irritation of palpation often causes strong contraction of the abdominal walls. In artificially-fed children the length and distension of the intestines also often make it difficult to reach the retroperitoneal organs. For these reasons some other method for palpation of the kidneys is necessary. He finds that in young infants, and sometimes in older infants, the kidneys are palpable by the rectum. He puts one hand on the lumbar region and introduces the forefinger of the other hand into the rectum. According to the age and size of the child, and according to the course of the sigmoid flexure, either one or both kidneys may be palpated. As a rule, the right kidney is felt more easily than the left. This is due to the fact that the right kidney is situated somewhat lower than the left. By this method the lower third, and often the lower half of the kidney may be felt. The method is simple. Palpation is best performed with the child on its back, but sometimes the side is better. He found that the kidneys in infants were always movable, and that they also moved with respiration.

He found two cases of floating kidney in infancy. One was in a child of nine months, the other in one of four months. In the first case, he thinks the motility was acquired, as the spleen and liver were also low. In the second case, he thinks that there was congenital dislocation of the kidney, and hence that it was movable.

MYOTONIA IN INFANTS AND ITS RELATION TO TETANY.

Hochsinger² claims in early infancy there is a slight rigidity of the flexors of the extremities and a tendency to assume a position of slight flexion in the fingers and toes, even in perfect health. But little psychical excitement is sufficient to produce a tonic spasm, which doubles the hand into a fist and strongly flexes the toes. Prolonged pressure on the brachial plexus produces, according to the degree of muscular irritability, either partial or complete flexion of the fingers, and this "fist phenomenon" may be produced in all forms

of pathological myotonia. The ease with which the fist phenomenon may be produced during the first few weeks of life is explained by the absence of inhibitory impulses arising in the cortex of the brain, which restrain reflex action of the cord, and by the tonic spasm peculiar to infancy.

In the lightest forms of myotonia there appears, in addition to this phenomenon, an increase of the physiological hypertonia of the flexors, even without any exciting cause. During the first few weeks of life a little digestive disturbance may cause this mild degree, but it is rarely found after the second month.

In the first form of myotonia in infants are found intermittent tonic contractions of the muscles of the extremities. The position of the hand peculiar to tetany is also found frequently in this variety, but, according to Hochsinger, these spasms must be distinguished from those of tetany. They differ from the latter in showing no hyperexcitability of the muscles and nerves, either on mechanical or galvanic stimulation. They are painless, while the contractions in tetany are usually painful. Tetany affects children between the fourth and twentieth months of life; this form is found almost exclusively during the first three months. Myotonia affects children suffering from some other grave disturbance. These disturbances are most commonly gastro-intestinal diseases and congenital syphilis. Hochsinger considers these spasms an exaggeration of the physiological hypertonia of the muscles of newborn infants, which is present during the first three months of life.

The second form, or persistent spastic myotonia, is characterized by persistent symmetrical spasms of the flexors of the hands and feet, and stiffness of the flexors and adductors of the extremities. These persistent spasms may continue for six months without noticeable change. This second form is especially frequent during the first weeks of life, and relatively infrequent after the third month.

In a third form the myotonia extends to the muscles of the trunk and neck, and even to those of the face, producing a condition resembling tetanus. It is distinguished from true tetanus by the absence of increased excitability of the muscles and nerves.

Marehi and Nissl have demonstrated by their staining methods, changes in the anterior nerve roots and cells of the anterior horns of the grey matter of the spinal cord, in specimens obtained from children dead of septic or intestinal diseases. These changes, Hochsinger believes, form the anatomical basis of the conditions of myotonia described by him, and although they affect only the nutrition of the parts, they are probably sufficient, in connection with the absence of inhibitory impulses, to produce the muscular contractions.

THE LEUCOCYTES IN THE DISEASES OF THE GASTRO-ENTERIC TRACT IN INFANCY.

Japha³ made many counts of the white corpuscles in 22 normal children under ten months of

¹ Jahrb. f. Kinderheilk, 1901, p. 298.

² Wien. med. Woch., 1900, Nos. 7-12.

³ Jahrb. f. Kinderheilk, 1901, p. 179.

age. He found that the average number of leucocytes in infancy was 13,500. He also found a very considerable variation in the number of leucocytes in individual children, even if they were of the same age and weight. The mononuclear cells predominated, the average number of polynuclear cells being only 42%.

He also studied the white corpuscles in 6 dyspeptic children, 3 cases of infantile atrophy, 3 of gastro-enteritis, 12 of follicular enteritis, and 7 of cholera infantum. In the first 3 groups there were no special changes in the proportions of the various sorts of white corpuscles. Only in 1 case of infantile atrophy was the number of lymphocytes higher than normal. This could not be regarded as characteristic, however, because at a later examination it was not present, and larger percentages of lymphocytes were found in healthy children. In cases in which the intestinal lesions were more severe there appeared, with an absolute increase in the total number of white cells, a small relative increase in the proportion of the polynuclear cells. This was not very pronounced, and the number of cases in which it occurred was small. The chronic and milder cases of follicular enteritis showed no alterations in the proportions of the leucocytes.

The blood picture in those cases which ran their course, with the picture either of acute infection or of severe intoxication, was quite different. Under whatever conditions these toxic symptoms developed, there was often a very marked increase of the polynuclear cells. This could not be accounted for by a simple concentration of the blood as the result of loss of water.

He arrived at the following conclusions:

(1) The lymphocytosis described by some authors in the diseases of the intestine in infancy does not exist. In no form of intestinal disease does the average number of lymphocytes surpass that present in normal infants. Moreover, in normal infants there are many more lymphocytes than in adults.

(2) The differentiation of the different forms of intestinal diseases in infancy from each other is not aided by counting the proportions of the leucocytes. No intestinal disease has a specific leucocyte count.

(3) Under certain circumstances a polynuclear leucocytosis is observed in the diseases of the intestine in infancy. This is evidence of poisoning by the products of decomposition or by the toxins of pathogenic bacteria. It is the sign of severe infection, but cannot be considered as of unfavorable prognostic import.

INFANTILE ATROPHY.

Heubner⁴ details and criticises the results of previous observers as regards the pathology of the intestines in infantile atrophy.

At Heubner's suggestion Finkelstein performed some experiments in his clinic. He distended the intestine of a healthy child, and produced thereby changes almost identical with those described by

other writers as typical of infantile atrophy. He compared the spontaneously distended intestine from a case of infantile atrophy with the distended one from a healthy child and shows the marked similarity. He also shows the distended intestine of a child, not atrophic, who died of erysipelas with a complicating acute intestinal catarrh. The conditions in this case were nearly identical with those described as characteristic of infantile atrophy. He also shows "atrophic changes" in the intestine of a dog which was distended immediately after death. The dog was healthy when killed. He concludes:

(1) In the true atrophy of infants there are a series of cases in which, on careful examination, all grave changes of the intestinal epithelium, intestinal mucous membrane, and of the rest of the intestinal wall, were absent in all parts of the intestines.

(2) The alterations described by some authors as intestinal atrophy can be produced in any normal intestine by simple distension.

(3) The so-called spontaneous intestinal atrophy has always been found in distended parts of the intestines; never in contracted.

(4) The conclusion must be drawn from two and three that the lesions attributed to atrophy are due to the varying physical conditions of the intestinal wall. Hence the anatomical basis for the conception of a true atrophy of the mucous membrane in the general atrophy of infancy cannot be considered as proven, and the whole teaching founded thereon is therefore untenable.

It is shown, moreover, by other clinical facts, that infantile atrophy cannot depend upon so severe anatomical lesions as would occur in a true atrophy of the mucous membrane. Complete and rapid recovery may take place in some severe cases of pure atrophy of many weeks' duration. It is clear that severe anatomical defects in the mucous membrane could not be repaired in so short a time. In the atrophic conditions of infancy the real trouble is a severe disturbance of the intestinal functions. The origin of this functional weakness of the intestinal and glandular epithelium which results in the imperfect utilization of the food is not known. It is clear, however, that it is always the result of previous debilitating influences. Thus, for example, long-continued insufficient nourishment with weakness, or long-continued overnourishment with disease may cause these conditions. It cannot be denied, moreover, that congenital weakness of the intestinal tract may be an important factor in the causation of the lighter conditions of this secondary functional incapacity.

ENLARGEMENTS OF THE SPLEEN IN CHILDREN.

West,⁵ after mentioning the enlargement of the spleen in specific fevers, septic diseases, malaria and leucocythemia, etc., devotes considerable attention to splenic anemia in the infant. He considers that this is a separate condition from the splenic anemia of the adult, which is an

⁴ *Jahrb. f. Kinderheilk.*, 1901, p. 35.

⁵ *Pediatrics*, xi, 109.

entirely different affection clinically, and rarely occurs in children. He thinks that the term is unfortunate, as it implies that the anemia in some way depends upon and is caused by the affection of the spleen. This he thinks is not proved. He does not, however, offer any substitute.

The disease is not uncommon in infancy, and is seen even up to the fourth year. The chief symptoms are the peculiar anemia and the enlargement of the abdomen. The complexion has a peculiar waxy, ivory-like color with a tinge of orange green, which is very characteristic; the abdomen is distended, and the enlargement of the spleen is often obvious to the eye. The child is usually not emaciated and may be plump, but is very feeble. The blood shows no changes but those of simple anemia. There is little or no general enlargement of the lymph nodes. The child usually comes under observation because of general weakness and pallor, or because of some complication, and rarely because of the abdominal enlargement. The splenic enlargement may be extreme, filling nearly one-half of the abdomen. The spleen moves freely on respiration, its surface is smooth, and it is not tender. The number of corpuscles is greatly reduced, the relation of the reds and whites being retained. The number of red cells may fall as low as 40% of the normal. They retain their normal amount of hemoglobin, though some maintain that it is reduced as in chlorosis. Nucleated red cells and megalocytes are often present in small numbers.

If there is any increase in the number of white cells it affects only the lymphocytes, and this stands in direct relation with the fever. The eosinophile cells do not vary. The liability of the sexes is equal. The affection runs a chronic course, lasting many weeks. In the end many cases get well.

The treatment is that of anemia. Arsenic is inferior to iron in the treatment.

He sums up the relation between syphilis, rickets and enlargement of the spleen as follows:

(1) Syphilis is occasionally, and rickets frequently, associated with splenic anemia.

(2) In neither case is the association constant.

(3) Neither of them are the sole cause, and are probably not the cause at all, except, perhaps, indirectly by means of the ill health to which either leads.

He suggests three possible alternatives as to the relation which exists between the anemia and the splenic enlargement:

(1) The enlarged spleen may be the cause of the anemia.

(2) The anemia may be the cause of the enlarged spleen.

(3) Both the anemia and the splenic enlargement may be the joint results of some common cause.

He does not attempt to decide the question; he thinks that there are very strong objections to the first two alternatives, and apparently inclines to the third. He concludes, however, that if there

is a common cause for the anemia and the splenic enlargement, we do not yet know what it is.

OBSERVATIONS ON MILK COAGULATION AND DIGESTION.

Franklin W. White,⁶ after making experiments in test tubes and in animals with gastric fistula on the coagulation and digestion of milk diluted with decoctions of cereals, lime water and albumin water, arrives at the following conclusions:

(1) Dilution of milk with cereal decoctions of proper strength renders the casein curd much more fine, soft and digestible than simple dilution with water. There is no difference in the action of various cereals, such as barley, oats, rice or wheat.

(2) The above property is due mainly, if not wholly, to the starch in solution. The most desirable amount of starch in the milk mixture for practical use is approximately three-fourths of 1%.

(3) Diastase, by converting the starch to dextrine and maltose, promptly lessens and removes the action of cereal waters upon casein. Its addition is, therefore, not a practicable measure when action upon the curd is desired.

(4) Albumin water has no practical value as a diluent of milk.

(5) Lime water added to milk has no more effect than water upon the character of the curd produced in the animal stomach.

PROGRESSIVE HEREDITARY SPINAL MUSCULAR ATROPHY IN CHILDREN.

J. Hoffman⁷ describes a third type of hereditary muscular atrophy, spinal in origin, occurring in early infancy. He distinguishes it from the two main classes, progressive muscular dystrophy (Erb and Duchenne), and progressive neurotic muscular atrophy (Chareot, Marie). It begins between the fifth and ninth month in children of healthy parents, hitherto well, born without instruments. In the course of weeks or months the child moves the legs at the hip joint less and less. A symmetrical weakness is then soon noted in the muscles of the back and abdomen, so that the child can with difficulty sit up. As months pass, the shoulders and neck also become affected, and the legs, further down, first with weakness, then paralysis. Finally the arms and hands are paralyzed, and the reflexes disappear. The organs of special sense and the cranial nerves (except the spinal portion of the accessory) are not affected. The paralysis is flaccid and atrophic. Kyphoscoliosis, contractures, etc., follow later; the tendon reflexes gradually diminish; sensation is objectively normal. The prognosis is fatal, death occurring in from one to four years after the beginning of the disease. Autopsy shows symmetrical degeneration of the peripheral neurons of all the nerves below the hypoglossal, including the spinal accessory, and widespread, severe muscular atrophy. The brain is normal; there are no bulbar symptoms.

⁶ Journal of the Boston Society of Medical Sciences, v, 125.
⁷ Münch. med. Woch., 1900, xliii, 1640.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

PROCEEDINGS OF THE FIFTY-SECOND ANNUAL MEETING, HELD AT ST. PAUL, MINN., JUNE 4-7, 1901.

(Continued from No. 26, p. 654.)

SECTION ON SURGERY AND ANATOMY.

FIRST DAY.—AFTERNOON SESSION.

Dr. A. J. Ochsner, the chairman, read a paper entitled

CAUSE OF DIFFUSE PERITONITIS COMPLICATING APPENDICITIS AND ITS PREVENTION.

The author reviewed the anatomical and pathological relationship existing between the appendix and the adjacent organs, and referred to the manner in which the appendix was protected and the enormous blood supply of the omentum. The value of rest as a preventive to the extension of infection in any part of the body cannot be overestimated, and if this is gained another important point is secured in the right direction. Infection of the general peritoneal cavity is caused by disturbance of the intestines. Theoretically and practically food and cathartics should not be taken into the stomach. The author cited cases in which the ingestion of these products greatly irritated the condition. His mortality in cases of perforative peritonitis was less than one-fourth as high as in cases operated at once; in cases of diffuse peritonitis there has been a great decrease. From January, 1898, to May, 1901, he had operated 565 cases of appendicitis with 20 deaths, a mortality of 3½%. Danger of rupture of the circumscribed abscess into the general peritoneal cavity has been a cause of great anxiety. There is increased safety in operating during the quiescent state, and as a result of this treatment fecal fistula never results. The author advocated gastric lavage, in cases of food in the stomach or intestines, above the ileocecal valve. The laity should be taught to stop feeding and giving cathartics to patients suffering from intra-abdominal diseases.

Dr. Andrew J. McCosh, in his paper on

REMARKS ON THE SURGERY OF THE SPINAL CORD, WITH ILLUSTRATIVE CASES,

believed that pressure on the cord was urgent reason for operating, and that early operations are important. He was of the opinion that it was wiser to do the exploratory operation, and that there the danger was slight. "It is our routine procedure to cut down on the skull to find out if any fracture is present." If relief is to be expected, operation should be done at once. In his own laminectomies for fracture of the spine, comprising 6 cases, 2 recovered and 4 died, but not as a direct result of the operation. In the author's experience he did not think it was necessary to apply any special support to the spinal cord.

In a paper by Dr. Paul E. Eve,

SPINA BIFIDA, WITH REPORT OF AN INTERESTING CASE,

the author said that associated with spina bifida were hydrocephalus, talipes and harelip. It may consist of a tumor varying in size from a marble to an adult's head, occupying the central portion of the canal over the posterior aspect of the vertebral column. There are three varieties of this affection: Meningocele, the protrusion consisting of fluid in the spinal cord; meningocele, where there is a portion of the cord in the sac; and syringomyelocele, the central part of the spinal cord being dilated. Various remedial measures were suggested, such as acupuncture, injection of iodide of potassium, etc. Extirpation is unjustifiable in young infants, and the indications for operation are where the child is over seven years, and where the tumor is rapid in its growth and rupture is threatened.

The subject of a paper by Dr. Christian Fenger was

THE METHODICAL EXPLORATION OF THE BRAIN FOR FLUID.

He reviewed the literature of traumatic brain abscesses and spoke of the efficacy of the aspirating needle. The author described a case having a previous history of suppurating disease of the ear, an attack of appendicitis subsequently, of short duration, and then swelling of the elbow joint. He explored the brain methodically, going from one place to another. There was a cicatrix behind the ear, which was the only guiding point. After exploring the brain on the affected side of the head with no results, he then tried the opposite side where the pus was found, and the patient recovered. The author said that methodical exploration of the brain was preferable to all others. Puncture, he said, was harmless, as Spitzka had previously proved in the needle-tracings in the brain, which were aseptic. The author's paper was elucidated with photographs, instruments and human skulls.

THE CONTRIBUTION OF DR. D. S. FAIRCHILD, ON THE IMMEDIATE AND REMOTE EFFECTS OF BRAIN INJURY,

dealt with the value of first symptoms in determining the nature and extent of the lesion; the bearing on the question of treatment and prognosis; the possibility of the lesion being more or less serious than is indicated by the apparent gravity of the early symptoms; the danger of being misled on these points; the remote effects of trauma on the integrity of the brain-tissue in producing epilepsy and mental impairment; falls from a height or from a rapidly moving train. If the first symptom of intracranial hemorrhage is rupture of the middle meningeal, the immediate effect thereof is considered serious, unless surgery intervenes. The author reviewed scar-proliferation from scars of the brain, and said that these cases were amenable to surgical treatment. He

presented the question of liability and the medical aspect of cases of brain injury.

DR. FRAZIER of Philadelphia presented a contribution on the subject of

OPERATION FOR THE RELIEF OF TIC DOULOUREUX,
OR TRIFACIAL NEURALGIA,

differing from the operations now in vogue, in that it depends for its success upon the division of the sensory root of the ganglion and not upon the removal of the ganglion itself. The author very interestingly covered the besetting difficulties with which the surgeon meets, the technic of the operation and its applicability in present cases.

DR. W. W. KEEN believed the time had come when cases of spina bifida should be submitted to operative treatment. In relation to Dr. Fenger's paper, he was sorry that he limited the exploration to search for pus; that there should be a very clear distinction made in exploring the brain for pus, purulent matter, or serum. Ten years ago he had proposed a methodical operation and formulated several routes by which the ventricles could be reached. He cited several interesting cases of exploring the brain for fluid. As to Dr. Fairchild's paper, he thought the author had taken the right ground; that interference was imperative. He gave a review of the phenomena of the state of unconsciousness produced by trauma.

DR. McLEAN agreed with Dr. Fairchild's idea of going without support; he had found it difficult to keep the support on. He thought it was a good step in spina bifida (Dr. Eve's paper) to attempt closure at operation without aspirating or injecting fluid. He believed the skull was elastic and compressible in both young and adult, as was proved by clamping it; the tissue within must change, and there must be movement within. The spinal canal is not a bony canal, but made up partially of fibrous tissue. He referred to concussion and compression of the brain and subsequent extradural, subdural and cranial hemorrhage. "Now I think there is another point where you might have depression of the skull. In that case you may first have a compression there, and in that time the symptoms of that compression will disappear. In that case the cerebral fluid will escape from the cranium, lessen the cranial tension and escape in the spinal cord."

DR. WEIR did not believe that we had yet arrived at a conclusion with regard to depressed fractures of the skull without symptoms. In regard to wounds of the scalp, he had recently changed his ideas—he did not now let them alone. Surgeons feared, in penetrating the dura, making adhesions; adhesions must be expected. The discussor advocated the use of celluloid plates at the time of operation or at a secondary operation.

DR. FRANK had tapped the lateral ventricles as early as 1890 with good results. He did not agree with Dr. McLean, that if a person was hit on the head it would draw the fluid into the

spinal column; that it is not necessary to receive a blow on the head to become unconscious or give symptoms of concussion.

DR. EARL was of the opinion that the time was at hand when the surgical treatment for injuries to the skull must be employed.

DR. MOORE believed in the surgical treatment of spina bifida rather than injections.

DR. DAWBORN related an interesting case of a man who was struck on the side of the head, with symptoms of hemiplegia. Operating on the paralyzed side there could not be detected a clot or anything abnormal. At the autopsy, however, on the side opposite to that affected, there was revealed an enormous blood clot.

Others who joined in the discussion were Drs. Bernays, Maxwell, Means, Crile, Taggart, McKnight, Baldwin and Vaughan (St. Louis).

SECOND DAY.—MORNING SESSION.

DR. JOHN B. DEEVER of Philadelphia read a paper on

THE MORTALITY OF APPENDICITIS.

He began by saying that during the year 1900 there were operated on at the German Hospital in Philadelphia 258 cases of appendicitis, of which 144 were acute attacks of the disease and 124 were chronic. Of those operated on during the acute stage, 26 died from some intercurrent illness arising during the illness, or previously existing. In the cases not subjected to surgical treatment, by far the largest factor is septic peritonitis. As to the number of attacks, the author said that the fatal attack may be the "solitary severe one." "Severe attacks without fatal issue subside to varying degrees, but commonly render the internal symptoms more aggravated." In cases complicated with adhesions, but without septic infection, the mortality is very low. In one case the author operated twelve hours after the onset of the attack and found an advanced general purulent peritonitis, a condition from which he had never seen a recovery, and believed that, where there is localized pus, the success of the operation depends upon the success in emptying and draining every pocket; merely opening and draining the main abscess will not do: the great problem being how to drain all these collections without infecting the general peritoneal cavity. Post-cecal collections of pus offer a serious problem. As to the advisability of removing the appendix in the presence of pus, the opinion of the author was that it should be removed, except in certain cases. Another very common cause of death is necrosis of the bowel. Dr. Deaver's experience showed that recurrent attacks of appendicitis are progressive in their severity, each one adding fuel to the flame; that the position of the appendix was an important feature; that delay in operating is responsible for more deaths in appendicitis than all the factors which have to do with the disease; that operation in the first twelve, and at the latest eighteen to twenty-four hours, would save patients, without subsequent complications, as fecal fistula,

etc. On every case of appendicitis that dies in the German Hospital an autopsy is made.

DR. ERNEST LAPLACE of Philadelphia read a paper on

SOME UNUSUAL FEATURES OF APPENDICITIS AND THEIR TREATMENT.

The author said that, as on a former occasion, he would repeat a statement: "In every case of fatal appendicitis, there was a time when, had the operation been performed, the patient would have survived." He was of the opinion that it was not the appendicitis that killed, but the peritonitis incident thereto. He divided appendicitis into three different periods or stages: (1) That of appendicitis; (2) that of peritonitis; (3) that of septicemia. He believed in rapid operative procedure in peritonitis from chronic appendiceal abscess that has perforated or an acute peritonitis set up by appendicitis. Careful cleansing of the operative field should be instituted, with flushing of the abdominal cavity. When septicemia and peritonitis are both present, then simply wash out the abdominal cavity, close, and drain with gauze. He believed that it must be taken for granted that the phagocytes will compete more successfully with a slight amount of septicemia than with septicemia which is continually increasing by constantly forming toxins taken up from the peritonitis. Flushing continually the peritoneal cavity for at least a few hours after the operation would constitute the local treatment, whereby the arrest of progressive septicemia may be hoped for.

DR. HOMER GAGE of Worcester, Mass., was detained by illness. The subject of his paper was

ABDOMINAL CONTUSIONS ASSOCIATED WITH RUPTURE OF THE INTESTINE.

DR. F. GREGORY CONNELL of Chicago read a paper entitled

THE KNOT WITHIN THE LUMEN IN INTESTINAL SURGERY, WITH REPORT OF EIGHT CASES.

He said that the possibility of placing all the knots in enterorrhaphy within the lumen is no longer in doubt, but the advisability of such a procedure is still a disputed question by those who never used it. Perforation of all coats, when the knot is placed within the lumen, is not the same. The author said that death, in no case, can be attributed either to the method of suture employed or the manner of employing it; to include all the coats of the bowel wall removes the danger of stitch yielding; that to fail to include the submucosa leaves an insecure stitch; that it is not only possible, but practical, to place all the knots of an enterorrhaphy in the lumen.

DR. STEELE of Chicago was glad to know that there was a hospital in the country where in every fatal case of appendicitis there was held an autopsy, as in the German Hospital, Philadelphia. Dr. Steele often was compelled to say, "I do not know why that man died," because of the fact that a necropsy was not accorded. He related

the case of a little girl who had swallowed a shawl pin, which simulated appendicitis, but the pin was found, and the symptoms proved not to be appendicitis.

As to Dr. LaPlace's paper, referring to irrigation in septic peritonitis, he did not see why normal salt solution, now applied to septic joints, could not be extended to the abdomen.

He called Dr. Connell's paper a "masterpiece." The advantages of the method therein described he had had an opportunity of observing.

DR. MURPHY of Chicago commended Dr. Deaver for his work on this important line, styling it "a debt of gratitude which the profession will never be able to pay." He wanted to know what Dr. Deaver meant by "suppurative peritonitis," and followed this up with other similar interrogatories. He considered that the question as to whether it is possible to make a diagnosis of the pathological conditions within the peritoneal cavity from the symptoms presented was a very vital question. In the fulminating type the author did not believe that one could tell from the outside whether it is progressing to that stage where it manifests its virulence.

DR. KNIGHT of Connecticut believed in the great helpfulness, if not the reliability, of the blood count, the presence of leucocytosis as an indicator of the condition.

DR. MAXWELL of Iowa gave his voice to the general thorough irrigation of the abdomen and related a case.

DR. ANDREWS of Chicago spoke of the length of time of infection. "How do we know what the conditions are when we find free pus in the intestines without the restraining wall?" He believed that around this area of pus there was another zone of mucus-pus or serum.

DR. HARRIS of Chicago did not believe that we were able to diagnose the condition in the abdomen; that when a man has operated a hundred cases, he finds he knows little or nothing about the conditions therein.

DR. MOORE of Minneapolis did not think there should be any hard-and-fast rule to be laid down in surgery where human life was involved; that the question of operating should likewise be considered from the standpoint of environment; everyone did not possess the advantages of a well-equipped hospital, such as exist in the metropolitan cities.

DR. MORRIS of New York said that in appendicitis we are dealing with an infection, the limits of which are unknown.

DR. SMYTHE of Memphis said that the proper treatment of the patient was surgical, if seen on the spot by a surgeon.

SECOND DAY.—AFTERNOON SESSION.

DR. ROSWELL PARK of Buffalo, N. Y., read a paper on

THE NATURE OF THE CANCEROUS PROCESS.

"Like a huge and frowning sphinx at the very gateway or entrance to the field of surgical pathology has stood for centuries the great problem

of the nature of cancer. This has, at least until recently, remained the inscrutable mystery of ages." The author reviewed Conheim's theory, and said that the parasitic or infectious theory of cancer is the only one which satisfies the needs of both pathologist and clinician.

In the New York State Laboratory, with which Dr. Park is connected, the disease is studied by the pathologist, biologist, chemist, histologist and clinician, all working in close association. As to causation, the author was of the opinion that cancer was due to an extrinsic cause; that is, to be parasitic in its nature. He took the analogy of vegetable life to sustain the parasitic theory, stating that the woody masses or xylomata or knots in trees suggest the tumor or cancer idea, which destroy the tree; they are frequently spoken of as tree cancers. Tumors are also common in the lower animal forms. He believed that tumors in man and animal are due to the same general causes, and said that it was not too strong a statement to make that Dr. Gaylord and the laboratory staff have absolutely produced adenocarcinoma by inoculation in a number of animals, and that this can be produced in such a way as to afford unmistakable evidences of the infectivity of the disease.

DR. NICHOLAS SENN read a paper entitled
PRESENT STATUS OF THE CARCINOMA QUESTION.

This, the author considered, is the most important research of today. Carcinoma results from a typical proliferation of epithelial cells. As carcinoma originates in epithelial cells its development is impossible in mesolastic tissues. Histology does not support the parasitic theory. The progressive extension of a tumor into the adjacent tissues is proof positive of malignancy. This is by the lymphatics only. The increase of carcinoma is more imaginary than real. There is more basis to heredity than is believed by the profession at large. The age is important; although usually over forty, it may be below twenty; and in these cases it is almost always extremely malignant.

EARLY DIAGNOSIS OF CARCINOMA; METHODS.

DR. CHARLES A. POWERS of Denver, Col., presented this paper. The salient features that he desired to bring forth was the early recognition, thorough operative removal of the widest possible area, and a careful, systematic surveillance of the patient during the rest of his life. The laity should be instructed. The author reviewed the diagnostic reaction of the use of cancer serum and autoinoculation as an aid in the early diagnosis of cancer.

DR. WILLIAM S. HALSTED and DR. J. C. BLOODGOOD presented a paper entitled

THE PATHOLOGY OF BREAST CARCINOMA AND ITS RELATION TO EARLY DIAGNOSIS AND TREATMENT.

The authors grouped the tumors under multiple, malignant, benign, and those associated with

various acini changes in the tissues of the breast. The authors said: "In our experience of some 294 cases, the number of cases of malignant tumors which have been admitted to the hospital at such an early stage that the clinical picture was suggestive of a benign tumor, is about 9%, or about 23 cases. What it will be in the future I am not prepared to say.

CARCINOMA OF THE CECUM.

DR. WILLIAM J. MAYO of Rochester, Minn., was the author of this paper. He said that carcinoma of cecum occurs in 7% of all cancers of intestines and is of the columnar cell variety. Colloid changes are frequent. It is usually annular in form, but may present a well-marked tumor. Glandular infection occurs in less than one-half of the cases dying from that malady. Age is not so important a feature as in carcinoma of other organs. It is not infrequent in the comparatively young. This disease may be confused with chronic appendicitis, tuberculosis of cecum, fecal impaction, etc. The results of radical operations, both immediate and remote, are good, and compare favorably with cancer in other situations of the body.

IMPROVED METHOD FOR RESECTING HIGH RECTAL CARCINOMA.

DR. ROBERT F. WEIR of New York City read this paper. He considered the Kraske operation unsatisfactory for the removal of high-seated cancers of the rectum, but practises Maunsell's operation. He especially covered the technic (illustrated by drawings), surgical cleanliness, the anus and its drainage, with an interesting list of cases.

DR. FREDERIC S. DENNIS of New York read a paper on

THE TREATMENT OF MALIGNANT DISEASES.

The treatment considered included surgical, toxins, drugs, caustics, electricity, Röntgen rays. Surgical operation is successful only when it is performed early, when it is radical in character, and when it is repeated indefinitely. Cases are not considered cured unless three years at least have elapsed since operation, and by some this period is estimated as too short. The importance of educating physicians to the necessity of early operations as the essential feature of cure should be borne in mind, as well as the importance of microscopical examinations of every growth as the only means of obtaining accurate information for the future study of malignant disease. It is necessary to keep a careful record of every case with its subsequent history. He thought that the increase of cancer is not explainable. The writer was of the opinion that the action of the toxins upon malignant tumors was only explainable upon the theory that such tumors are the result of some infectious micro-organism; this view is strongly supported by the recently expressed opinion of Czerny. Surgical intervention is the only resource, since all drugs have proved ineffectual.

DR. BERNAYS of St. Louis believed that we were to face an endemic of cancer, and that it affects all classes. "Dare we hope for a curative remedy? I think not!" Many men had worked on this question, but all had failed to solve the nature of cancer. As to etiology, some he thought were of embryonal nature, some parasitic, and others of a rudimentary development. He thought we might "hope to exercise a sort of prophylaxis as we now do in tuberculosis."

DR. CRILE of Cleveland spoke of a screw-clamp to close the arteries, and thus prevent hemorrhage, in operation for cancer of the tongue.

DR. RODMAN of Philadelphia said that there was accumulating evidence to show that carcinoma is due to parasitic origin; that until recently it was supposed that carcinoma was not found as frequently in the Indian and negro, yet it is found in both those races as in the white; certainly carcinoma of the breast, and in the negro probably a little more than in the whites.

DR. FRITTERER of Chicago was opposed to the parasitic theory, but did not wish to discourage research along that line. He referred to the mechanical theory, the displacement of the epithelial cells in the deeper layers, and the Conheim theory. The doctor had in the exhibit a pathological specimen,—cancer of the stomach,—an implantation from an ulcerating carcinoma in the esophagus high up.

DR. MASSEY of Philadelphia, in speaking of cancer, thought there was a separate entity, separate from the man or woman on which the disease feeds. He spoke of the use of the electric current, causing chemical disintegration of the growth at once, under ether, which he had presented in Philadelphia in 1897.

DR. DAWBARN of New York commended the joint paper by Drs. Halsted and Bloodgood, in the extirpation of tumors or lumps in the breast, whatsoever they might be. In operations for cancer of the tongue he believed death was caused by shock, and that the chief cause of shock is hemorrhage. The doctor had 40 personal operations in the region of the mouth and external carotid.

DR. LEAVINGS of Milwaukee, referring to cancerous growths coming from a development of epithelial cells, embryonal or post-natal in character, drew an analogy between that and the embryology of the teeth or "enamel organ."

DR. McKENZIE of Oregon, from the standpoint of the clinician, thought that in considering the origin of cancer the point of locality had a great deal to do with it; that when it develops in any part of the human body it develops in tissues which are not normal anatomically, and in organs which are not normal physiologically.

At the close of the morning session Dr. C. M. JACKSON of the University of Missouri gave an interesting talk on the subject of

A METHOD FOR THE STUDY OF RELATIONAL ANATOMY.

in which he said that the relative inefficiency of the present courses of instructions in anatomy is

largely due to the lack of a practical method of studying the topographical relations of the various organs. For this purpose sections are necessary; method of frozen sections unsatisfactory. The author has obtained excellent results by sectioning bodies hardened by arterial injections of formalin. A detailed account of this method as applied in teaching relational anatomy in the University of Missouri, a new apparatus for making rapid and accurate drawings of sections, the possibilities of this method for teaching anatomy and surgery, and also for the study of relational anatomy by the practitioner.

Dr. DeForest Willard of Philadelphia was chosen chairman, and Dr. Jas. B. Bullitt of Louisville secretary for the ensuing year.

THIRD DAY.—MORNING SESSION.

DR. JOHN A. WYETH of New York City read a paper entitled

HEMOSTASIS IN AMPUTATION AT THE HIP-JOINT.

This was a *résumé* of 262 cases by the author's method. The operation has had eleven years' trial. The author had collected 267 cases in which the operation had been done. The operation was first made public at a meeting of the American Medical Association at Nashville in 1890. The 267 cases are classified as to neoplasms, sarcoma, epithelioma and osteocarcinoma. While the mortality is large, the injuries were of a very severe type. The death-rate in 1881 for all causes was 64%, now 19.8%. The death-rate twenty years ago for all causes was equal to that for crashes from railway trucks or heavy machinery at this date. Antisepsis must share with the improved hemostasis the credit of this diminished rate of mortality.

DR. MEANS of Columbus stated that his experience was limited to two cases. He thought that the use of these pins in hemostasis could be extended quite as well to various other portions of the body. He felt that the profession should congratulate Dr. Wyeth for the principle involved in this method of controlling hemorrhage.

DR. HENRY concurred in the expressions of the value of this method of Dr. Wyeth.

DR. WALKER said that the ease with which hemorrhage could be controlled was a revelation to him. He asked why the operation could not be done without the use of the pins—why not do the ligation primarily?

DR. SYLVESTER considered it a very scientific and satisfactory operation. He was in the habit of tying the silk-worm sutures in bow knots, and the bow knots can be untied without the use of an anesthetic.

DR. WRIGHT of Bridgeport, Conn., uses a heavy rubber bandage and converts it into a roll, passing it around the groin. He has been able to produce a hemostasis which was quite satisfactory. It occluded the vessels and saved the necessity of the pins.

DR. L. L. McARTHUR of Chicago presented a paper on

AUTOPLASTIC SUTURE IN HERNIA AND OTHER VENTRAL WOUNDS.

As to suture material, he said that he would not have presented the paper if he did not believe that it possesses additional merits; namely: (1) The obtaining of a living suture; (2) lessened chance of failure through avoidance of introduction of dead or of foreign tissues; (3) the incorporation in the resisting cicatrix of organized white fibrous tissue. He felt that failure of cure in hernial operations by any of the recognized methods is practically due to associated infection, for the Bassini, the Andrews or the Girard, unassociated with infection, can be said to be practically always successful.

DR. POWERS of Denver believed that Dr. McArthur's proposition was well worthy of trial. He did not know whether the essayist had operated on any children by this method. The discussor had operated on a boy of ten years.

DR. G. F. SHIMONEK of Milwaukee believed that this tissue, so united, was of rather low vitality, as all tissues of that kind are, and that by passing it through the opening and putting it on a stretch, it must become devitalized.

The CHAIR remarked that an important point to observe was, that after it was sewed there was no tension; that instead of being constricted, the way the tissues are when they are tied with catgut, no constriction occurs.

DR. McARTHUR said that he had found that the edge did not tear out any more than it would in using any other suture material. He reported a case of rather a rare type of hernia, which is spoken of as the "sacless hernia."

NEW METHOD OF SKIAGRAPHIC DIAGNOSIS FOR RENAL AND URETERAL SURGERY.

This paper was read by DRs. L. E. SCHMIDT and G. KOLISCHER of Chicago. Skiagraphy for medical purposes was especially advanced and perfected in America. Calculous deposits were especially attractive for x-ray diagnosis. The author's paper was elucidated by illustration, one showing a kidney and renal stone. By their method they are able to determine the course of the ureters, location of the renal pelvis, diagnosis of dilatation of the renal pelvis, and the location of the renal calculi; also the possibility of differentiating gallstones from renal stones.

DR. RAYMOND GUITERAS of New York City read a paper entitled

PROSTATOTOMY VERSUS PROSTATECTOMY FOR PROSTATIC HYPERTROPHY.

He outlined the history of prostatectomy and prostatotomy, saying that each had been developed by a gradual evolution. His personal preference is the vesico-rectal method, and the most important part of his technic is the inserting of two fingers high up in the rectum. It is too grave a condition—senile hypertrophy of the prostate—to allow of dogmatizing. There are three important classes of these cases; the first, the phys-

iology young, suitable for radical operations; the second, older, can withstand palliative Bottini; the third class, fortunately small, and growing smaller, are able to stand no operation whatsoever. Statistics show the mortality of prostatectomy as yet to be three times that of prostatotomy.

PROSTATECTOMY, THE METHOD OF CHOICE IN THE MANAGEMENT OF PROSTATIC OBSTRUCTION.

DR. EUGENE FULLER of New York City read this paper. At the beginning he made a plea for radical operative relief in these cases. At the present time if a practitioner allows a patient to die from appendicitis without resorting to surgery, or, at least, to raising of surgical interference, the community at large blames him severely; the same ought to apply to prostatic obstructions. The author showed how, under proper surgical management, the mortality, under favorable circumstances, is not over from 8% to 10%. The question of castration for the relief of this condition is passed over and cast aside as a discarded method. The Bottini method was freely considered.

DR. J. R. EASTMAN of Indianapolis, Ind., gave a

FURTHER REPORT ON PERMANENT CATHETERIZATION.

Permanent catheterization in the male was practised in fifteen cases. In each case the catheter was retained for ten days; in two cases, sixty days. Cystitis was not produced in the author's cases sufficiently severe to produce symptoms. Hydrogen peroxide was introduced into the bladder. Regular flushing of the bladder was not done except in two cases. It is essential that the catheter be introduced just far enough, that the tip project into the bladder and be accurately secured.

FALLACIES IN THE TREATMENT OF URETHRAL DISEASES.

DR. ROBERT HOLMES GREENE of New York City presented this paper. He covered the technic pathology quite extensively, and added to the realism of his subject by well-defined drawings of cases.

DR. PARKER SYMS of New York City read a paper on

PERINEAL PROSTATECTOMY.

He said that while prostatectomy by most methods had shown a large death-rate, he had so far been fortunate enough in not having lost a patient, and having a complete cure in all cases except the second one.

DR. ROBERT H. W. DEARBORN presented the subject of an

APPARATUS OF HIS OWN FOR SUPRAPUBIC DRAINAGE,

which had already had the test of ten years. He thoroughly described the technic thereof by specimen presented. It consists of a fountain syringe,

regulated by either an artery-foreeps, or, as the author used, the catch that come with the syringe.

DR. ROCKERY considered that the question of prostatic hypertrophy was one of vastly greater importance than it seemed to receive from the profession. He believed the operation of prostatectomy has been an evolution, and that the question to decide was the method. He believed that the information was to allow the operation to become one of last resort; that it should be taken up much earlier.

DR. MCGOWAN of Los Angeles had operated on about fifty old men by protatotomy and prostatectomy; the men varied from sixty-five to eighty-one years; the results were not perfect by either method.

DR. GUTERAS, speaking of retention of urine, said that the bladder ought never to be emptied at one time; never draw more than a pint the first time. In speaking of the Bottini operation, the author said that it held the same position today as did hysterectomy a few years ago, but that some day a good operation that could be done with ease and without danger to the patient would be devised. Other discussers were Drs. Eastman, Greene and Syms.

THIRD DAY.—AFTERNOON SESSION.

DR. J. D. MURPHY of Chicago read a paper entitled

PNEUMACTOMY AND PNEUMOTOMY.

The author said that pneumactomy is frequently indicated. It can be performed with safety to the patient; the danger of pneumothorax is not great, and these unpleasant manifestations are entirely overcome when the causes of the symptoms are understood. Portions of the lung may be amputated without danger of hemorrhage and without danger from pneumothorax from division of the branches of the bronchi. Pneumotomy is frequently indicated; it is not a dangerous procedure, and may be accomplished with or without adhesions of the lung; the hemorrhage usually controlled. The author showed why the scalpel should be used in place of the Paquelin cautery in opening pulmonary abscesses, interlobar abscesses and bronchiectatic cavities, and portrayed the probabilities of pneumactomy and pneumotomy.

DR. DEFOREST WILLARD, Philadelphia, read a paper on

REMOVAL OF FOREIGN BODIES FROM THE TRACHEA AND BRONCHI.

Foreign bodies, the author said, such as seeds, nuts, toys, food, etc., are exceedingly liable, especially in children, to be sucked into the trachea during laughing, crying, etc. The violent efforts at coughing usually dislodge the offender if it has not reached the larynx, but it may be arrested at the vocal chords, or may pass on and become impacted in one of the bronchi, usually the right, from anatomical reasons. A low tracheotomy should at once be performed, and a large opening

made. When the object to be sought for is metallic, an x-ray representation may prove of great value. Should gangrene of the lung occur, a free incision should be made down to the pleura.

TREATMENT OF EMPYEMA.

DR. JAMES H. DUNN of Minneapolis read this paper. He said that the average treatment of empyema is still far from satisfactory, and decidedly behind the present state of surgical science. He assigned as some of the causes of failure: tardy diagnosis, inefficient drainage and slovenly after-treatment. A pleural suppuration should be at once removed. The drainage opening should be large. The author in a very interesting way covered the technic, diagnostic and prognostic features.

DR. VERNAYS said that he believed the time had come when surgery would attack the ravages of tuberculosis in the lungs, and that it would be done successfully. The author then related post-mortem findings of tuberculous tissue, which proved of great interest to the section. He believed that this department of surgery is in its infancy. Dr. Willard had so completely covered the subject of foreign bodies in the air passages that he had nothing to add. As to Dr. Dunn's paper, he said that the treatment of empyema depends on the microscopic findings in the fluid that has been drawn out by the exploratory needle.

DR. BARNER had expected to present a paper on thoracic surgery. He had performed experiments on dogs and had devised a special apparatus.

DR. JORSON of Iowa considered that the removal of foreign bodies from the air passages forms an important part in general surgery; that in every instance of foreign body in the air passages the trachea should be opened. He did not believe that emetics, holding the patient upside down, were availing. He said that when the trachea is once opened we immediately know whether it is distal to the opening or approximal, whether it is toward the lung or whether it is located in the larynx by the breathing, and the thing in the larynx can easily be removed by a pair of forceps.

DR. FRANK of Chicago said that he had had experience in lung surgery in two cases, and that he found from these two cases and from experiments on dogs that surgery of the lung is not as easy as most speakers would lead one to believe. The first case was that of a politician, who made a good recovery. The doctor had inserted a syringe with a catheter into the trachea and made suction.

DR. LEMOYNE WILLS of Los Angeles said that the trouble in Southern California and all other parts of the country is that there is much opposition to anything in the way of draining the superficial cavity or anything in the chest; that it is put off until it is too late to do any good, and that it is for the profession to overcome that opposition and not let their patients go on in a septic-dying condition, and then send them away to Arizona and New Mexico and Southern Cali-

fornia, thereby putting the responsibility on the other fellow's shoulders.

DR. NORRED of Minnesota related a case of a child two and a half years of age who, in 1869, had swallowed a peanut kernel, which was drawn into the bifurcation. His two consultants said there was no hope, but he persisted and suggested that they relax the child completely and thus prevent any muscular contraction. The child was therefore given morphia and vomiting was provoked, whereupon the peanut kernel was dislodged and came up. An accompanying pneumonia was also checked. "And," said the doctor, "I have to say with great gratification that the young man recovered and is in your presence this afternoon."

DR. KEEN of Philadelphia spoke in relation to puncturing the lungs. The points which he emphasized were the means of obtaining adhesions where none exist, in puncturing the lung, and the safety of a very large suture of lung tissue to the chest wall. In the first case the doctor made his incision parallel to the ribs for about two inches, carefully dissecting the muscles, separating them as he went down, until he reached the pleura, which was very easily recognized, and the muscles very easily separated from the pleura. The other was the case of a woman who had a sarcoma of the chest wall, reaching from the outer border of the breast nearly all the way back to the vertebral column.

DR. MEANS of Columbus had, within the last eighteen months, two cases, one of them demonstrating the possibility of recovery, after a fearful gunshot wound of the chest; in the other he was unable to reach a pus cavity.

DR. WILLARD of Philadelphia said that in regard to secondary emphysema, which is liable to occur after opening a bronchus and not being able to close it; if one can close it simply after extraction for the foreign body by stitches, secondary emphysema is not likely to occur. If that opening is not closed, I have found, over and over again in dogs, that the pneumothorax constantly increases after the closure of the wound.

FOURTH DAY.

The papers of the afternoon session were combined with those of the morning, thereby affording early adjournment.

The authors of the following papers were absent; "Abdominal Surgery," Dr. Maurice Richardson, Boston; "The Indications for and against Total Removal of the Human Stomach," Dr. G. Childs Macdonald, San Francisco; "Diagnosis and Treatment of Kidney Stone," Dr. Charles D. Bevan; "Surgery of the Gall Bladder and Gall Ducts," Dr. Alexander H. Ferguson.

Dr. Charles L. Leonard of Philadelphia read a substitute paper entitled

INDICATIONS FOR OPERATION IN CALCULUS, NEPHRITIS AND URETERITIS.

He brought out the facts as follows: Recent advances in the diagnosis of calculous conditions of the kidneys and ureters show that more than

one-half the calculi that originate in the kidneys pass into the ureters before they occasion sufficient symptoms to make their presence known, and the Röntgen method of diagnosis has shown the greater frequency of ureteral calculi. Their detection does not, however, constitute the indication for operation. The differentiation between the cases that demand and those offering palliative treatment is based on the use of the Röntgen method of diagnosis. Its accuracy is confirmed in 165 cases which the author has examined by this method. The doctor dwelt at some length upon the symptomatology, as well as the radical, conservative and expectant treatment. While exploratory operations are valuable in many cases, yet the actual incision into the kidney is now only justified by the previous detection of a calculus by the Röntgen method or some macroscopical pathological lesion. Uretero-lithotomy has been successfully performed in many cases. One of the greatest problems of renal surgery is the determination of which kidney or ureter is the one upon which to operate, and at what point.

DANIEL N. EISENDRATH of Chicago read a paper on

ACUTE INFECTIVE CHOLANGITIS AND CHOLECYSTITIS AS A COMPLICATION OF GALLSTONES.

The author especially referred to the formation of stones produced by colon or typhoid bacillus. These infective agents set up a catarrhal condition in the gall bladder and bile ducts. Gallstones may remain in the gall bladder for years without giving rise to the least suspicion of their presence. Whenever pus is present in the gall bladder, especially if the symptoms have been acute, prognosis should be guarded. There should never be delay in treating an empyema of the gall bladder complicating gallstones. The author then covered the pathology of infective cholangitis and cholecystitis of the nonsuppurative type, as well as the clinical aspect of the disease.

DR. JAMES B. BULLITT read a paper entitled

DISSECTING ABSCESSSES OF ABDOMINAL WALL PRODUCING SYMPTOMS SIMULATING POTT'S DISEASE OF THE SPINE.

He gave a recitation of an illustrative case following typhoid fever six weeks after subsidence of fever (kyphosis). Careful examination showed deformity due to collection of pus beneath abdominal wall and extra peritoneal. The lumbar kyphosis was entirely compensatory. The abscess finally ruptured externally at the umbilicus, and continued to discharge indefinitely a thin pus. The author gave a résumé of one-half dozen cases collected from literature, with remarks.

EXPERIMENTAL AND CLINICAL OBSERVATIONS ON THE THERAPEUTICS OF ABDOMINAL SURGERY.

Dr. George W. Crile of Cleveland, who was absent, was the author of this paper.

In the absence of Dr. Howard A. Kelly, Dr. FRANK D. SMYTHE of Memphis opened the discussion. He reported a case of cystitis and kid-

ney stone, for which both cystotomy and nephrectomy were performed, the kidney showing signs of gonorrheal infection. He said that jaundice was not a contraindication to surgical operation in his experience, and would close the bladder after excision of the fundus, removal of the gallstones and drainage.

DR. MCGOWEN discussed the efficacy of x-ray in diagnosis of the kidney or ureter, and mentioned two serious burns that had occurred in his hands.

DR. THOMAS of Pittsburg mentioned a case of stone in the kidney in which an x-ray picture was taken, but it did not show the presence of the stone. The kidney, however, was cut into, and the stone discovered.

DR. CRANE of Vermont had had considerable experience in x-ray work, and said that the shadow cast is dependent on the atomic weight of the substance. As regards examination for stone, different kinds of stone cast shadows of varying density. The oxalate of limestone would cast a dense shadow as compared with uric-acid stone. I think the danger comes entirely from the length of exposure at a short distance from the Crooks tube. Asked by a member what he meant by length of exposure, the author replied within two or three inches of the tube an exposure of not more than three minutes. A longer exposure should be commensurate with a corresponding distance from the tube.

DR. MEANS of Columbus believed that bile passages normally contain micro-organisms. He said it was a dangerous statement to make that gallstones might be in the gall bladder for years, or for an indefinite period, and produce no symptoms.

DR. DAVIS of Omaha spoke of the "clumping" of the typhoid bacillus, which constituted a nucleus, around which the stones formed.

DR. RODMAN of Philadelphia was very optimistic as regards the safety of Röntgen rays in relation to burns, believing that in proper hands there is no cause for alarm.

DR. LEMON of Milwaukee mentioned two cases. In both cases there was an entire absence of jaundice; the possibility of suppuration of the gall bladder had not been thought of.

DR. BLOODGOOD of Baltimore spoke of the acute hemorrhagic pancreatitis, also of "cases in which we have history of gallstone colic, with or without jaundice; and yet when we operate we find no stones in the gallbladder or ducts, but we find an indurated pancreas, or chronic interstitial pancreatitis, and we find such cases are relieved by temporary drainage of the gall bladder."

Others who spoke were: Dr. Porter, Ft. Wayne; Dr. Phillips, Rockyford; Dr. Mitchell, Missouri; Dr. Maxwell, Iowa; Dr. Bernays, St. Louis; Dr. Leonard, Philadelphia; Dr. Eisenbrauf and Dr. Bullitt.

DR. C. E. RUTH of Keokuk, Ia., read an interesting paper on

FRacture OF THE FEMORAL NECK.

He recited many cases, but particularly of a man seventy-two years of age, who sustained

fracture of the femoral neck at that time, and died at ninety. He exhibited the specimen, showing bony union.

The reality of any fracture immediately brought several fellows to their feet, contending that there was no fracture present. DR. MAXWELL, from whose patient the bone was taken post-mortem, had the history of the patient and could, therefore, support the statement of fracture.

DR. BERNAYS of St. Louis said that when he saw the specimen at the Tri-State meeting several months ago he was very skeptical; he did not think it was the bone of a man ninety years of age. After he returned home he looked up the anatomical collection, and also asked the superintendent of the poorhouse to let him have the bones of two of the oldest men that died during the month. They were over eighty years old, and were just as solid in texture as that bone presented, which convinced him that the bone shown at the section was one from a man ninety years of age.

The CHAIR thought the condition a very important one, if true, as a rarity and contribution to surgical science, and suggested that the essayist keep a record of these cases met with during the interim between the present time and next meeting of the section and then to report his findings accurately and in detail.

DR. GRANT doubted the existence of complete fracture of the bone.

DR. MAXWELL wanted to know how he accounted for two inches shortening with crepitation, extension and rotation. The reply was that it might be in the acetabulum, without fracture of the neck of the bone; that extension would reduce it, and there would be no shortening.

DR. THOMSON of Scranton exhibited an x-ray specimen of the fracture of the neck of the femur in a miner under his care. The patient eventually died from heart trouble, as announced by the local coroner at that place.

DR. LISTON A. MONTGOMERY presented an interesting discussion of the subject, with presentation of a live subject, wearing a special apparatus or brace.

DR. J. RAWSON PENNINGTON of Chicago gave an interesting talk, diagrammatically elucidated, on

A SIMPLE OPERATION FOR THE TREATMENT OF HEMORRHOIDS.

The section this year was a most successful one, the attendance ranging between 500 and 1,000 daily. On two occasions there were present 1,000. Following the presentation of a complimentary resolution of thanks from Dr. Rodman of Philadelphia to the retiring president and secretary and speeches of response, the Section of Surgery and Anatomy adjourned *sine die*, carrying with it the feeling of the utmost satisfaction at the success of the meeting, not only from the interest manifested, but by the high-class papers presented and scientific nature of the discussions.

(To be continued.)

Recent Literature.

Clinical Pathology of the Blood. A Treatise on the General Principles and Special Applications of Hematology. By JAMES EWING, A.M., M.D., Professor of Pathology in Cornell University Medical College, New York City. Illustrated with 30 engravings and 14 colored plates drawn by the author. Philadelphia and New York: Lea Brothers & Co. 1901.

This is a most attractive-looking book of 424 pages and an index. The text is illuminated with 14 colored pages, drawn by the author, showing the typical appearances in stained preparations of blood in normal and pathological conditions. These plates seem to us to be excellent. They will undoubtedly be of great usefulness to beginners in blood examinations. Although they are somewhat diagrammatic, we think they will serve their purposes better for this reason. There are 30 other illustrations. The text of the book seems to sum up practically everything of importance that is known concerning the nature of blood diseases. It shows that the author has made a most conscientious endeavor to present all the facts in the literature.

A good feature of the work is the insertion of numerous tables of bibliography. Such a table is placed at the end of almost every important section. The titles in these tables in many instances are very numerous, and their number is a good index of the enormous amount of work that has been done upon the blood. If the author has read all of the literature contained in these bibliographical tables, he has our admiration and our sympathy. The subject-matter is logically arranged, and the headings of the subdivisions in various chapters are printed with heavy type, so as to facilitate the use of the book for reference. In discussing vexed or unsettled questions conflicting views and evidence are carefully given, together with the author's own ideas. Throughout the work the author endeavors to assume a critical attitude, and the book shows that he has an excellent knowledge of the clinical examination of the blood. Although the text contains a large amount of material of theoretical interest, yet the so-called practical man is kept in mind by the author, as is shown by the presence of many summaries, with special reference to the needs of the practical clinician.

We think that the word "clinical" in the title of the work is superfluous. We suppose that this word was inserted at the instance of the publishers, because it suggests to the great medical-book-buying public something practical and useful. The work should be of great value, not only as a manual for students of hematology, but also as a work of reference on the pathology of the blood.

PLAGUE IN OPORTO.—It is reported that twelve cases of bubonic plague, with four deaths, had occurred in Oporto, Portugal, up to June 27.

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J. P. MORGAN'S GIFT TO HARVARD UNIVERSITY.

THE commencement season at Harvard is usually marked by the announcement of bequests to one or another department of the university. Not forgetting the Ellis fund and certain others for the benefit of medical education, which have from time to time been given, it is nevertheless true that the medical school and its work has never been one of the favorite objects of benefaction. It is, therefore, with a very peculiar sense of gratification that we make note of Mr. Morgan's munificent donation of upwards of \$1,000,000 for the furtherance of medical education as represented by the Harvard Medical School. The money is to be expended for the erection of three of the new medical buildings contemplated for several years, the only stipulation being that the buildings are to be memorial halls, in memory of Junius Spencer Morgan, a native of Massachusetts, formerly a merchant of Boston, and at the time of his death a merchant in London. This gift is the more significant from the fact that neither Mr. Morgan nor his father, so far as we are aware, had any special interest in medicine or medical education. It goes to show how widespread the feeling is coming to be among the laity that medicine both needs and deserves the recognition for which it has long been waiting. It is apparently difficult to uproot the idea, based, we regret to say, to some extent on fact, that medical schools are, in the first place, founded for mercenary ends; and in the second place, are easily supported. These conceptions are every day being disproved. In the better medical schools, of which unfortunately there are none too many, the mercenary element is wholly overshadowed by the higher demands which medicine as a branch of liberal education is making, and certainly it takes but little experience to know that the expense of

properly conducting a medical department is exceedingly large. In announcing Mr. Morgan's gift President Eliot said: "There is no department of the university to which a great gift of this sort could be made with greater hope of an abounding return. The progress of medicine and surgery during the last twenty years is simply amazing. The triumphs of the physician and surgeon over disease and death are unparalleled in the whole history of the world; but we have as much more to look forward to, and I know no department of scientific research from which greater hope can be entertained than the department of applied biology. Moreover, this great gift comes as a reward to one of the most laborious, enthusiastic and hopeful of all the faculties of the university,—the faculty of medicine."

This large sum of money is to be expended for what we may term the material side of medicine. It is for new buildings, which are very much needed. With adequate buildings and laboratories, no doubt correspondingly better work may be done, but in the enthusiasm at so great an addition to our welfare in this regard, it must not for a moment be forgotten that, after all, the greatness of an institution depends upon its men, and not upon its external appearance. It is but right to expect that with the completion of these buildings and others to follow, will come also a renewed zest for actual work of medicine, which must be done quietly and laboriously, with small hope of immediate recognition or reward. Regarded from the larger point of view, Mr. Morgan's gift means far more than would at first appear; it implies not only the erection of proper buildings in which a progressive science may be studied to the best advantage, but also a renewed enthusiasm on the part of teachers and students alike, in doing work worthy of the new medical school, and of the university at large.

THE DRAWBACKS OF SUMMER.

THAT summer has its drawbacks, in spite of all its possibilities of enjoyment, has been sufficiently self-evident during the last few days. With the thermometer continuously about 90° and often more, it has been difficult for the best intentioned to be both cheerful and industrious. The doctor is not the least of the sufferers under these conditions. Unfortunately for his peace of mind his patients are not apt to be made more comfortable by excessive heat, nor, we fear, are they always likely to consider their doctor's comfort in the midst of their own distress. This is merely human nature, so called; but we devotees of a self-sacrificing profession are supposed to rise above such details, and some of us no doubt succeed. The

rest of us seek the solace of the sea or a breath of country air, and we are skeptics enough to surmise that our patients are none the worse for our desertion of duty.

Danger, however, apparently lurks even by the sea. We read of the usual number of deaths by drowning as well as by heat. The diver disappears and never emerges until dragged lifeless to the surface; the over-confident canoeist finds that he still has something to learn, and the venturesome amateur sailor discovers dangers which he supposed did not exist.

These things may add to the zest of life; in any case there are few of us who would not run the risk of such adventures, rather than submit to the consuming heat of a large city, during such a time as we have been recently living through.

MILK COMMISSION OF THE MEDICAL SOCIETY OF COUNTY OF NEW YORK.

DR. HENRY D. CHAPIN, president of the commission, and Dr. George B. Fowler, president of the society, have just given out a statement in regard to the work of the Milk Commission of the Medical Society of the County of New York, which was appointed somewhat over a year ago, with a view to the improvement of the milk supply of the city. The milk that is daily delivered in New York, they say, comes from five states, including thirty-four counties, and comprises more than 1,250,000 quarts. During 1900 over 6,000 children under five years died in the city from diarrheal diseases, largely due to old and contaminated milk. The milk commission decided to form a bacterial standard for the purity of the milk submitted to it, as a step in advance for the milkmen. This has been done in several cases with private companies, and it was decided to extend its benefits to any dealer desiring such oversight. The board of health looks after chemical composition, and has lately required that milk be not too largely contaminated with bacteria. A circular was drawn up for distribution among the milkmen, containing the best methods to be employed in producing and handling the milk, especially when it has to be transported a long distance.

The commission, having determined upon a standard of clean milk, will certify the milk of any dealer coming up to such standard. The work of several competent bacteriologists who have labored for the commission during the past six months has shown that milk up to its advanced standard can be sold in the city by observing three precautions; namely: (1) Strict cleanliness, which includes the barns, yards, cows, milkers and all utensils. Bacteria which get

into milk by means of dirt are thus largely excluded; (2) rapid and sufficient cooling of the milk. The few bacteria that do get in are thus prevented from growing; (3) thorough icing around the milk until it reaches the consumer. The production of toxins from the growth of bacteria is thus retarded. The commission believes that many milkmen need advice on these matters, and it is willing and able to extend such advice. Several experts have been placed at its disposal who stand ready to visit any farm or dairy, and recommend such changes as are required to perfect the handling of the milk. A number of such visits have lately been made, and resulted in a very great improvement in the output. The good results of this work are apparent, even when the milk has not yet reached the standard of the commission. The milk that reaches the required standard will be certified, as shown by a label. These labels have not yet been given out, as it has seemed best to wait a short interval, to see if the standard can be maintained.

If the public is prepared to sustain this movement they must necessarily pay a little more for what is worth much more to them, and the further test of this important experiment will thus rest with them. If there is a suitable demand for the improved article, the commission will continue its work. It is believed that the public health will thus be conserved, and the death-rate among little children markedly lessened. The board of health is doing excellent work on the milk question; but in the nature of the case, from the limitations of the law and the lack of public sentiment sustaining it, it cannot demand that all milk sold in the city shall have the standard of purity required by the commission.

MEDICAL NOTES.

OFFICERS OF ASSOCIATION OF AMERICAN MEDICAL EDITORS.—At the meeting of the association, held recently in St. Louis, officers for the ensuing year were elected as follows: President, Dr. Alex J. Stone of St. Paul; Vice-President, Dr. Burnside Foster of St. Paul; Secretary and Treasurer, Dr. O. F. Ball of St. Louis. The Executive Committee appointed for the ensuing year consisted of Drs. Gould, Matthews, Lillie, Fassett and Marcy. The next meeting will be held at Saratoga Springs, N. Y., in June, 1902.

VACCINATION IN CUBA.—A decree ordering compulsory vaccination has recently been issued. Vaccination will be obligatory on all inhabitants of Cuba within four months from August, 1901. Physicians are to be appointed to vaccinate under the superintendence of a permanent commission.

RETIREMENT OF PROFESSOR RIBOT.—It is reported that Théodule Ribot, professor of experimental psychology at the College de France, will by his own request retire from active work in November.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the six days ending at noon July 2, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 39, scarlatina 12, measles 143, typhoid fever 7.

EFFECTS OF THE HEAT.—During Friday and Saturday of last week and Sunday of this week there were reported 7 deaths from heat in Boston and 85 prostrations; Monday, 6 deaths and 37 prostrations; Tuesday, 5 deaths and 30 prostrations. The number of prostrations is no doubt inaccurate, since many cases must, of necessity, escape the observation of the authorities.

BOSTON FLOATING HOSPITAL.—The first trip of the Floating Hospital will be made July 5. Trips down the harbor will be made daily (weather permitting) except on Sundays, from July 5 to some date in September to be determined later. On Sundays, every night, and up to eight o'clock in the morning patients will be admitted to the hospital at the station, Pickert's Wharf, New street, East Boston, near North Ferry. The daily trips will be made from City Wharf, South Ferry, Eastern avenue, the hospital leaving at 9 A.M. and returning about 4 P.M. Patients will be received at these hours. The age limit for patients is six years. The requirement for admission is a certificate signed by a physician, and these may be obtained from the Floating Hospital office, 178 Devonshire street, room 505, from any of the dispensaries and hospitals in the city, and from physicians and agents of charity organizations in the city proper as well as in Greater Boston. Admission cards will be sent by mail on application, and those using these cards are requested to notify us before their supply is exhausted. It is particularly requested that care be taken not to recommend any children that are even suspected to be suffering from any contagious disease, as such cases are rigidly excluded.

OPERATIONS AT THE MASSACHUSETTS GENERAL HOSPITAL.—During the summer there will be public operations at the Massachusetts General Hospital daily at 11 o'clock.

NEW YORK.

QUARANTINE REGULATIONS AGAINST HAVANA AND CUBAN PORTS.—Dr. Doty, health officer of the port, after returning from a recent visit to Washington, where he was in consultation with Dr. Wyman, supervising surgeon-general of the

Marine Hospital service, in relation to a suggested modification of quarantine regulations against Havana and other Cuban ports, gave out a statement which was in part as follows: "If the present favorable sanitary report from Cuba continues during the summer, we will feel justified next year in modifying the restrictions which have hitherto existed. At present, however, I do not feel that I can make any change in the manner of treating those coming from Cuban ports. It is not only possible but probable that yellow fever may now exist in Havana unrecognized, and that in a short time cases may be brought to the notice of the Federal health authorities. While I believe that the appearance of yellow fever in our section of the country would be practically no menace to the public health, and that it would be safe for all to exempt from quarantine those whose destination is in the North, and detain only those who are bound for the South, where yellow fever rapidly propagates, the Southern quarantine officials recognize the fact that, although persons may give their destination as the North, they may reach the South before the period of incubation has expired, and therefore in certain sections they have earnestly protested against any change in the regulations."

TUBERCULOSIS AS A COMPLICATION IN A MEDICO-LEGAL SUIT.—A case of considerable medical interest was decided by a jury award in the Supreme Court on June 17. Mrs. Kate Hoey, the widow of James J. Hoey, who died in September last from acute tuberculosis, recovered a verdict for \$12,500 in an action against the Metropolitan Street Railway Company, in which she claimed \$25,000 damages on the ground that her husband's death was the result of injuries received by him in a street-car collision on Dec. 11, 1899. The immediate effects of the accident were contusions on the head and trunk and an injury to the spine, which resulted in atrophy of the limbs and hysteria. The defense set up by the company was that Hoey was suffering from tuberculosis at the time the accident occurred, and that the collision was in no way responsible for his death nine months afterward. The jury, basing their verdict on the medical testimony presented, that the tuberculosis was the indirect effect of the injuries received, found for the plaintiff, holding that the deceased was not the subject of the disease at the time of the accident.

OFFICERS OF MEDICAL SOCIETY OF STATE OF NEW JERSEY.—At the concluding session of the annual meeting of the Medical Society of the State of New Jersey, at Deal, N. J., on June 27, the following officers were elected: President, Dr. John D. McGill of Jersey City; First Vice-President, Dr. E. L. B. Godfrey of Camden;

Second Vice-President, Dr. Henry Mitchell of Asbury Park; Third Vice-President, Dr. A. W. Taylor of Beverly; Corresponding Secretary, Dr. E. W. Hedges of Plainfield; Recording Secretary, Dr. W. J. Chandler of South Orange; Treasurer, Dr. Archibald Mercer of Newark.

APPOINTMENT OF DR. THEODORE WALSER.—The Board of Health has appointed Dr. Theodore Walser of New Brighton, the oldest physician on Staten Island, sanitary superintendent for the Borough of Richmond, to fill the vacancy caused by the death of Dr. John L. Feeny. Dr. Walser has never been identified in any way with political affairs, and his name was brought forward in connection with the position solely in the interest of the community's welfare.

CLINICAL DAYS AT ALBANY HOSPITAL.—During July and August weekly "clinical days" will be held on Tuesday at the Albany, N. Y., Hospital. Lectures and demonstrations will be given at the hospital and at the Bender Laboratory on a large variety of subjects connected with medicine and surgery. Information regarding the course may be had by applying to Dr. Edgar A. Vander Veer, Albany, N. Y.

BULLET WOUND A SUPPOSED CAUSE OF CANCER.—In the case of Gen. Robert Nugent, a distinguished veteran of the Civil War who died in Brooklyn, N. Y., on June 20, the cause of death was gastric cancer, which, it is stated, was primarily due to a bullet wound in the stomach received at the battle of Fredericksburg, where he was in command of the Sixty-ninth Regiment, New York Volunteers.

DEATHS FROM HEAT.—On June 28 there were 8 deaths in the city directly due to the effects of the heat. On the day following the number was 16.

A CENTENARIAN.—William Burns, a native of Ireland, and unmarried, died at Watertown, N. Y., on June 21, at the age of 102 years.

Miscellany.

THE PROFESSIONAL MAN.

WE quote from the *Kansas Appeal to Reason*, the following opinion regarding the medical man as he exists today, and as he might be under changed social conditions. While in no sense accepting the point of view presented, it is perhaps desirable at times to note how other people think:

The professional, not less than the working classes, are sufferers by the present competitive system, and it will grind them harder and harder as the wealth of the country is concentrated into fewer and fewer hands. Take the physician, for instance. He goes to school

for an education, and then, often at the greatest sacrifice, spends three or four years at medical institutes. Buoyant with life and hope he hangs out his shingle in some place, and waits, waits, waits for the patients whom he could help. He is too young. How he would welcome gray hairs and a heavy beard. He cannot leave his office, for he might miss a call. Here he spends the prime of his life, hiding his anxiety and poverty as best he can. He must appear "respectable" — well-dressed, must not do anything other than give his attention to his profession for a living to help him over the hills of difficulty. In this condition of smothered agony the prime of his life is wasted. The flowers of vigor are blasted, and life loses the sweetness of being. After he has reached middle age, if he has not become despairing and gone to dissipation, he gets a practice, and from then on to the end he works late and early, in all kinds of exposure, and has no time to enjoy life when he has the means. It seems to me an appalling future for the young physician, and I have had more than one tell me they preferred to practice quack methods and skin the public rather than suffer it.

How different and how pleasanter would be their lives under Socialism. Students in all vocations would draw their living from the public. When they were qualified they would be attached to the Public Department of Health and Sanitation and receive a full compensation, and would enjoy life in its fullest sense. They could get at least half the year from their duties without losing a practice, and would have an income that would enable them to travel, or enjoy themselves in any manner they might find most pleasure. When the vacation was over they would come back, and others of the members of the department would take their vacation. No patient would be treated for a fee. The committee of reception for patients would be physicians selected by their fellows, who would examine and assign patients to the physicians who best understood their particular disease. This would give every one the best treatment, for the physicians would have no interest in treating any malady when they knew another physician, specialized in the disease, could treat it better. Physicians would have entire control of the sanitation and health of a nation, for they best understand such matters. The public would provide the finest buildings genius and labor could erect, equipped with every appliance for the successful operation of the science of medicine—appliances now available to but a very small part of the physicians and surgeons. It would be to the interest of the physicians to keep the public well. If they kept the public well now they would starve to death. Under Socialism, after a number of years of service they would be retired with pay—and so would every member of every other profession or trade. There would be no envy, no bickering, no prejudice among physicians, for the success of one would benefit all. If physicians could realize how pleasant life would be to them they would all be Socialists. There are thousands of them who are beginning to see the picture of a higher social organism, and more physicians are reading up on and becoming Socialists than any other class. They will be leaders in the New Crusade.

VIVISECTION STATISTICS.

WHEN one considers the amount of animal life sacrificed for various purposes, more or less useful, one is disposed to be still more indignant at the clamor of the antivivisectionists. The following figures, quoted from the *Medical Press*, are of interest in this connection:

From the return recently presented to Parliament on the subject of vivisection experiments we gather that during the year 1900 the total number of experiments amounted to 10,889. Of

this number 1,885 were performed under an anesthetic and 8,954 without. The experiments under anesthesia are classified as follows: Physiological 1,253, pathological 420, and therapeutic 212. The non-anesthetic experiments, consisting entirely of inoculations, hypodermic injections, and similar trivial procedures (trivial, that is, in regard to the extent of the wound inflicted), comprised: Physiological 136, pathological 5,853, and therapeutic 2,965. The total number of experiments is 2,370 in excess of that for the preceding year, the increase being due mainly, if not exclusively, to experimental inoculations in respect to bubonic plague, the utility whereof is sufficiently obvious.

Correspondence.

THE VIRCHOW FUND.

110 WEST 34th STREET, NEW YORK, July 1, 1900.

MR. EDITOR: Some months ago a committee consisting of Dr. Reed, president of the American Medical Association; Dr. Bowditch, president of the Congress of American Physicians and Surgeons; Dr. Weir, president of the New York Academy of Medicine; Dr. Welch of Johns Hopkins University, and the undersigned secretary, published an appeal to the American medical profession requesting contributions to the Virchow fund, which was established ten years ago in honor of Rudolf Virchow's seventieth birthday, which was reached Oct. 13, 1891. The fund was created for the purpose of fostering biological, anthropological and general medical research. A large German committee, with national committees formed all over the globe, has undertaken to increase this fund in honor of the coming eightieth birthday of the great medical reformer.

Whatever contributions will be raised should be sent to Germany on the first day of September, in order to be received and acknowledged by the central committee in due time. As our former notices may have been overlooked by such as are anxious to show their appreciation of the great master and to aid the cause represented by his life-long labors, we herewith repeat our appeal.

A. JACOBI, Secretary.

METEOROLOGICAL RECORD

For the week ending June 22, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:

Date	Barometer		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.			
S..16	30.09	58	66	49	71	58	64	N	E	S	W	12	12	C.	C.
M..17	30.02	64	77	52	50	49	50	N	W	S	S	4	14	C.	C.
T..18	30.00	66	77	55	54	44	49	S	W	S	S	8	8	C.	C.
W..19	30.07	61	66	56	51	71	61	N	E	S	E	4	6	C.	C.
T..20	30.19	67	76	58	68	68	68	S	W	S	S	9	12	O.	O.
F..21	30.06	70	78	61	80	82	81	S	W	S	S	12	10	O.	C.
S..22	29.89	70	76	64	91	91	91	W	W	S	S	10	3	R.	O.
30.05	74	57			66										.53

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
 ☞ Mean for week.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, JUNE 22, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and croup.	
New York.	3,437,202	1,103	340	29.48	7.89	3.08	4.26	3.81	
Chicago.	1,938,575	1,293,697	410	132	22.20	5.36	1.22	13.18	2.93
Philadelphia.	576,238	—	—	—	—	—	—	—	—
St. Louis.	508,307	132	34	24.98	5.30	—	6.06	—	75
Baltimore.	351,768	—	—	—	—	—	—	—	—
Cleveland.	352,387	—	—	—	—	—	—	—	—
Buffalo.	325,902	—	—	—	—	—	—	—	—
Cincinnati.	321,616	117	54	33.30	11.10	4.27	13.06	—	85
Pittsburg.	278,718	—	—	—	—	—	—	—	—
Washington.	285,315	—	—	—	—	—	—	—	—
Milwaukee.	176,997	54	15	38.85	7.40	1.85	14.80	5.55	—
Providence.	560,592	169	52	27.77	7.09	1.18	—	5.31	—
Boston.	118,421	35	6	14.30	2.58	—	—	—	—
Worcester.	104,863	23	10	21.75	13.65	—	17.40	—	—
Fall River.	94,903	25	5	24.00	12.00	—	—	8.00	—
Lowell.	91,886	26	10	19.20	7.68	—	—	3.84	—
Cambridge.	68,513	18	4	22.20	11.10	5.55	—	11.10	—
Lynn.	62,559	13	6	7.70	7.70	—	—	—	—
Lawrence.	62,442	22	4	31.41	—	—	—	9.09	—
New Bedford.	62,069	—	—	—	—	—	—	—	—
Springfield.	61,643	9	2	44.44	11.11	—	—	—	—
Somerville.	45,712	16	2	25.00	—	—	6.25	—	—
Holyoke.	40,003	11	2	26.36	9.09	—	—	9.09	—
Brookton.	37,175	4	1	50.00	—	—	—	25.00	—
Haverhill.	35,856	13	—	—	—	—	—	—	—
Salem.	34,672	9	2	22.22	—	—	—	22.22	—
Chelsea.	33,661	5	1	20.00	40.00	—	—	—	—
Malden.	33,587	7	3	—	14.30	—	—	—	—
Newton.	31,531	8	4	37.50	12.50	—	—	—	—
Fitchburg.	31,036	8	1	—	12.50	—	—	—	—
Taunton.	26,121	4	1	—	—	—	—	—	—
Glooucester.	24,336	5	2	40.00	20.00	—	—	—	—
Everett.	24,207	5	1	—	—	—	—	—	—
North Adams.	23,899	4	1	25.00	—	—	—	—	—
Quincy.	23,481	6	1	16.67	—	—	—	—	—
Waltham.	21,706	5	1	20.00	—	—	—	—	—
Pittsfield.	19,365	5	1	—	—	—	—	—	—
Brookline.	19,167	5	2	40.00	—	—	—	—	—
Chicopee.	18,244	5	3	60.00	20.00	—	—	—	—
Medford.	14,478	5	—	—	—	—	—	—	—
Newburyport.	12,962	—	—	—	—	—	—	—	—
Melrose.	—	—	—	—	—	—	—	—	—

Deaths reported 2,301; under five years of age 700; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 621; acute lung diseases 185; consumption 281; scarlet fever 50; erysipelas 10; typhoid fever 17; whooping cough 15; measles 18; cerebro-spinal meningitis 5; smallpox 22. From whooping cough, New York 6, Philadelphia 5, Baltimore 1, Pittsburg 1, Boston 1, Cambridge 1. From cerebro-spinal meningitis, New York 2, Boston, Worcester and Somerville 1 each. From scarlet fever, New York 34, Philadelphia 5, Pittsburg 5, Providence 1, Boston 2, Lynn 1, Medford 2. From typhoid fever, New York 4, Philadelphia 7, Baltimore 1, Pittsburg 3, Boston 1, Malden 1. From erysipelas, New York 4, Philadelphia 2, Baltimore 1, Pittsburg 1, New Bedford 1, Holyoke 1. From malarial fever, Philadelphia 1. From smallpox, New York 20, Providence 1, New Bedford 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,163,187 for the week ending June 8 the death-rate was 15.2. Deaths reported 3,256; acute diseases of the respiratory organs (London) 187; whooping cough 75; diphtheria 49; measles 91; fever 10; scarlet fever 32.

The death-rate ranged from 7.9 in Derby to 21.2 in Gateshead; Birkenhead 15.9, Birmingham 17.1, Blackburn 17.7, Bolton 18.5, Bradford 16.9, Brighton 12.2, Bristol 12.2, Burnley 12.9, Cardiff 12.6, Croydon 12.8, Halifax 18.8, Huddersfield 15.1, Hull 11.5, Leeds 13.9, Leicester 10.1, Liverpool 18.5, London 14.2, Manchester 16.3, Newcastle-on-Tyne 17.2, Norwich 19.1, Nottingham 19.7, Oldham 19.4, Plymouth 15.5, Portsmouth 17.0, Preston 16.1, Salford 16.9, Sheffield 15.3, Sunderland 17.0, Swansea 18.7, West Ham 18.7, Wolverhampton 14.9.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JUNE 15, 1901.

DR. C. M. MATERS, appointed assistant surgeon from June 1, 1901.

J. F. MURPHY, assistant surgeon. Ordered to the Naval Academy, June 15th.

A. R. WENTWORTH, surgeon. Detached from the "Solace" and ordered to the "Albany."

H. N. T. HARRIS, surgeon. Detached from the "Albany" and ordered to the "Monocacy."

S. G. EVANS, passed assistant surgeon. Detached from the "Monocacy" and ordered to the "Solace."

J. W. BARRETT, assistant surgeon. Ordered to the "Vermont," June 17th.

F. A. ANDERSON, assistant surgeon. Ordered to the Naval Hospital, New York, June 17th.

G. M. MATERS, assistant surgeon. Ordered to the Pensacola Navy Yard, June 18th.

FOR THE WEEK ENDING JUNE 22, 1901.

H. M. TOLFEY, assistant surgeon. Appointed assistant surgeon from June 14, 1901.

C. F. STOKES, surgeon. Ordered to the "Solace" upon arrival in the United States.

R. B. WILLIAMS, assistant surgeon. Ordered to the "Kearsarge," June 21.

F. M. FRYLON, assistant surgeon. Detached from duty at Guam and ordered to the "Solace" for transportation home.

R. K. McCLELLAN, assistant surgeon. Detached from the "Culgoa" and ordered to the "Vicksburg."

D. B. KERR, assistant surgeon. Detached from the "Vicksburg" and ordered to the "Culgoa" to wait orders en route.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JUNE 20, 1901.

PERKHAM, C. T., surgeon. Granted extension of leave of absence on account of sickness, for thirty days from June 20. June 19, 1901.

WOODWARD, R. M., surgeon. Granted extension of leave of absence for three weeks from June 5. June 19, 1901.

GARDNER, C. H., passed assistant surgeon. Granted leave of absence for seven days from June 21. June 17, 1901.

CORFUT, G. M., assistant surgeon. Relieved from duty at the Louis, N. S., June 18, 1901. Leave of absence for one month granted by Bureau telegram of May 16, amended so that said leave shall be for twenty-one days only. June 18, 1901.

MOORE, DENTORY, assistant surgeon. To proceed to Port Townsend, Wash., and assume temporary charge of service during absence of Passed Assistant Surgeon C. H. Gardner. June 17, 1901.

BROWN, B. J., JR., acting assistant surgeon. Granted leave of absence for fourteen days from June 20. June 19, 1901.

GOLDSBOROUGH, B. W., acting assistant surgeon. Granted leave of absence for two days. June 20, 1901.

SCHLAAR, W. F., hospital steward. Relieved from duty in the Hygienic Laboratory, and directed to proceed to Key West, Fla., and report to the medical officer in command for duty and assignment to quarters. June 19, 1901.

SCOTT, E. R., hospital steward. Granted leave of absence for twelve days from June 24. June 19, 1901.

SOCIETY NOTICE.

SCHOOL FOR HEALTH OFFICERS.—The third annual school for health officers, under the direction of the Vermont State Board of Health, will be held at Burlington, Vt., from July 8 to July 11, inclusive.

RECENT DEATHS.

BENJAMIN FRANKLIN HASTINGS, M.D., M.M.S.S., of Whitman, died June 28, 1901, aged sixty-four years.

DR. GEORGE HOMER MACVENS of White Plains, N. Y., died on June 25. He was born in New York City in 1851, and was graduated from Bellevue Hospital College in 1876. In 1879 he removed to White Plains, where he built up a large practice. He was president of the local Board of Health and a leading member of the Medical Society of Westchester County, and did excellent service in improving the milk supply of New York City.

DR. JAMES W. E. ROBY, of the Eastern District of Brooklyn, N. Y., died in St. John's Hospital, Long Island City, on June 25, at the age of thirty-eight. He was born in New York, and was graduated from the medical department of the University of the City of New York in 1887.

Original Articles.

TWO CASES OF PREGNANCY COMPLICATED BY MITRAL INSUFFICIENCY.¹

BY HENRY D. CHADWICK, M.D., WALTHAM, MASS.

During the past year it has been my ill fortune to have had two pregnant women under my care, who had mitral disease, and both of whom died after delivery of the fetus. One was in the seventh month of her pregnancy, the other at the beginning of the ninth.

CASE I. Mrs. A., aged thirty years.

Family history.—Father died of nephritis; mother of heart disease.

Past history.—Never had any serious illness. Three years ago she went through a pregnancy which was normal in every way, from its beginning to the natural delivery at its end.

The latter part of December she became pregnant the second time. During this month she had an attack of bronchitis, and the attending physician discovered some cardiac trouble. That was the first time she had been made aware of it. During the previous few months she had noticed that she became short-breathed when walking fast, but supposed it was because she was gaining in weight quite rapidly. She had more or less trouble with coughing during the winter, and the cough assumed at times more of an asthmatic character.

She first came under my care June 20, 1900, in the fifth month of her pregnancy. When called to see her at this time, I found her suffering from marked dyspnea and a violent cough. The expectoration was abundant, frothy, somewhat purulent and stained with blood. Physical examination showed a well-developed woman, somewhat inclined to obesity. The lungs were filled with moist râles. No dull areas could be made out by percussion. The action of the heart was very rapid, and a systolic murmur could be easily heard at apex, which was transmitted to the axilla. Second pulmonic sound was accentuated. The size of the uterus corresponded with the duration of her pregnancy. The temperature was but slightly elevated. She was at once put upon strychnia in full doses and sedative expectorants. The sputum was examined, but failed to show any tubercle bacilli. She gained rapidly under this treatment, with the important help of absolute rest in bed. In a week's time she was able to sit up, and soon to do her lighter household duties. The strychnia was continued in smaller doses, and heroin was found to be of benefit in relieving the dry cough which followed.

I did not see her again, but her husband reported occasionally that she was doing well. In the latter part of August I went away for a vacation, and as Mrs. A. was not expected to be confined until about the 29th of September, I did not place her in a physician's care. Sept. 5 the three-year-old child became ill with diphtheria,

and Dr. W. was called to attend her. While there he noticed Mrs. A.'s condition, and questioned her in regard to it. He found upon examination that the lower extremities were badly swollen, and that the edema extended to the vulva and on her body as high as the waist line. She was having headaches and nausea a great part of the time. The edema had been gradually increasing for several weeks, but she had not thought it serious enough to mention.

The heart was considerably enlarged, and a pronounced systolic murmur could be heard. The critical condition she was in was explained to her, and she was taken at once to the hospital. She was then put upon salines and diuretics. During the next few days the daily amount of urine was between fifteen and twenty ounces. It contained about 1% albumin. Headaches were frequent, and nausea and vomiting occurred occasionally.

Sept. 11, which was five days after admission, labor began, and Dr. W. was called to attend her. The legs were swollen and hard with edema. The vulva was much distended. Temperature since admission was a little subnormal. Pulse between 80 and 90. Labor pains began at 3.30 A.M., and the first stage was over at 7.15 A.M. Strong pains brought the head about half way down, when patient seemed to be getting exhausted, and forceps were used, and a male child, weighing five and one-half pounds, was born at 7.45. The placenta came away twenty-five minutes later.

Sharp after-pains followed, and severe headache in the afternoon with mild delirium. At 5.30 P.M. a convulsion lasting twenty minutes occurred. Her pulse was very weak. Strychnine and morphine were given, and three pints of normal salt solution were put in the breasts. Cheyne-Stokes respiration followed the convulsion, temperature 99.4, pulse 108, respiration 26. She was mildly delirious, had weak, rapid pulse, very variable in rhythm. Considerable perspiration, persistent hicough. During the next week condition remained desperate. Her pulse was very weak in spite of all the stimulants the patient could bear. Diuretics had but little effect in diminishing the edema, although the quantity of urine was increased to three pints. The respiration was very labored, and she was obliged to sit up a greater part of the time to get relief. She complained of severe pains in the region of the heart at times.

The second week showed considerable steady improvement. The heart steadied down to below 100 and was quite regular. The edema of legs diminished a great deal, as did that of the genitals. The beginning of the third week showed another change for the worse. The abdomen became distended with flatus, and the abdominal walls with edema; her eyes became blurred, and she felt numb all over. Considerable swelling of the arms, legs and left side of vulva was noted. Respiration was labored; pulse was weak and irregular, but still much better than during the first week. Her mind was not clear at all times.

¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, March 27, 1901.

The urine was very scanty in amount and loaded with albumin. It was thought best to remove her to her home, and this was done. The urine became very scanty in amount, and, after living two days in a semi-conscious condition, she died. This was twenty-one days after delivery. The baby lived and is a strong, healthy child.

CASE II. Mrs. D., age thirty-six.

Past history.—She had measles when a child. Then she had an attack of sciatica eleven years before her death. This attack lasted one week. Since childhood she had always been short of breath when running or excited. Each winter she has had a chronic bronchitis, and any exertion would always cause her to cough and breathe quickly.

She was married ten years ago and has had no children. She has suffered from a marked degree of vaginismus during this time. Six years ago she was cured and the vagina dilated, but without relief from the hyperesthesia. She came to consult me in March with regard to this condition, because she was extremely anxious to have a child and wanted something done if possible to relieve the painful vaginal spasm, which was so intense that it was beyond her power to control or endure it. For this reason the much-longed-for pregnancy was impossible until this impediment to its production could be removed. A vaginal examination showed the external genitals to be normal, but any attempt to insert a small speculum produced a painful contraction of the vaginal muscles. There was a small urethral caruncle, which was red and sensitive to touch. The remains of the hymen were reddened and tender. An examination of the internal organs could not be made on account of pain. An examination of the heart showed a very faint mitral systolic murmur, otherwise normal. I told her that she could probably be relieved by an operation, but could not promise how much help it would be. She decided to have it done.

A few days later, with the assistance of Dr. D., the patient was etherized, the urethral caruncle removed, and the remains of the hymen were also dissected off. The vaginal orifice was enlarged by making two lateral longitudinal incisions in the perineum, and the mucous membrane at the two extremities of each incision was brought together and sutured so as to cover in the divided muscle. The vaginal outlet was thereby considerably increased in size. The uterus and adnexa were normal. She recovered well from the ether, and the cardiac condition produced no untoward symptoms during the anesthesia. After this procedure she menstruated regularly for two months, and then became pregnant. During the following three months she suffered considerably from nausea and vomiting and had some cough; but as she was so accustomed to having some bronchial irritation, she paid no heed to it. During the fifth month the cough became more troublesome, and she consulted me in regard to that. There was also at times a little swelling of the ankles. The vomiting continued, but was not so trouble-

some. Examination of the heart showed a pronounced systolic mitral murmur, and the rate was increased. The second pulmonic was accentuated. Digitalis and belladonna were given. The urine showed a faint trace of albumin; there was also an increase in the edema of the feet and legs. After a short interval of improvement the cough returned, and was but little relieved by sedatives. The urine became smaller in amount. Diuretics were now effectual in relieving the edema for a while. Her cough was the most distressing symptom.

On Nov. 21, which was the middle of the sixth month of her pregnancy, I found her in wretched condition. The heart had rapidly become weaker, and the pulse was very irregular—at times too rapid to count. The legs were hard with edema, and the vulva somewhat swollen. Dr. W. then saw her at my request, to decide whether it was advisable to terminate her pregnancy by an induced abortion.

The patient would not consent to have this done if it was possible to save the life of the child, even at the expense of her own. If there was no possibility for the fetal development to go on, then she would be willing to have an abortion performed. Her condition was now so critical that an immediate operation would have been surely fatal. As she had had no trained nurse up to this time, it was decided to try to get her heart steadied down by absolute rest in bed and good nursing. Her position had to be a reclining one, as she could not lie down on account of dyspnea. The infusion of digitalis was changed to the fat free tincture, and strychnia was discontinued. Codeine and heroin were used to relieve the dyspnea, and with some effect. Headache and vomiting were distressing symptoms. The amount of urine was at this time three pints, specific gravity 1.010, with faint traces of albumin. The condition of the heart began to improve, and with this also the general condition was more favorable, so that within three days the pulse was below 100 and regular in rhythm. The urine increased to four pints. Her condition was so good that we then decided that it might be possible to wait until after the seventh month, which would be two weeks longer, and then if the heart showed evidence of again failing to do its work, a Cesarean section would be done under local anesthesia.

During the next three weeks her heart continued fairly good, the rate being from 90 to 100, but she was very nervous and sleepless. The dyspnea kept her from lying down. The cough was persistent and could only be kept subdued by morphine. The amount of urine was between two and three quarts daily, very low specific gravity and containing the slightest trace of albumin. Notwithstanding this larger amount of urine, the edema diminished very little. Dec. 11 she complained of some pains in her back, which proved to be the beginning of labor. These continued at intervals for thirty-six hours, and then, with Dr. W.'s assistance, dilatation having taken place normally, she was delivered with

forceps. The fetus was stillborn and a little macerated. Although the labor did not seem to have an immediate ill effect upon her condition, she did not improve. She made no effort to assist in our efforts to save her, but wished to die and became a very difficult case for the nurse because of absolute indifference to life. The pulse, which had been about 96, went up to 110 after delivery and remained there. The edema extended to the abdominal walls, and there was some ascites. The abdomen was aspirated once, in the hope that the dyspnea could be relieved. One quart of cloudy serum was drawn off, but no relief followed. She complained of sharp pains in the region of the heart at times, and ten days after delivery, when in one of these attacks, suddenly died.

I have presented these nearly parallel cases to you in considerable detail, that you might the more intelligently discuss them. Two fatal cases of this sort have inspired in me a wholesome dread of mitral insufficiency in pregnancy. They have caused me to think that the only proper treatment of such cases is to watch the patient closely from the beginning, and when lack of compensation is shown by pulmonary congestion as manifested by edema and persistent cough, it is not only justifiable but one's duty to his patient to advise and urge upon such an unfortunate mother the necessity of saving her own life by terminating her pregnancy as speedily as possible.

ALBUMINURIC RETINITIS AND UREMIC AMAUROSIS, WITH ESPECIAL REFERENCE TO THEIR OCCURRENCE IN PREGNANCY.¹

BY EDMUND W. CLAP, M.D., BOSTON,
Assistant Ophthalmic Surgeon to the Carney Hospital.

BEFORE Bright's time disturbance of sight had occasionally been noticed in dropsical cases, and also during pregnancy. Then Bright discovered the cause of the dropsy, and he, too, noted the visual implication dependent on the kidney disease. Turck in 1850 made the first anatomical examination of an eye with this derangement, and showed that in some cases, at least, the visual trouble was due to disease of the retina.

Now, we recognize two conditions clearly, due to nephritis, which give rise to disturbances of vision: albuminuric retinitis and uremic amaurosis. These are distinct; one is not dependent on the other; but as they are both complications of renal disease, and often occur together, I have thought it best to consider them together.

Albuminuric retinitis.—What the direct cause is we do not know, but the term albuminuric is justified by convenience, for one thing common to the conditions under which this retinitis occurs is the presence of albumin in the urine. This retinitis may occur whenever there is albumin in the urine, in all forms of Bright's disease, in the albuminuria of pregnancy, in diabetes, after infectious

fevers, etc., and even in cyclic albuminuria—the albuminuria of adolescence.

The disease may occur at any age (most commonly between forty and sixty, as chronic nephritis is commonest then) and, excluding the cases arising during pregnancy, one sex is not more liable than the other. The disease is most common with the granular shrunken kidney of chronic interstitial nephritis, although it is seen with the large white kidney, and, though rarely, in the final stage of amyloid degeneration. Among acute affections of the kidney it is very infrequent except in the forms which manifest themselves during pregnancy and after scarlet fever. Eclampsia is said to occur in one pregnancy in four hundred, and eye involvement probably occurs in not more than 8 or 10% of these. Wide variations are found in the estimates as to the frequency of albuminuric retinitis. Cases occurring in the last stages of nephritis and cases which do not reach such a state as to disturb vision, are apt to be overlooked. It is probably fair to say that albuminuric retinitis will be found in 10% of all cases of nephritis, of whatever origin.

The disease is almost invariably bilateral, although one eye may be attacked before the other, and the process may be much more severe in one eye than in the other. The patient notices only a gradual failure of vision, a mist or cloud floating before the eyes, or the appearance of a sheet of water falling in front of the eyes. Loss of vision is never sudden in uncomplicated albuminuric retinitis, and absolute blindness is almost never found, unless the patient should live long enough for atrophy of the retina and optic nerve to occur. As failure of sight may be the first symptom of chronic Bright's disease, so, too, it may be the first symptom of eclampsia, although headache, nausea, etc., usually precede it. There is, however, no indication here for a routine examination of the eyes in pregnancy, as albumin in the urine always precedes and accompanies the retinitis, a fact which would put the physician on his guard. There is rarely any other symptom but diminution of vision, unless there is a separation of the retina, which, though rare, is more likely to occur in the retinitis of pregnancy than in other forms. In such cases there is a defect in the field of vision corresponding to the separated area. A few doubtful cases of color disturbance are reported.

Externally the eyes are normal; one or two cases of plastic iritis reported are probably coincidences. The ophthalmoscopic appearances are so characteristic that diagnosis of renal disease can be made from them alone with great certainty. A detailed description would take too long here, but typically, when the patient lives long enough, there are three stages: First, hyperemia of optic disc and slight edema of the retina, giving it a grayish cast. The arteries are perhaps smaller than normal, sometimes with white lines indicating the walls, which are usually invisible. The veins are larger than normal, sometimes tortuous. This stage passes into the next,

¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, March 27, 1901.

where exudate is poured out in the different layers of the retina and coagulates there. This exudate is often massed about the nerve head in white irregular plaques — the so-called snowbank retina. At the same time the macula lutea is the seat of exudate and fatty degeneration in the form of spots, lines and splashes often arranged in a radiating manner about the fovea centralis, giving rise to the typical stellate figure in the macula. Sometimes this region resembles the petals of a daisy, so regular may it be, but much variation from the typical form occurs. The white spots may occur in the superficial layer of the retina, as shown by a spot covering a retinal vessel, or the vessels may run over the spots, showing that the exudate is in the deeper layers of the retina. In many cases the retinitis assumes a hemorrhagic type, and few or many small flame-shaped hemorrhages may be seen, either near the disc or macula, or even scattered thickly over the entire surface of the fundus. The nerve, always more or less blurred, may show a violent optic neuritis similar to the choked disc of brain tumor, and this neuritis may be hemorrhagic. In this stage and the next, vision fluctuates considerably, but improvement, at least in chronic Bright's disease, is only temporary. In the acute cases which recover there may be no ophthalmoscopic signs left in the retina, or a few yellowish white spots may persist, sometimes with pigment changes about them, a discolored muddy nerve, and vision more or less impaired. In unfavorable cases which live long enough (and the cases occurring in pregnancy belong here) we find a state of atrophy both of nerve and retina, the nerve parchment like and the vessels reduced to mere lines, or even replaced by white cords. These are the cases which have gone on to complete, or nearly complete, blindness.

Pathologically, we have an inflammation followed by a degeneration. The walls of the blood vessels are weakened by malnutrition and allow the escape of exudate; or the wall yields and hemorrhage occurs. Microscopically a fibrohyaline change of the tissues just beneath the endothelium is found, leading to thickening of the walls at the expense of the lumen. This may occur throughout the whole length of the vessel, or only in places. The capillaries of the retina and of the adjacent layer of the choroid may be even completely occluded by this degeneration. It should be mentioned that the capillary system of the fundus oculi is the finest in the body; even the largest arteries of the retina are only $\frac{1}{10}$ of an inch in diameter. To the malnutrition induced by the poor blood supply, is added the irritation of various toxins in the blood, together with a poverty of the normal constituents. In the retina are found numerous patches of coagulated exudate, and hemorrhages, hypertrophy of the nerve fibers, and a swollen edematous condition of all the layers, and at times interspersed fatty granule cells. The supporting framework of the retina (the fibers of Müller) often show fatty degeneration, and this causes the stellate figure seen in the macula with the ophthalmoscope, as these

fibers bend out in a radiate fashion from the fovea. In the final stage sclerosis and atrophy of the nerve and elements of the retina are found.

Separation of the retina is a serious complication that may occur in pregnancy, when it occurs, usually with albuminuric retinitis. A good number of cases have been reported, several times of extensive bilateral separation. Ordinarily separation of the retina has a bad prognosis, but these cases occurring towards the end of pregnancy have usually recovered with good vision. Dr. Wadsworth reported a case in 1887 of partial separation of the retina of both eyes. The urine contained $\frac{1}{4}\%$ to $\frac{1}{2}\%$ of albumin, with casts. There was headache, and finally convulsions; vision had fallen off greatly. At seven and one-half months labor was induced. Two months later there was no detachment, and vision was much better. This case, as well as several others, had also some choroidal changes, and perhaps some such predisposing cause is necessary to have separation of the retina develop. In Dr. Wadsworth's case there was no recurrence in the next pregnancy.

Uremic amaurosis is a uremic symptom not dependent on gross lesions of the retina. Of course it may occur in cases where albuminuric retinitis is present, or albuminuric retinitis may follow it. It is a very much rarer disease than retinitis, and, though a uremic symptom, it is more common in pregnancy and after scarlet fever than in the uremia of chronic Bright's. It may be important as being the first symptom of eclampsia, but it usually accompanies or follows other uremic symptoms, such as headache, nausea, vomiting, convulsions or coma. Usually, if not always, the urine is scanty, with high specific gravity, and with albumin present in large amount. Vision may be suddenly lost, or a day or so of failing vision may precede, or the patient may wake up in the morning blind. There may be a minute or so of cloudy vision, with flashes before the eyes, and this clears up and is repeated several times, resulting finally in complete loss of vision. The blindness may be absolute, not even strong light being seen, or there may be perception of light only. The pupillary condition is not constant, but most commonly the pupils are slightly dilated and respond to light, even when the blindness is absolute. Sometimes, however, the pupil is immobile. Absolute blindness combined with pupillary reaction would place the lesion or disturbance further back than the corpora quadrigemina, for here the pupillary reflex to light is turned from the optic nerve to the third nerve. The direct cause is unknown, as no organic lesion has been found either in brain or retina. It would require a wide-spread lesion in the brain to cause complete blindness of both eyes unless, as has been supposed, there is a higher single visual center beyond the one in the chiasm. A significant fact is that a number of cases where the amaurosis has been repeated a number of times have finally remained blind, and the optic nerve has been found atrophied.

The diagnosis is made from the symptoms, with absence of ophthalmoscopic findings. Sudden and great loss of blood may cause a similar loss of sight, but the cause will here be obvious, and the retina found anemic. Sudden hemorrhage into the macula would give similar symptoms, as might also separation of the retina; but the ophthalmoscope would settle the diagnosis.

Prognosis.—Excluding the retinitis of pregnancy, the prognosis of albuminuric retinitis is very grave, both as to vision and to life. The occurrence of retinitis indicates that the renal affection is far advanced, and that serious changes have taken place in the vascular system. Hypertrophy of the heart, especially of the left ventricle, is so constant that it was once assigned a place in the etiology of albuminuric retinitis. The retinitis nearly always involves the vessels, and the hemorrhagic form points to a like condition in the vessels of the brain, so that the prognosis is worse when many hemorrhages are present. The prognosis for vision is equally unfavorable, and, though there may be fluctuations, the tendency is downward, and would end in atrophy, with blindness, if the patient lived long enough, at least in the vast majority of cases.

The immediate outlook for vision cannot be told with the ophthalmoscope, as the vision may improve temporarily without any visible change in the retina, due to fine changes not to be seen with the eye. Of course prognosis in any given case depends on the nature of the renal disease. Again, statistics show that the duration of life after the onset of albuminuric retinitis is longer among private patients in good circumstances than among hospital patients, on account of the better care the former are able to take of themselves. Bull tabulated 132 cases; 57 died within one year and 75 within two years. A series of 419 cases reported by Belt gives 65% as dying within one year, and only 6% lived longer than two years; one lived seventeen years.

The prognosis in uremic amaurosis (again excluding pregnancy) is rather worse than that of albuminuric retinitis, for amaurosis means uremia. It seldom destroys sight; if the kidney can be got to work again, the amaurosis usually quickly disappears.

The prognosis of albuminuric retinitis or amaurosis occurring during pregnancy is of considerable practical importance, involving as it does the possibility of having to induce abortion or premature labor. The outlook in the albuminuric retinitis of pregnancy is much more favorable than in chronic Bright's disease. Even severe attacks may pass away with the termination of pregnancy, leaving only slight traces in the retina, and as light impairment of vision. Uremic amaurosis is cured by the means used for the associated eclampsia; but against this favorable outlook must be placed the possibility of permanent changes following both these conditions, and especially following repeated attacks in successive pregnancies. Repeated attacks of uremic amaurosis may be followed by atrophy of the optic

nerves, and a good number of such cases is reported. The damage done in even the first attack of albuminuric retinitis may be followed by atrophy of the retina, and each successive attack adds to the likelihood of such a result. In uremic amaurosis the first attack probably never leads to blindness. The eye involvement is most common in primiparae, and may never occur again, or it may appear in successive pregnancies (or it may skip one and come on in the next, as in a case reported by Risley) until vision is destroyed, and unfortunately we have no certain method of predicting about these points, or even of estimating the amount of damage likely to be done by any given attack. Of course in general a violent outbreak, with much exudate and numerous hemorrhages, is apt to do more permanent injury than a light attack, but at the same time we must remember that often fine destructive changes may occur, quite invisible with the ophthalmoscope. In any given case of amaurosis the unfavorable symptoms are: long duration of blindness and loss of pupillary reaction. This has been held to indicate that the uremic changes are in the retina itself, and therefore more apt to leave a permanent effect on vision. In albuminuric retinitis Silcox calls attention to the importance of studying the blood vessels carefully in reference to prognosis. When the trouble is all in the retina itself, and the vessels are normal, the prognosis is favorable; he says of two cases in the eighth month, if one has 6-18 of normal vision and the other only 1-18, labor should be induced in the first case if serious alterations in the vessels are present, while one would wait in the second case if the vessels are normal.

Dr. E. G. Loring was the first to propose abortion, or premature delivery, in threatened blindness. He says: "It is admitted that possible, and under some conditions inevitable blindness may ensue, and the question is whether premature delivery is ever justifiable, either for the restoration or preservation of sight." Loring quotes a case: A pregnant woman suddenly lost most of her sight; a large per cent. of albumin was found in the urine. A consultant prophesied uremic convulsions. Later a premature stillborn child was born. The patient had only a partial return of sight.

Lawson² gives a case: Woman of forty-one, mother of nine children, six living. She said that in second month of eighth pregnancy sight began to fail, and got worse until termination of pregnancy; she could then see only large objects, but could not count fingers before the eyes. After the birth sight improved, and in three months she was able to read large print. Two years later, when she became pregnant with her ninth child, her sight again began to fail at the second month, until, at the ninth month, she saw only light and shade. After the birth of this child an improvement followed, but slighter than before. She could recognize people, but could not read. Eighteen months later she was seen pregnant with her tenth child.

² Ophthalmic Hospital Report.

Vision fell at the second month again, and had failed rapidly up to the time she was seen, which was the sixth month. Condition now was: Right eye: no perception of light; pupil dilated and fixed; left eye: can just make out the hand at eight inches; pupil dilated. The ophthalmoscope showed atrophy of the optic nerves. In this case abortion would seem to have been justifiable. If we admit that it is sometimes proper, how are we to tell when we are face to face with such a condition? Loring³ gives a case from his own practice: Woman of thirty-five; health always good; married eight years, with three confinements. Heart, lungs and kidneys gave no evidence of disease. Two weeks before her first confinement she noticed she could not see well with the left eye. After delivery she improved greatly, but still had a slight defect in the left eye. Just before her second confinement another attack came on, so that even central vision in the left eye was affected. Just before her third confinement the same thing came on in her right eye, and at this time she was first seen by Dr. Loring. She had then slight perception of light in one part of the field of the left eye; vision in the right eye reduced so that she could not recognize her own children. The optic nerve showed white atrophy in both eyes. In one month the right eye recovered 1-3 vision. Eighteen months later she was pregnant again. After consultation, abortion was done at the third month. After recovering from this she finally had a vision of 1-2.

Loring concludes that examination of the eyes should always be made in pregnancy, as retinitis may be present without giving any symptoms, and when marked deterioration of vision has occurred, with or without ophthalmoscopic changes, and where blindness is threatened, premature delivery is not only justifiable, but often demanded. When a permanent loss of vision has occurred in one pregnancy, premature delivery may be necessary in the next one.

Since then a number of cases have been reported, and some conclusions can be drawn from them, but still every case must be decided on its own merits. Some men are altogether too radical. Silx says in effect that in nearly every case where albuminuric retinitis is found abortion or premature delivery should be done. Howe, reporting a series of cases, concludes: "The induction of labor is warrantable when the retinitis appears in the early stage of pregnancy and persists in spite of proper treatment, but it is not warrantable in the last few weeks, in spite of the greater ease with which it is accomplished, unless the inflammation is unusually severe." In cases which have been followed long enough Culbertson gives 36, with complete recovery in 6, partial recovery in 21, and blindness in 9. Silx gives 26 patients, of whom 11 recovered vision greater than 1-6, 10 vision less than 1-6, and 5 were almost blind. These two lists show that 23% of the cases end in blindness. I could not find any

case where blindness was the final condition after operative intervention had been employed, although of course cases of that sort might not always get reported.

To sum up as to eye troubles connected with the albuminuria of pregnancy: Both albuminuric retinitis and uremic amaurosis are rare conditions in pregnancy, but very important when they do occur. Albuminuric retinitis is a disease accompanied by immediate visible changes in the eyes. Albumin is always present in the urine. It may occur at any time during pregnancy, especially beginning during the first two months or after the sixth month. Its prominent symptom is gradual failure of vision. It is very apt to recur in successive pregnancies, though not necessarily. Blindness is almost never caused by the first attack, but more and more damage is done by each recurrence.

Uremic amaurosis is a disorder of the visual apparatus not accompanied by immediate visible signs in the retina, although it may finally lead to atrophy. It occurs late in pregnancy, usually with other signs and symptoms of eclampsia, so that it seldom has to be considered alone. It apparently never destroys vision by the first attack. Like albuminuric retinitis, it is very apt to recur in subsequent pregnancies.

The treatment of both conditions is the treatment of the albuminuria and nonuse of the eyes, enforced by atropine and dark glasses, if necessary.

The prognosis of uremic amaurosis as to sight is favorable for the first attack, and less and less so for each succeeding attack; but the importance of this is usually overshadowed by the uremic condition present.

The prognosis of albuminuric retinitis as to sight is favorable for the first attack, if occurring after the sixth month, but grows worse if it recurs in succeeding pregnancies. Prognosis for sight is bad if it comes on earlier than the sixth month, especially if it begins during the first two months; and in these cases great danger to both child and mother may be expected from eclampsia.

As to abortion or premature labor, we are seldom called on to consider it for the preservation of sight alone, since so many and such grave dangers are present to both mother and child from uremia. If we consider the preservation of sight a cause for premature labor, then it may have to be done in uremic amaurosis recurring in successive pregnancies, with progressive loss of sight; the degree of impairment of sight and the amount of damage done to the optic nerve deciding the question.

In retinitis albuminurica occurring early, abortion should be considered if the retinitis is of a severe type, especially if hemorrhagic, or if a slight retinitis progresses under treatment, remembering that in these cases the life of the child is uncertain any way, and the mother runs grave risks of eclampsia if the pregnancy goes on to term. In retinitis coming on after the sixth month it is

³ Transactions of the American Ophthalmic Society, 1892.

best to wait and watch carefully, especially in a first attack, and not to induce labor unless some other albuminuric symptom demands it. In subsequent attacks the damage to vision and the severity of the retinitis may turn the scale in favor of premature delivery, even when slight eclamptic symptoms are present.

CONGENITAL PELVIC MALPOSITION OF LEFT KIDNEY IN A WOMAN.¹

BY JOHN W. DOWIS, M.D., BOSTON.

IN September of 1900 a woman consulted me for backache and feeling "run down." She was thirty years old and spare. She had measles when fourteen, chorea at fifteen, and had been a nervous child. She menstruated once when sixteen, but not again until a year later, after which she was regular. She married when nineteen, and in seven years had three miscarriages—at three to four months—and two children at full term. The backache dated from first miscarriage, but had been worse of late. She had been treated off and on at hospital, out-patient, and by a physician, for falling of the womb.

An examination showed the uterus to be well retroverted, but easily replaceable. The cervix was considerably lacerated. The ovaries were in normal position. Behind and to left of uterus was felt a smooth, firm mass, somewhat movable, and with a slight fissure or notch in border. It was not particularly sensitive to touch; about as much as obtained in palpating ovaries. The urine was normal. Operation seemed the proper course to advise, and with this end in view the patient was recommended to Dr. Charles H. Hare of Boston. The tumor seemed to him an unusual growth for the pelvis, and he considered movable kidney as a possibility. The right kidney could be made out by palpation, but the corresponding locality on the left side seemed thinner, and no kidney could be found, which is often the case when the left kidney is there in normal position.

The patient was admitted in October to Charity Club Hospital, where Dr. Hare, assisted by Dr. Warren Gay, performed celiotomy. This operation was deemed the wisest procedure, because after four or five years of clinical treatment there had been no permanent relief. Bimanual examination under ether confirmed the previous opinion. The usual median incision in the abdominal wall was made, and the uterus brought forward preparatory to ventral suspension, which was later done. The tumor was retroperitoneal, and lay over the promontory of the sacrum, about two-thirds being in cavity of the pelvis. It was a firm, kidney-shaped mass, considerably flattened and imbedded in a soft, thick capsule, and could be moved up and down about two inches. The lower border stretched somewhat diagonally across the sacrum. The upper end lay on the left common iliac artery. The upper right border was

not distinctly made out. On cutting through about three-eighths inch of fatty cushion, kidney cortex was exposed, and the incision again closed with catgut. Feeling through the abdominal opening, the right kidney was found in natural position, but the left was absent. The gall bladder, spleen, appendix, tubes and ovaries were normal and in position. The hilum of this misplaced kidney, if present, was at right border, or posterior. The blood supply could not be determined, nor the ureter located. The patient made a rapid recovery, and five months later had gained fourteen pounds in weight and had had no backache since operation. Improvement was of course due to correction of uterine displacement. Examination at this time showed the womb well up in place and the abnormal kidney as before operation. A cystoscopic examination to determine location of mouth of left ureter has not been practicable.

Not many cases of pelvic kidney have been reported, although the literature on other malpositions and malformations is plentiful. Still, this unnatural location, though uncommon, is of clinical value, and such cases should not be considered only as curiosities. The pelvic variety of malposition of this organ is certainly one of the most important, particularly in women. In this kidney there was some deformity, and in reports of congenital misplacements of all kinds, anomalous shapes are the rule; and for this reason diagnosis in these complications is more difficult. An idea of these abnormalities of contour, blood vessels and ureter, and of separation of suprarenal capsule, is given in a necropsy report by McWilliam. The kidney was egg-shaped, half in pelvis, hilum in front, and ureter four and one-half inches long. It had two arteries: One, arising an inch above abdominal aorta, entered upper end of organ by two branches; the other, coming from left common iliac artery, entered middle of outer border; the vein from this pelvic kidney entered the vena cava at a point higher than the normal right kidney, and in the upper part of its long course received a branch from left suprarenal capsule, which body was high up and in about normal location. Mr. Brady, a fourth-year medical student, told me he had a case of pelvic misplaced kidney in a subject which he was dissecting at the Harvard Medical School two years ago, Dr. Fred B. Lund being the demonstrator at the time. The subject was a man, right deformed kidney lying in front and to right of sacrum, position fixed, long axis almost vertical, artery from right common iliac, venous drainage into right common iliac vein, hilum in front, ureter short and at origin somewhat abnormally enlarged. This specimen may be seen at the Harvard Anatomical Museum. It has not yet been reported, and it is mentioned here with permission of Professor Dwight. Pacaud reports a somewhat similar case in a man, the kidney lying fixed between rectum and bladder; Carrington, a left kidney in a woman; Northrup, two left pelvic kidneys in female infants; M. Wins, a right pelvic kidney.

¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, March 27, 1901.

Sutherland reports a case of kidney lying on promontory of the sacrum, with a curious venous drainage. Among other interesting reports of pelvic kidneys, or those fixed near the brim, including congenitally misplaced single kidney, are those of Dwight, M. Aube, Weinsbach, Wilson, Lanceraux and Naumann. That of the last is a dissertation delivered in 1897, and the author has given reports of a very large number of anomalous kidneys, several of them being pelvic varieties.

In the grosser malpositions the left kidney is more often misplaced than the right. Roberts makes the statement that in the 21 cases which he was able to collect in 1879, only a few of them pelvic kidneys, 15 were on left and 6 on right side. In the cases cited by Hugo Naumann, a considerably larger per cent. of anomalies are on left, with one exception, the cake-shaped (Kuchenförmige) kidney; and the left pelvic kidney predominates in those cases where side is mentioned. Newman found twenty-four abnormal positions of kidney in 1,000 necropsies; only one in pelvis, a right kidney; and in his admirable paper on all kinds of kidney malpositions he states that left kidney is most often misplaced in males, but cases are about equal in females; and he suggests that this may be because more necropsies are made on the former. The estimates by this writer and by Roberts are based almost wholly on cases seen after death. We seem to hear more about right kidneys being out of place in living individuals, perhaps because it is more easily and more often detected, and where there is moderate mobility—an inch or two—it might be called movable when there was little or no abnormality. Narrowing down strictly to the congenital pelvic kidney, it is impossible to make more than a guess as to the relative proportion of cases in which it occurs. Since operating in the pelvic cavity has become so general, the reports of these freakish kidneys are likely to be less uncommon, and there will be an added interest in studying their behavior during life. From reports it is clear that the kidney may occupy any position as to its axis, but more often its long axis is vertical or oblique, as in case here reported. As a rule these kidneys are fixed; but in my patient it has about two inches movement. Associated with abnormal pelvic kidney there is often deformity of pelvic organs, as instanced in the uterus in the case reported by Carrington. In regard to separation of suprarenal capsule, Newman estimated that in about $\frac{1}{3}$ of cases of malpositions—2 out of 21—this body was attached to the kidney, the remaining number being in the usual location.

Malposition does not seem to interfere with the normal function of kidney, though it does predispose to complications. In this patient the kidney, lying between the sacrum and the uterus, appears to have predisposed her to abortion, and from the history obtained this would be a fair inference. The laceration of cervix may have been a factor after birth of first child. The complications which such abnormalities might produce in pelvic diseases, in pregnancy, during

parturition and in cases of single kidneys, are of course obvious.

There is little to aid in diagnosis; the kidney's sensitiveness to touch is similar to that of the ovary; when there is malposition, particularly if in pelvis, there is usually marked lobulation; "the tumor" would always be behind the peritoneum—with or without movability;—and when there is any deformity of pelvic organs we should expect misplaced kidney.

It would be reasonable to assume that there is no treatment for this congenital malposition,—not referring to the movable nor the "floating kidney,"—and the foremost consideration should be the avoidance of complications.

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Clinical Department.

A CASE OF EXTRA-UTERINE PREGNANCY; DIAGNOSIS AT END OF SECOND MONTH; OPERATION; RECOVERY.

BY OSCAR J. FEEFFEL, M.D., DENVER, COLORADO,
Visiting Surgeon, St. Luke's Hospital.

The patient is twenty-seven years old; married five years; no children or miscarriages.

The first visit to the patient was made April 3, at which time a history of intermittent pain and flowing since Feb. 8 was given. The pains were severe while they lasted, and were followed by periods of ease for several days. The flowing was irregular in volume, being most copious at the expected menstrual periods, but ceasing altogether at no time. There was and had been no fever or chill at any time during the illness. A bimanual examination revealed apparently a retroverted, probably pregnant uterus, with a knot on its anterior surface. This was made out through an abdominal wall somewhat rigid to pressure from involuntary resistance. The case ran along unsatisfactorily until Sunday, April 7, when an examination was made under ether, which revealed what I took to be a two or three months' pregnant retroverted uterus with a fibroid tumor on the anterior wall. Taking several days in which to think the case over, the question arose

¹ Read before the Colorado State Medical Society, June 19, 1901.

whether the hemorrhage was caused by the fibroid or by a uterus trying to abort. I decided that a uterus flowing constantly for two months would have resulted in an abortion, and I was afraid the patient was rather too young to have a fibroid; and there was no odor to the discharge, suggesting a dead fetus. On these three grounds it began to look as if my "fibroid" might be the uterus, and the mass I had supposed to be the fundus of a retroverted pregnant uterus was something else. If my "fibroid" was the uterus it was a non-pregnant uterus, and why should it keep on flowing for two months? If my "fibroid" was the uterus, the mass which seemed to be the fundus of a pregnant retroverted uterus could not be the fundus of a pregnant uterus. What could this mass be? What could keep a uterus flowing constantly for two months and produce a mass behind the uterus which for two months had caused a feeling of something giving way again and again, each time followed by severe pain, and that in turn followed by a relief from pain for a few days?

I began to suspect an extra-uterine pregnancy, which with its constant enlargement would cause the pain, and explain the flowing of a uterus enlarging with a pregnancy and trying to furnish blood supply to a fetus which was not within its cavity.

On Sunday, April 14, it occurred to me to make a rectal examination without ether, which had not been made when the patient was under ether, so sure did it seem that the patient had a retroverted pregnant uterus with a fibroid. On making my visit Sunday the patient described another decided feeling of something giving way the day previous with agonizing pain, after which she felt relieved of pain again.

The rectal examination revealed a round, elastic mass about the size of a small orange, just above and behind the cervix; it was soft, compressible and painful to the patient on pressure.

The case had haunted me for ten days, and I began to feel certain that my fibroid was the uterus, and the mass behind it was an extra-uterine pregnancy.

On Sunday after the rectal examination I stated to the husband my diagnosis; told him the pregnancy might rupture at any minute; requested him to take his wife to the hospital at once, and be prepared for an operation at any minute in case of a rupture, and if rupture did not occur I would operate Tuesday. Sunday night the patient was at the hospital; my instruments were all ready for immediate operation.

Sunday night salts were given; bowels were moved thoroughly Monday morning, soapsuds enema was given Monday night, and another Tuesday morning. Abdomen prepared for operation Monday afternoon.

Tuesday afternoon, operation. Incision in median line five inches. Patient placed in Trendelenberg position. Omentum and bowels packed upward with sponges. Uterus appeared, having bluish purple look of pregnancy. Hand behind

uterus discovered sac of a tumor size of large orange (at this time the sac was filled with circulating blood and distended). An easy dissection with the fingers freed sac from adhesions to bowels and elsewhere, and the sac was brought up into wound. It proved to be at the fimbriated end of the left tube. A pedicle was easily made, and clamped and tied off, the ovary being taken along. Bleeding from adhesions was sponged out of abdominal cavity, and the bowels and omentum were returned to place on lowering from Trendelenberg position. Abdominal incision sewed up. Patient sent to her room.

With great interest I divided my tumor, and found in its center a perfect little fetus one-half inch long, with embryonic arms, legs and head the size of a small pea, but showing the blue color of the eyes and the wide slit of the mouth. The small size of the two months' fetus I explain by the fact that the fimbriated end of the tube was a poor source of nourishment at first, and thus precluded growth to the normal size at two months. The sac was a remarkably symmetrical ovoid sphere; its walls were about one-half inch thick. It was two inches long, one and one-half inches wide; the cavity in which the fetus lay was one inch long and three-fourths of an inch wide. The placenta attachment was very plainly shown.

The patient had great shock Tuesday night and vomited for four days, but rectal feeding and hypodermic stimulation pulled her through, and she is today, six weeks after the operation, perfectly well.

The specimen was shown the society, very well preserved in three-fourths of 1% Formaldehyde solution.

Medical Progress.

REPORT ON PROGRESS IN THERAPEUTICS.

BY ELLIOTT F. JOSLIN, M.D., BOSTON.

MALARIA.

Koch¹ comes to the same conclusion as Thayer and Hewetson, that there are but three kinds of malaria—tertian, quartan and estivo-autumnal. For the latter form he suggests the more proper name of tropical fever.

In New Guinea he was able to study the malaria in regions which were isolated, and where quinine had not been used. Here he found that the young children had parasites in the blood, but these were not present in those over five years of age. This is shown by the following table:

Children under 2 years,	2 without malaria,	8 with malaria.
from 2-5 "	7 "	" "
Persons over 5 "	86 "	0 "

In regions where malaria is endemic and untreated it is confined to the children, and these acquire an immunity.

Malarial parasites were not found in the blood of animals, and it was not possible to infect ani-

¹ Report of the Malaria Expedition sent out by the German Government, Deut. med. Woch., 1900, p. 781.

mals with the disease. Consequently the treatment of malaria is confined to human beings. Among human beings the most important cases are the latent ones. These must be sought out. This is a simple matter in comparison with the detection of many of the infectious diseases, because a blood examination will suffice to disclose the malarial parasites. Where the disease is common, the free dispensing of quinine is a most commendable measure, and cannot be too strongly urged.

The influence of quinine on malaria is shown by the cases occurring in the German Army and at Spandau during the last thirty years:

German Army.	Year.	No. cases of malaria.
	1879	15,565
	1878	8,969
	1880	1,436
	1893	782
	1897	230

Spandau.	Year.	Population.	No. cases of malaria.
	1874	3,853	2,557
	1885	4,804	111
	1895	5,883	1
	1897	5,780	3

It has taken years to reduce the malaria in the army and at Spandau, but quinine was, of course, given at first only empirically. In tropical climates the same results should be attained in a much shorter time, because of the increase in the knowledge concerning the disease.

Koch's investigations confirmed what has already been written about the connection between malaria and mosquitoes. Even in Java no locality was found free from mosquitoes. "Where there are no mosquitoes, there no cases of endemic malaria exist."

Requisite conditions in the treatment of malaria are the examination of the blood and a three-hourly temperature chart. Quinine is the one drug to be used in treatment, but occasionally methylene blue can be substituted, though it works more slowly. It can be used where there is a tendency to black water fever or an idiosyncrasy against quinine. The best crystallized preparations of quinine should be bought, as impurities are occasionally mixed with the drug. Koch prefers quinine hydrochlorate, and emphasizes most strongly the fact that quinine cannot be depended upon when given in pill form. It is best given in a 10% aqueous solution, to which hydrochloric acid has been added, drop by drop, until all has been dissolved. To counteract the bitter taste, a piece of sugar may be taken after the quinine. It should be remembered that quinine is only soluble in acid solutions. For this reason it should not be taken on a full stomach, especially if alkaline waters have been drunk with the meal. In an alkaline solution it precipitates. Accordingly, the quinine is best given in the morning, or after a very small meal. If the stomach is out of order, dilute hydrochloric acid should be administered at the same time. There are no bad consequences from giving it subcutaneously, but only one-half the dose should be injected. Koch has never found it necessary to give quinine intravenously.

As regards the dose, Koch is convinced that one should never give to an adult less than 15 gr. (1 gm.), and that this should be given four to six hours before the expected chill. As a rule, the attack begins in the morning, and consequently it is best to give the quinine at 6 A.M. If the chill does not come on after the quinine has been given, or comes in a milder form than before, the patient receives on the two following mornings the same dose. But if the chill appears in its usual strength, then he gives after the end of the attack $22\frac{1}{2}$ gr. (1.5 gm.), or even 30 gr. (2 gm.) quinine — never more. Children under one year receive $1\frac{1}{2}$ gr. (.1 gm.), and the dose is increased by a $1\frac{1}{2}$ gr. (.1 gm.) for each succeeding year.

If the temperature remains permanently low no more parasites will be found in the blood taken from the finger. Occasionally it happens that after some doses of quinine the parasites disappear, but the temperature does not return to the normal level. All such cases suggest a complication which must be appropriately treated. By these principles Koch treated more than 500 cases, some of the severe type, in Grosseto and New Guinea, and lost none. Often the fever was overcome by the first dose, in some cases in two doses, and in occasional cases only after several doses. When in such cases the attacks are overcome, or rather suppressed, the patient is by no means cured. As a rule, after one or more weeks, occasionally after two or three months, he has a recurrence. The prevention of this is one of the chief tasks of the physician.

Koch tried many experiments in the treatment of the prevention of recurrences. He began with $7\frac{1}{2}$ gr., but, as this proved inefficient, he doubled the dose and gave this amount every ten days. This was still not enough to prevent chills, so he shortened the interval to seven and finally to five days; but even then there were too many recurrences. But as patients do not like to take the medicine more frequently, he modified the method. Doses on successive days are always more powerful than single doses, so he tried giving 15 gr. (1 gm.) of quinine on every tenth and eleventh day. In the great majority of instances this prevented recurrences. In the most obstinate cases he prefers increasing the dose to $22\frac{1}{2}$ gr. (1.5 gm.) on two successive days, rather than to shorten the interval. Two months should be allowed for after-treatment, even if the patient leaves the malaria region. There is no climate which of and for itself exercises an influence on the cure of malaria.

Where there is a history of black water fever, Koch begins with $1\frac{1}{2}$ gr. (.1 gm.) quinine and increases the dose the next day to 3 gr. (.2 gm.) and so on. If, in a few hours after the quinine has been given, the temperature rises to 100.5° or over, the urine gets darker, and on the next morning there is a slight icteric color to the skin, then the dose is not increased, but reduced. It is then gradually increased again, constantly being on the watch for the above symptoms.

For the prophylaxis of persons visiting in malarial regions, Koch recommends the same procedures—15 gr. (1 gm.) quinine the morning of every tenth and eleventh day. Should an attack occur, increase the dose by a half and shorten the interval by one or two days.

ASPIRIN.²

Aspirin is generally acknowledged to be a more agreeable and less irritating preparation than salicylic acid. It is colorless, tasteless, crystalline in form, and almost insoluble in cold water. It is produced by the action of acetic anhydrid on salicylic acid, and owes its nonirritating properties to the fact that it is not decomposed in the acid gastric juice, but in the alkaline juices in the intestines. Where the use of the salicylates is indicated, aspirin may be substituted. The dose is the same. Aside from its administration in rheumatism, it has been given with especial success in migraine and neuralgia. Witthauer was able to substitute it for morphine in three cases of inoperable cancer. Brunton³ and Möbius⁴ both strongly praise the action of sodium salicylate in headache and migraine, and there appears to be no reason why aspirin should not be used in its stead. They prescribe doses of 15 to 30 gr. at night. Brunton combines with the salicylate an equal amount of potassium bromide.

SIDONAL IN GOUT.

Sidonal is a preparation made by the combination of kinic acid and piperazin. Weiss discovered that this substance was capable of diminishing the formation of uric acid in the body, and Blumenthal⁵ showed that this reduction in the excretion of uric acid was real and not merely due to its retention in the system. When 5 to 8 gm. (75 to 120 gr.) are given in twenty-four hours, the excretion of uric acid sinks 30 to 50%. In the discussion which followed Blumenthal's paper, von Leyden, Ewald and Goldscheider reported favorable results with their use of sidonal in gout, and Mylius⁶ has confirmed their statements. The latter found it worked advantageously in cases which resisted all other modes of treatment. It alleviated the pains, rendered motion less difficult, and shortened the duration of the attack. Improvement began after about four days instead of in three to four weeks. Five to 8 gm. (75 to 120 gr.) of sidonal were given daily at first, but later it was prescribed in much smaller doses. It was satisfactory not alone in the acute, but in the chronic cases as well. In other instances Mylius⁶ felt convinced that when he gave 5 gm. at the very beginning of an attack he aborted its course, so that it was in a sense prophylactic.

The appetite appears to be affected only favorably, and Mylius noted no unpleasant or dangerous consequences from the use of the drug.

He personally tested the drug in an attack of the gout.

RUTLAND SANITARIUM.

It was the writer's privilege last winter to accompany some twenty-five students on a day's trip to Rutland. All felt more than recompensed with the returns which came from the time and money expended. It is not often that students and physicians have offered to them gratis individual instruction in medicine of the best and most modern sort; indeed, such opportunities come so seldom that they are hardly realized. In a way this is the case with Rutland. On every hand we hear it said, what an educational influence Rutland is exerting upon the community in the treatment of tuberculosis; but the writer ventures the statement that not one-half the physicians in the State appreciate what a school it is for the doctors.

The Rutland Sanitarium was built with the advice of the best men in our profession, who were already familiar with institutions for the treatment of consumption the world over. It is the first State sanitarium and is the model for the many which are now being built. The methods which are there in vogue represent, as far as present means allow, a composite of the best methods throughout the world, and we know from the character of the trustees and physicians in charge that this will hold true for the future.

A visit to Rutland gives one an insight into the modern treatment of tuberculosis, but it illustrates as well how rest, good food, cold water and fresh air can be used to advantage. These agents are quite as much specifics for nervousness and debility as they are for phthisis; and whether one is surgeon, specialist or general practitioner, an acquaintance with their practical application on a large scale is sure to prove helpful. To those who have never seen a sanitarium for consumption, and to whom, as to the writer, Gobsdorf and Saranac are simply names, Rutland is a boon.

It is pleasant to be able to write that Judge Hammond, speaking for the trustees, welcomes the physicians of Massachusetts to their State sanitarium and that the superintendent, Dr. Marley, and the attending physicians are always glad to explain the workings of the institution.

(To be continued.)

TUBERCULOSIS IN SAMOA.—SAMOANS have not been benefited by civilization in one way, according to the naval governor of the island. At the cabinet meeting recently, the commander, in describing the conditions on the islands, said that while the natives lived without clothes they were a healthy race. Since the adoption of civilized garments, they get wet from rain and, instead of changing clothes, allow them to dry while being worn. In this way they contract colds, and a number have developed tuberculosis, a disease not known before.—*American Medicine*.

² Cent. f. inn. Med., 1901, p. 30.

³ Die Migräne, 1894, in Nothnagel's series.

⁴ Gould American Year Book of Medicine and Surgery, 1901, p. 506.

⁵ Cent. f. inn. Med., 1900, p. 335.

⁶ Therap. Monat., 1900, p. 658.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

REGULAR MEETING March 27, 1901, DR. E. S. BOLAND in the chair.

DR. HENRY D. CHADWICK read a paper entitled
TWO CASES OF PREGNANCY COMPLICATED BY
MITRAL INSUFFICIENCY.¹

DR. TWOMBLY: I unfortunately heard only the last case of the paper. It certainly is a very interesting one, and presented to us in a great deal of detail. That detail is important; and I am glad he did not give us simply the outline, but the whole history as it has progressed. We fail to realize very often that any slight lesion of the heart, mitral regurgitation especially, is of such vast importance in pregnancy, and yet a few cases like these show us that we cannot treat them in a light way. I agree with the writer that where we get mitral insufficiency uncompensated, or a loss of compensation along the fifth or sixth month, it is not wise to wait many more weeks, unless we get a very great improvement and can restore the compensation. Here, apparently, it was done for a while; but cases of this kind go from bad to worse, and they do not recover after delivery if delivery is delayed to term. In general it is wisest, I think, to deliver prematurely rather than wait until we get the distressing symptoms which finally terminate with the death of the patient. There is another question that comes up, and that is, how are we to determine the degree of insufficiency as relating to the patient's welfare. As I understand it, in the second case the mitral insufficiency seemed very slight when first listened to; but it progressed, and then came the symptoms of loss of compensation, with edema and urinary symptoms. When that condition occurs, it is wise not to delay any longer. The loudness of the murmur does not at all indicate the severity of the disease. I think we want to bear that in mind for one thing. Secondly, we must take into consideration the patient's general condition, and to what degree she has been having any previous attack which would lead us to suspect some heart trouble. If this is the first time that anything has been known of heart trouble, if she has been in perfect condition previously, we find a great many cases go on perfectly well to term, and if the labor is easy we get no bad result. It is by comparing a great number of cases that we are enabled to judge whether we ought to interfere or not. The points have been brought out by the reader in connection with treating such a case, and if one should come to me, I feel it would be the wisest plan not to let the pregnancy go on to term. I should hesitate to let it go to the extent of seven and a half months, for the viability of the child in a great number of cases is insecure, and

oftentimes when we deliver at that time we find the child dead. It seems to me, therefore, it is wisest to terminate labor, after consultation of course; we never do it entirely on our own responsibility. These cases present to us a very interesting phase, because we do not often hear of fatal cases with simple lesions; and yet we know there are such, but they have not so often been reported as placenta previa, contracted pelvis, Cesarean section, etc. We ought to have more papers on this subject.

DR. MORSE: My experience has not been very large with this class of cases, and what I have had has been rather that of the medical man than of the obstetrician. Of course we all realize the seriousness of cardiac disease in pregnancy. I think we must remember, however, that a great many women have cardiac disease and pass through one or more pregnancies without difficulty. I distinctly remember one case in my service at the City Hospital last summer, who passed through thirteen pregnancies without trouble, and later died of mitral insufficiency without any relation to pregnancy at all. Of course mitral lesions carry a worse prognosis than aortic; but of more value in prognosis than the nature of the lesion is the amount of compensation.

As the prognosis depends a good deal on how early the symptoms develop,—whether in the first month of pregnancy, in the middle of pregnancy or at the end of pregnancy,—our treatment must also vary for the same reason. The earlier the symptoms develop, the more radical must, I think, be the treatment. A case in which the symptoms develop in the first two or three months of pregnancy will certainly demand operative treatment; a case in which they develop in the middle of pregnancy will almost certainly demand it, while if the symptoms develop late there is a possibility of carrying the woman through. I think the most important thing to be remembered in the treatment is not to wait too long. If anything is going to be done, it should be done early, when there is a chance of saving the mother, and interference should not be put off too long with the idea of saving the child. A point which has interested me a good deal is in connection with the prognosis of the child. Of course, when the mother dies early, the child dies. When the mother dies late, the child is less likely to be dead before she dies; if the child is born alive, it is very likely to be born premature; and if the child is carried to full term, the child is very likely to be underdeveloped and lacking in vitality. I have found that the mortality was much greater in babies born of women with heart disease than in ordinary babies; they are smaller, have less vitality, and die very easily. Whether premature or full term, they are much harder to rear than children of normal mothers.

An interesting point is as to whether women with heart disease are more likely to have children with congenital heart disease. I am inclined to think that they are not, and that they are two entirely independent things.

¹ See page 29 of the Journal.

DR. BOLAND: I have been unfortunate in that I have lost three women in childbirth who suffered from mitral disease. The last case I had developed an attack of pulmonary edema during delivery under *chloroform*, but got through "by the skin of the teeth." The next time she became pregnant Dr. Fred'k C. Shattuck saw her with me, and agreed that she could not go through pregnancy and delivery at term again. She was a Catholic, and her clergyman protested against interfering; but the friends advised it, and I asked a specialist to operate, and had another doctor assist me. Under *ether* the uterus was emptied by us. Before we got through, she developed pulmonary edema and nearly died. In the last six years she has not been pregnant, and has been equal to the demands of housekeeping for a large family. The other patients died, and two of the children died, and the only surviving child, now nine years old, is an imbecile and ataxic. I am sure the society is grateful to Dr. Chadwick for bringing up this subject in such detail.

There is one question I should like to bring up, and that is the question of marriage in a patient with recognized mitral insufficiency. Are we in a position to say that pregnancy should be avoided? I have in mind a case in which I know that question will be put to me, and I do not know how to meet it. The person to whom I refer is a bright, attractive girl in comfortable circumstances, who, I know, contemplates marrying. I have been dreading the test of having this question put to me. It is possible that any advice we may give will not be heeded, but I want to clear my skirts at any rate.

DR. E. W. CLAP read a paper entitled

ALBUMINURIC RETINITIS AND AMAUROSIS, WITH SPECIAL REFERENCE TO THEIR OCCURRENCE IN PREGNANCY.²

DR. JACK: It seems to me that these cases of albuminuric retinitis in pregnancy are not so very rare. I have not had an opportunity to look up cases, but I can easily recall three. One is that of a young woman whom I saw about two or three months after confinement. She had had distinct renal symptoms during gestation, but never dangerous ones. When I saw her, the right eye showed the picture of an old albuminuric retinitis, etc.; that is to say, there had been an optic neuritis of considerable amount, and there were a number of large spots of degeneration in the retina. It was one of those rather rare cases of trouble in one eye only; the other eye was perfectly free. The inflammation had gone, leaving the degenerative spots. The nerve was far advanced in atrophy. At the time I saw her there was no albumin in the urine.

The second case, in which there were renal symptoms of mild type and impaired eyesight during gestation, was seen two or three months after confinement. In this case only a very few degenerative spots in each retina were left.

A recent case which I have seen within a few

days, but the details of which I do not know, is that of a young woman about twenty-five years of age. She had very severe, even dangerous symptoms during gestation. She can hardly see to go around. Both retine are fairly covered with degenerative spots, and both optic nerves in a state of consecutive atrophy, following the apparently violent neuritis which she has had. She still has albumin in the urine, and the prognosis is very bad.

I judge, from what I have seen, that the cases which go on beyond a certain extent do not improve; that is, if the optic nerve has started to atrophy, it tends to keep on after confinement.

I am confident I have seen other cases at the hospitals, although I do not remember any individual ones, but none during gestation. It seems to me that all cases of renal trouble in pregnancy should be ophthalmoscopically investigated, because these retinal changes mean, just as they mean in retinitis unaccompanied by pregnancy, a renal condition advanced to a condition dangerous to life.

DR. E. W. CLAP: In the cases I quoted the condition does not go on after the child is born or after abortion; the condition remains stationary or slightly improves, and if there is another pregnancy the condition starts up and gets worse, so that in each pregnancy they lose a certain amount of ground which they do not regain; but if they avoid pregnancy the condition does not grow worse.

If you admit that abortion should be done to preserve eyesight, you have the case where a patient loses during one pregnancy one-tenth of the vision, the next another tenth, etc. In most of the cases they lose it faster than that. So that, it seems to me, it is a question whether you will let that patient become absolutely blind or do abortion. One writer advises removal of the ovaries in those cases. I have not found that anybody else advises that.

DR. JACK: I meant that in the cases far advanced before confinement the atrophic process did not always stop. Of course, most cases would not have advanced to that stage.

DR. CLAP: Another thing to be considered is that a good many of these cases have nephritis independent of pregnancy, which is made worse by the pregnancy, and the albuminuric retinitis comes on during pregnancy; but after the pregnancy is over the nephritis, of course, keeps on and so does the retinal condition, but those cases are not the ones I meant. I meant cases entirely due to the albuminuria of pregnancy. As Dr. Jack says, if you have a violent optic neuritis, which is rather a rare condition, you may have a subsequent atrophy which nothing would stop, but in the majority of cases I cited it was a retinitis and not an optic neuritis.

DR. JACK: The last case I spoke of was one in which renal trouble persisted; of course it is natural the eye trouble would also. I did not mean that a renal retinitis would continue after the

² See page 31 of the Journal.

nephritis stopped, but it has seemed as though an atrophy well set up would keep on.

Dr. BOLAND: The rule the reader laid down, that in the early months of pregnancy abortion might be the saving of the woman's sight and the suspending of the kidney trouble, and that after six or seven months we could afford to temporize, is a pretty safe rule. I have seen two cases. The women are both living, one well and the other nearly so. I believe these cases are more common than generally recognized, and I think I recognize a good many cases of abortion or premature delivery which were nature's effort to throw off the pregnancy and relieve the trouble. I remember one at seven months which turned out very happily, as the child lived. I think in severe cases in the early stage the conservative treatment is induced abortion. I was in hopes the reader would speak of the amaurosis of lactation. I have had one case which occurred after the child was a month old. I was very much alarmed. Dr. Standish advised weaning the baby, putting the mother in a dark room on full diet and small doses of calomel. She recovered; but it was as near total blindness as I want to see.

Dr. CLAR: I remember reading the report of such a case. I do not remember whether the child was weaned or not.

Allusion was made to the condition existing in one eye alone. I recall the report of a fatal case in which only one kidney—the kidney of the same side—was affected.

Dr. JOHN W. DOWNS read a paper entitled
CONGENITAL PELVIC MALPOSITION OF LEFT KIDNEY
IN A WOMAN.³

Dr. TWOMBLY: I should like to ask if the reader noticed any urinary symptoms which would be caused by any pressure on the kidney. It would be very interesting in future pregnancies to see what impression such a condition would have as regards the amount of urine, the amount of pain, or any inflammation that might be set up.

Dr. DOWNS: I saw the patient twice before she was admitted to the hospital and a few times since. Examination of the urine before and since operation showed nothing abnormal.

Dr. CRAIG: I have had no experience with any such case, but as Dr. Downs was reading his paper the question occurred to me to ask him whether any cystoscopic examination was made with regard to the course of entrance of the ureter or whether there was any catheterization of the ureters.

Dr. DOWNS: That has not been done.

Dr. MORSE: I never have seen a case of congenital displacement of the kidney in the pelvis, as Dr. Downs has described. I have seen a great many cases of displaced kidney, however, and feel very sure that movable kidneys are very common indeed. I think the number of movable kidneys that we find depends a good deal on how much we look for them, and how skilful we are in our examination. I know that for about two years I

examined almost every woman who came to my out-patient clinic, at the City Hospital, for movable kidneys, and toward the end of that time I found them much oftener than at the beginning. My experience at the Infants' Hospital is of interest in showing how common they are, and how few symptoms they may cause. One of my duties there is to examine the candidates for nurse maids, young women from seventeen to twenty-five years of age, presumably in perfect health. In about 25% of them I have found one or two movable kidneys; and none of them have had any symptoms whatever referable to the kidneys.

AMERICAN MEDICAL ASSOCIATION.

PROCEEDINGS OF THE FIFTY-SECOND ANNUAL MEETING, HELD AT ST. PAUL, MINN., JUNE 4-7, 1901.

(Continued from No. 1, p. 22.)

SECTION ON PRACTICE OF MEDICINE.

FIRST DAY.

The Chairman, Dr. J. M. ANDERS of Philadelphia, attempted to point out a few lines on which organizational and professional progress must be conducted. He believed that if the American Medical Association hopes to be one of the great powers of the country, that it was of great importance that the proposed reorganization scheme should be promptly effected, and due efforts made to establish and maintain proper respect and forbearance between the various sections, to the end that they may work in perfect harmony with one another.

APPENDICITIS.

Dr. JOHN B. DEEVER of Philadelphia read this paper, in which he stated that the appendix was the most vulnerable of the abdominal organs, and this from several causes, as follows: It is a structure in the process of retrograde metamorphosis. It is deficient in blood, nerve and lymphatic supply. It is long, and its caliber is small; hence its drainage is easily interfered with. It is subjected to traumatism by the movements of the psoas muscle, upon which it lies. It is apparent that the appendix may easily become the target for the destructive micro-organisms, when from any cause these are incited into activity; and it is specially noteworthy that a hollow, glandular organ remains intact only so long as the production and evacuation of its secretions continues normally. When this function is deranged, there are serious results: (1) Retention, stagnation and decomposition of the appendix contents; (2) pressure, leading to impairment of the appendix wall; (3) (and most important) the bacteria, especially the colon bacilli, are so increased in number and virulence that they are able to penetrate the coats of the appendix and set up their irritant processes in varying degrees. Such he considered to be the brief pathogenesis of appendicitis.

³ See page 35 of the Journal.

The following classification was suggested as convenient and well founded. Acute appendicitis: (1) Catarrhal; (2) interstitial; (3) ulcerative; (4) gangrenous. Chronic appendicitis: (1) Catarrhal; (2) interstitial; (3) obliterating.

He frankly admitted that we could not always distinguish between the different pathologic varieties of appendicitis. Apparent inconsistencies were explained by the fact that most symptoms were due to peritoneal inflammation by extension. The majority of appendix inflammations are chronic in nature; and many of the so-called acute cases represent exacerbations, a relighting of a quiescent focus.

He had never seen much good from these efforts of nature to cure. The abscess itself, by its tendency to infect the peritoneum, is a grave menace, and even if the abscess rupture into a hollow viscus, the situation is not much better.

A short sketch was made of certain features of the pathology of appendicitis, and two points were specially emphasized: (1) The practical non-existence of any form of inflammation, which, by obliterating its lumen, renders the appendix harmless, and (2) the appalling rapidity and suddenness with which the appendix may suffer bacterial invasion and necrotic degeneration, with resulting general peritonitis. Upon these two facts he based proper treatment and the justice of claiming appendicitis as a purely surgical affection.

The following word of caution was made: No frequent disease presents its signs and symptoms in such varied form and locality as appendicitis. Make it a rule, therefore, in all abdominal cases to first exclude appendicial irritation; because careful examination will often reveal as due to it, affections otherwise apt to be classified as "enterocolitis," "acute dyspepsia," "cholera morbis," etc.

In all inflammations of the appendix not entirely chronic, there are three cardinal symptoms; namely, pain, tenderness and rigidity. Pain is in every variety by all odds the most significant; so much so that he regarded with suspicion every clinical history with bellyache, inflammation of the bowels, neuralgia of the stomach and similar terms. But the pain of appendicitis has certain characteristics. Above all it is paroxysmal, cramp-like and colicky, and may at intervals almost disappear. It is usually first referred to the umbilical and epigastric regions, becoming localized in the right iliac fossa only after the lapse of several hours, and that not in all cases. First examine away from the seat of disease, and slowly and gently approach the tender area. A localized spot of extreme tenderness he considered to be the surest indication of pus formation; conversely, abrupt cessation of such pain is apt to denote complete gangrenous change, and a paralysis of peripheral nerve filaments by toxin absorption. After considering briefly some of the other symptoms of appendicitis, he said that he did not depend to any extent upon blood examinations; a leucocytosis of over 20,000 indicates pus usually, unless either shut off by adhesions or the individual is overwhelmed by septic absorption.

He stated that the symptoms of appendicitis were seldom in proportion to the appendix lesions; therefore, it should suffice to diagnose early the inflammatory involvement, which is of itself proper enough indication for rational treatment. He considers that there was but one treatment for appendicitis; namely, the aseptic scalpel of a surgeon, and it should be called upon as promptly as the diagnosis is made.

DR. DELANCY ROCHESTER of Buffalo, N. Y., made a strong plea for the value of the blood count in the diagnosis of these conditions during the acute inflammatory state, and particularly during the development of pus. Another interesting point he made was in reference to the variation of the temperature with the blood count; when there was an elevation of temperature there was a higher leucocytosis. He believed the aseptic scalpel to be the only treatment for appendicitis in cases where it could be done.

DR. J. B. KELLEY of Philadelphia did not think that any medical man should treat a case of appendicitis after the first twenty-four hours.

DR. J. A. WITHERSPOON of Nashville, Tenn., said that if the medical treatment of appendicitis is Christian Science, that any man, with a little pain in his belly and with a little temperature and with very few local signs, who submitted himself to operation, is as brave as Julius Caesar, with the faith of a Daniel. We should realize that appendicitis is both a medical as well as a surgical condition. There are many cases of this disease that get well, not by medical treatment, but by placing a man in bed at once, stopping all nourishment, applying ice bags over the belly, and keeping him perfectly quiet.

SOME PHASES OF MALARIA.

DR. J. B. McELROY of Stovall, Miss., read this paper, in which he cited a case in detail in order that he might discuss some of the phases of malaria suggested by it. It is a well-known fact that in these infections the estivo-autumnal parasites are found in exceedingly large numbers. There are usually two predominating broods of parasites in the blood of patients with pernicious fever; but Marchiafava and Bignami report cases in which the viscera as well as the peripheral circulation show a very small number of parasites. So it is evident that we must look for the causes of malignancy in another direction than merely in the large quantity of parasites. These causes may be found in what has been termed the biological characteristics of the estivo-autumnal parasites. The first of these is their capacity for rapid propagation. It is another characteristic of these parasites to disappear from the peripheral circulation to complete their cycle of development in other vascular areas. We should take into account another factor in the other forms of pernicious malaria—the virulence of these parasites. Many attempts have been made to demonstrate a malarial toxin, and there is good evidence to believe that such a malarial toxin exists, although it cannot be demonstrated.

Therefore, it is probable that this property of the estivo-autumnal parasites, more than any other, accounts for malignancy in malaria. Another proof of the great virulence of these parasites is the occurrence of hemoglobinuria in these affections. But the blood offers other evidences of malarial infections than the presence of parasites in it; namely, the presence of pigmented leucocytes, and the characteristic leucocytic variation of malarial infection. In all the cases studied by him there were pigmented leucocytes. After considering this subject quite in detail, he said that if pigmentation and leucocytic variation are evidences of malarial infection where the parasites are few or absent in the peripheral circulation, hemoglobinuria must be malaria; and, being malaria, is a most striking evidence of the extreme virulence of the estivo-autumnal parasites. Phenomena occurring in these infections after the disappearance of the parasites, which have been termed post-malaria, are also evidence of the toxin theory.

Not infrequently it has been stated that the negro is relatively immune from malarial infections, and sometimes that he is absolutely so. These statements were not in accord with his experience of eight years with the negro in the southern Mississippi valley. On the plantation where he resided there were 24 whites last year, and of this number 41% were infected with malaria. Five of this number, however, who did not have malaria, were away from home during the greater part of the malarial season. So, excluding these, the percentage of malarial morbidity would be about 53 amongst the whites. There were 184 blacks, and of these 61 were infected.

GANGRENE.

PROFESSOR OSLER classifies two groups of gangrene: (1) In connection with Raynaud's disease; (2) multiple spontaneous gangrene in association with the acute infections like measles, typhoid fever, typhus fever, scarlet fever, diphtheria and malaria. Multiple spontaneous gangrene of the limbs in young and middle-aged people may occur without any obvious cause. The case he reported was one of multiple gangrene in estivo-autumnal infection. He saw another case of spontaneous gangrene last year which, from the clinical history, he regarded as one in association with malaria. He then gave an abstract of the case.

SECOND DAY.

DR. W. D. KELLY of St. Paul, Minn., read a paper entitled

THE CHEMICAL AND MICROSCOPICAL EXAMINATION OF THE BLOOD.

The blood serum containing serum albumin and serum globulin is subject to chemical change in puerperal septicemia, and in febrile disease serum globulin is less subject to change than serum albumin. The pathological variations in

the phosphates of the serum is but slight; of the chlorides, not very great, although this principle is chiefly responsible for the isotonic relations of cells in serum. A high percentage of chlorides is usual in anemia. The larger the proportion of plasma the greater is the percentage of chlorides in the blood. Sodium salts are principally found in the plasma, being usually increased in the watery blood. Potassium found in the red cells is diminished in hydremic conditions. Seegen, Chauréau, Cavazzani and others found, in normal blood, traces of glucose, which was increased by a diet of carbohydrates and diminished by muscular exertions. The diastase ferment of blood is found in the red cell and serum, and is found by Precka and others to have the power of coagulating the blood. It is inhibited by the nuclein and increased by sodium sulphate and chloride. Fat has been demonstrated in the blood after a hearty meal. The occurrence of free fat, both in health and disease, has been frequently observed. Acetone has been found in fevers. Jaksch demonstrated fatty acids in the blood of leukemia, acute atrophy of the liver and infectious diseases.

The poisonous symptoms developed in cholemia have been referred by most authorities to the presence of biliary acids. Isotonic tension and increased resistance of the red cells are peculiar characteristics of red blood in jaundice. Bile acids affect the union of hemoglobin with the stroma of the red cells, rendering hemoglobin more easily soluble; this accounts for the solution of red cells in jaundice, as well as in other conditions. Icteric blood has also an increase in the nitrogenous bodies. Well-marked cholemia may be detected by the inspection of serum or foam on heating to 50° C. Bilirubin may be changed to biliverdin by that process. By the intravenous injection of glacial acetic acid in the rabbit, he had been able to get an acid reaction several hours afterward by the phenal phthalein test. The specific gravity of the blood may be increased by sweating, lack of food, muscular exertion, and may be decreased by freely imbibing in water or fluids. Homberger found that albumins, phosphates and chlorides behave differently after changing osmotic conditions. When a little acid is added to blood, albumin and phosphates pass from red cells to serum, while chlorides pass from serum to cells; but when alkali is added, the opposite transfer is induced.

In order to make a satisfactory examination of the blood, the following things are necessary: Apparatus must be absolutely clean; the various stages of the process must be performed rapidly, because the cell coagulation of the blood will interfere with any of the tests; the work must be done accurately. Making large quantities of the stain and keeping some in glass-stoppered bottles, will standardize the solution, as no one will receive minimum variations in intensity of stain. Fixing a specimen, by continuous heat, with as slight degree of variation in distributing the heat as possible, is a matter of some importance.

THE LEUCOCYTE COUNT IN HEMORRHAGE.

DR. GEORGE DOUGLAS HEAD of Minneapolis presented this paper. The writer wished to place on record some experimental work upon the leucocytes in hemorrhage which gave results somewhat different from the generally accepted views. In his experiments upon dogs the same law seems to govern the increase or decrease of leucocytes in the circulating blood as in man. There is a leucocytosis of digestion, and one following septic infections in dogs as in the human being. The variations of leucocytes in the circulating blood of man is the same as in dogs. In all probability the conclusions arrived at from his experiments in dogs would apply equally well to human beings. He formulated the results of his work as follows: (1) In dogs a diminution in the number of white cells in the circulating blood immediately follows a profound hemorrhage; (2) the initial leucopenia is followed sooner or later by an increase in the number of leucocytes in the circulating blood; this is the so-called post-hemorrhagic leucocytosis of all writers; (3) this leucocytosis of hemorrhage continues for at least seven days, and in some cases much longer.

The writer believed that what he had demonstrated in dogs is equally true for human beings; namely, that in human beings, immediately following hemorrhage there is an increase in the number of leucocytes in the circulating blood, which has hitherto been overlooked, because hematologists have failed to make their counts early enough after the hemorrhage took place.

DR. W. T. HIGGINS of Courtland, N. Y., said that some of the gentlemen were inclined to doubt Hunter's theory and the importance of the mouth conditions in pernicious anemia. Hunter's success in the treatment of this disease seemed to offer something in favor of his theory. He had treated one very marked case on the lines laid down by Hunter, with complete recovery. He was impressed with the securing aseptis not only of the mouth, but of the nose and upper air passages, as well as the teeth.

DR. W. D. KELLY of St. Paul referred to the importance of keeping the air from the veins of rabbits; if air gained an entrance, death would ensue in a few seconds.

DR. McCRAE said that he agreed with Hunter in his theory, but he also believed that it was important to pay attention, too, to the intestinal tract. Brilliant results had been obtained from the use of arsenic. One case he had had in 1880 who is alive today. Another case treated returned six years later with cancer of the stomach. He has now one case under observation for six years. He had seen cases get well when treated by rest, fresh air, good food, Epsom salts and arsenic. He emphasized the importance of oral aseptis.

OSMOTIC PRESSURE AND ITS RELATION TO UREMIC MANIFESTATIONS.

DR. HEINRICH STERN of New York read this paper, and stated that he thought we were laboring in the wrong direction when we tried to fasten

the origin of uremia and kindred affections upon a purely physiologico-chemical basis. Most of the effete products *per se* are little toxic. Potassium, it seems, exerts the greatest poisonous qualities. Intravenous injection of urine for experimental purposes has shown what we did not know before; namely, that uremia is *not* the consequence of one, but of the retention of all those substances which normally enter into the composition of urine. We do not encounter in the blood of uremia any other factors but those prevalent in the normal state. The only difference is the quantity. Uremia is, therefore, rather a physical than a chemical anomaly.

All organic matter is saturated with water. The cells of the body are more or less permeable for water. If the contents of the organism are soluble salts, and in water remain unaltered, so that for a certain period neither salts nor water are introduced nor eliminated, all the watery constituents of the organism would become one homogeneous liquid, and the same osmotic pressure would prevail over the entire system. The molecules of a number of compounds, when dissolved, are divided up, are dissociated into "ions." The higher the dilution the more perfect the dissociation as a general rule. There is no vital process in which diffusion or osmosis does not participate. Conditions for the evolution of osmotic pressure always exist in the organism; for whenever two solutions come in contact by means of a semipermeable wall, osmotic tension is displayed. When the excretory activity of the kidney is materially interfered with, the products of catabolism are retained in the blood. The great number of molecules dissolved in the plasma exert a high osmotic tension, and tend to diffundate (?) toward the less concentrated body liquids. Ultimately all the fluids of the body exhibit a similar degree of concentration. This degree of concentration is accompanied by a series of manifestations coordinate and successive, which have been grouped together under the name of "uremia." This is really, if we may call it so, a mechanical intoxication, not one of chemical origin, but one due to an abnormal increase in osmotic tension of the blood plasma and the fluids of the body.

The phenomena which occur in the blood after the injection of large amounts of concentrated salt solution are the same as these in uremia; they make their appearance, together with the increase in the concentration of the blood, when the elimination of the accumulated substances from the blood on account of the extraction of the resorbive qualities of the tissues does not occur any longer. Noss already noticed in dogs tonic and clonic convulsions after intravenous injection of 10% sodium chloride solution, and in such events that the blood had attained twice its former concentration.

TREATMENT OF CIRRHOSIS OF THE LIVER.

DR. JOHN H. MUSSER of Philadelphia spoke on this topic. He divided the cases of cirrhosis of

the liver into those in which no symptoms occurred during life,—the cirrhotics having been found at autopsy, the patient dying from other causes,—and into those cases that were not suspected until such an accident as hemorrhage made it apparent,—that is, latent cirrhotics of the liver,—and again into cases with the symptoms of portal obstruction and, on the other hand, biliary obstructions. The lines of treatment were largely dietetic and hygienic, great care being taken to see that the functions of the gastro-intestinal tract were kept in action all the time, and that the renal secretions were properly regulated as well as the action of the skin. He raised a word of caution in regard to the presence of hemorrhoids. Many patients are operated upon without careful investigations, and it was his misfortune to see two or three deaths occur following the operative treatment upon hemorrhoids; at autopsy cirrhotics of the liver was shown to be present. In all cases of hemorrhoidal disease a thorough knowledge of the state of the liver should be known before any operative measure is advised.

The management of ascites occurring in cirrhotics is interesting, because of the late attempts at treatment through surgical intervention. In the treatment of ascites there were medicinal and surgical measures. He was accustomed to the use of mild purgation and the use of calomel from time to time; he also used calomel in $\frac{1}{4}$ gr. doses given every three hours as a diuretic. He also relied upon the old-fashioned pill of digitalis, squills and calomel. He also had considerable confidence in the oil of copaliba. In any case of ascites he did not wait long to determine whether these drugs would be of use, but he resorted to tapping early and frequently. One should not be appalled at the frequency of tapping required in some cases; one case was cited in which tapplings were done 190 times. He then considered the question of permanent drainage, and stated that Dr. Frazer had operated upon a case, opening the abdomen, scarifying the peritoneum and attaching the omentum to the abdominal walls; this was done twelve months ago and the patient is cured of his ascites, there being no recurrences. Among 20 cases that have been operated on in Philadelphia, a very large percentage were relieved or cured.

PERNIOUS ANEMIA; REPORT OF A SERIES OF CASES.

DR. THOMAS McCRAE of Baltimore read this paper, which was a report of 10 cases that have occurred in the service of Dr. Osler at the Johns Hopkins Hospital in Baltimore in a period between ten and eleven years. During the same time there were about 12,500 medical patients. Of the 10 patients, 32 were males and 8 females; 2 were colored. The ages varied from ten to seventy years, the largest number occurring in the fifth decade. As to the etiology, worry and mental strain were only present in 3 cases. Pregnancy was associated in 1 instance. Oral sepsis was not invariably present in the recent cases. Among the symptoms the most frequent were

weakness, change of color and loss of weight. The latter occurred in more than one-half of the cases, and emaciation was marked on examination in 10 of the series. Pigmentation of the skin was found in 8, and petechial in 4 instances. In the abdomen the liver was felt in 2 cases and the spleen in 6, but in none was the enlargement at all marked. When the cases first came under observation, the hemoglobin averaged 30%, the red corpuscles 1,560,000, and leucocytes 6,929 per cmm. Of the 16 cases with count below 1,000,000, only 4 recovered. The average differential count for 36 cases was polymorphonuclears, 61% small mononuclears, 31% large mononuclears and transitionals, 4% eosinophiles, 2% and a fraction of a percent. of myelocytes. The average number of nucleated reds per 1,000 leucocytes was 37, of which 23 were normoblasts, 5 were megablasts and 9 were intermediary forms.

In a comparison of the fatal and the nonfatal cases, the average percentage of small normoblasts was rather higher in the cases that recovered, but the number of megablasts was eleven times greater in the fatal cases. There were nervous manifestations in 14 cases. These varied from slight sensory disturbances only to complete paraplegia. It was not possible to group the cases under any division, as the symptoms varied so. The prevailing type, however, was of a more or less spastic condition, with some inco-ordination and marked sensory disturbances. In some the nervous symptoms seemed to vary with the state of the blood. As to diagnosis, the distinction from gastric cancer may be difficult. In this the higher count of the red cells usually found, lower color index, lower percentage of small mononuclear, and absence of megablasts are all important factors. Certain cases showing some features of splenic anemia are hard to place, of which 3 were cited. They had a prolonged course, markedly enlarged spleen, ascites in 2, and the general blood conditions of pernicious anemia. They were not included in this series. The average duration of 17 fatal cases was twelve months. In 8 the course was under six months. One case recovered and came under observation seven years later with cancer of the stomach, and 1 is in good condition six years after the onset. The treatment given may be summed up as rest, fresh air, good food and arsenic.

CIRCULATORY DISTURBANCES ACCOMPANYING CIRRHOSIS, WITH INOSULATION OF THE PORTAL BRANCHES WITH SYSTEMIC VEINS.

DR. CHARLES G. STOCKTON of Buffalo, N. Y., was the author of this paper, from which some practical conclusions may be drawn from the data given, some of which it would seem necessary to call attention to but for the fact that it appears to have been somewhat overlooked: (1) The normal blood pressure in the portal vein is low; that when it is raised suddenly it is apt to be followed by symptoms of toxemia, and these symptoms may be primarily relieved by purgation. (2) The second important conclusion is

that when the vascular changes and the raised portal blood pressure that permit the passage of the portal blood into the systemic veins are brought about gradually, and the subject is better able to resist toxemia, becoming, as it were, immunized to the offending portal blood, the symptoms are less striking; and with proper care as to diet and laxation may be practically overcome.

CIRRHOSIS OF THE LIVER DUE TO METALLIC POISONS.

DR. VICTOR C. VAUGHAN of Ann Arbor, Mich., said that lead and copper are the substances which should be considered among the metallic poisons, so far as their effects upon the liver are concerned, and especially upon the changes in the connective tissue of the liver. Alcohol is one of the most important factors in the production of the cirrhoses of Laennec. The metallic poisons—lead and copper—generally, if not always, produce changes in the liver cells which are characterized here by a fatty degeneration or fatty deposit in the liver cells. There has been considerable discussion as to whether the first changes take place in the hepatic cells or in the connective tissue. But, so far as the metallic poisons were concerned, he thought the changes in the liver cells were prior in time to the changes in the connective tissues. They are certainly recognizable earlier than the other changes. For instance, if, hours or days after the administration of these metallic poisons in not immediately fatal doses, fatty deposits may be found in the hepatic cells, it is not presumable that the changes in the connective tissue take place so rapidly.

He had seen a considerable number of cases of cirrhosis of the liver due to lead poisoning, some occurring in house painters who are careless in their habits, having unclean hands. Other cases of this occur in workers of lead fumes. It is not often that we see cases in the early stages of liver changes at autopsy. Therefore we must rely on animal experimentation in our endeavors to trace the relationship of these changes. In a number of the cases of metallic poisoning there occurs subsequently an overgrowth in the connective tissue in the liver. Another poison in which he was much interested was aluminum; the effects of this upon the human liver he did not know much about, but when the soluble salts of aluminum were administered to animals hyperdormantly or intravenously, the changes can be speedily detected in the hepatic cells and subsequently in the connective tissue.

RHEUMATIC STIMULANTS.

DR. JAMES J. WALSH of New York read this paper, in which he said that there were three terms in medicine that have indefinite significance: Rheumatism, gout and catarrh; and curiously enough these terms are descriptive of the same idea. Acute rheumatic arthritis we have come to realize as being an acute infectious disease of micro-organismal origin. Its very simi-

larity to gonorrheal rheumatism points strongly to the microbic origin of the disease. He referred to a series of joint symptoms that occurred in connection with certain toxemias. Observations were made pointing to the fact that there might be some serious involvement of joint structures without there necessarily being any microbic metastasis.

Painful affections around a joint point to two facts: (1) The nervous mechanism supplying joints, owing to its greater use than most of the other groups of nerves, makes it extremely sensitive to disturbances of the circulation; and (2) tissue in the neighborhood of joints, being much used and subjected to injury, are liable to take on chronic inflammatory conditions. Certain observations were made in a series of cases in the service of Professor Katzenbach at the New York Polyclinic.

These cases presented painful symptoms, which were usually referred to the neighborhood of joints, and which had been diagnosed as rheumatism. Where the patient was not able to give a straight history of acute rheumatism, with red, swollen joints, fever and sweating, the case was at once assumed not to be rheumatic in character, and very seldom was it necessary to retract this assumption. Among 40 cases presented, 15 had so-called rheumatic symptoms of the lower limbs, due to flat-foot. This proportion, a little more than one-third, represented, he thought, very nearly the ratio in which flat-foot symptoms are mistaken for rheumatism. Very often the symptoms are worse on rainy days or damp weather, probably from the fact that on damp, muddy days these patients are apt to wear old shoes, which furnish a much less support to the foot than do the well-fitting new shoes. Again, nerves are much more sensitive when there is a great deal of dampness.

In speaking of occupation neurosis, he said that there was no occupation that involved a frequent repetition of muscular movements but what might produce it. For instance, so simple an action as sweeping, if done as a regular occupation and constantly performed with a broom in the same hand, causes individuals to run down, gives rise to painful feelings, either in the shoulder, if the broom is grasped too high up to enable the person to take advantage of the proper leverage in making the sweep, or in the leg, if the body is constantly supported on one leg during the process of sweeping. The brachyalgia that occurs in connection with frequent and badly directed use of the small muscles of the forearm is well known, occurring in telegraphers, in writers, in penmen, in typewriters, in piano players, in violin players, etc. As a result of a sort of sympathy with the lower arm, the upper arm and shoulder often suffer from a decided ache, and it is surprising how often this ache is treated as rheumatism. He referred to many other cases of occupation neurosis in which antirheumatic treatment had been administered.

(To be continued.)

Recent Literature.

Lectures on Nasal Obstruction. By A. MARMADUKE SHEILD, M.B., F.R.C.S., Surgeon to St. George's Hospital, London, and in charge of the Throat Department, etc. Philadelphia: P. Blakiston's Son & Co. 1901.

This is a small book of 100 pages, containing three lectures: The first on the causes and diagnosis, the second on the treatment of nasal obstruction, and the third on the treatment of nasal polypi. There is much that is good in the lectures, but they do not make a very useful book. Although nasal obstruction is often an important symptom, it is only a symptom, and it is not one on which it is easy to hang a classification of intranasal pathology and therapeutics. The three subjects which naturally receive the most attention are adenoids, deviations of the septum and polypi. In the first it is not always clear what the author advises. The second is incomplete. The book is interesting, for it is always useful to know the details of treatment of an operator of good judgment and large experience.

How to Cook for the Sick and Convalescent.

Arranged for the Physician, Trained Nurse and Home Use. By HELENA V. SACHSE, Graduate of the Philadelphia Cooking School. Philadelphia: J. B. Lippencott Co. 1901.

As indicated in the title, this small book of 239 pages, including a satisfactory index, is designed to assist and direct in the proper preparation of foods for invalids. Although we are not prepared to offer criticism of the individual recipes, we have no hesitation in recommending the book as a whole. It is systematically arranged, and careful directions are given of the details of preparation of various foods. When one considers the importance of diet in sickness, we can only wish that books of this character may have a wide circulation.

An Index of Symptoms as a Clue to Diagnosis.

By RALPH WINNINGTON LEFTWICH, M.D., Late Assistant Physician to the East London Children's Hospital. Second Edition. New York: William Wood & Co. 1901.

This small book of 267 pages contains a large amount of much condensed information. It is essentially a bare list of symptoms arranged under various heads. For example, under the heading "Vesicles," the author gives a list of the conditions under which vesicles may appear. The book certainly should fill a certain place of usefulness, but we should be much more willing to commend it were there a running commentary to connect intelligibly the many discrete facts. A complete book, of the general design of this one, we have long felt would be an admirable method of inculcating many of the fundamental principles of diagnosis.

THE BOSTON

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THE SPITTING HABIT ONCE MORE.

FROM various sources it appears that considerable progress has been made in the education of the people regarding the danger arising from promiscuous expectoration. The occasional arrest of offenders in various parts of the country, and the wide-spread warning notices in street cars and public places, have no doubt impressed the popular mind, at least to a certain degree. It is, therefore, especially unfortunate that any retrograde slip should be taken in the good work of prevention. That such is, however, the case in Boston has recently been pointed out by Dr. V. Y. Bowditch in a letter to the *Boston Transcript*. Dr. Bowditch calls attention to the fact that the Elevated Railway Company, in introducing smoking cars on all its trains, is directly encouraging the vice of spitting. Some men will spit under any circumstances, and others—a large contingent—will spit only when smoking. The first class is rather hopeless, and all that can be done for their regeneration lies in threatening punishment if they persist in infringing the laws of decency. The second class is directly encouraged in its bad habit by allowing smoking in places where expectoration should be prohibited. The removal of temptation is undoubtedly a ready means of combatting the spitting habit in this class.

Dr. Bowditch maintains, with much reason, that it is a decided retrograde step on the part of the Elevated Railway Company to encourage smoking and hence spitting, when it has hitherto done such good work in diminishing the amount of spitting on the floors of the surface cars. Dr. Bowditch draws a realistic and extremely unpleasant picture of the situation when he says: "Not only are ladies oftentimes obliged to be squeezed into the smoking cars on account of lack of room elsewhere, but men are seen expectorating all over the floors and out of the windows upon the heads of people

passing in the streets below, and, more especially, in the subway. At the Boylston street station yesterday the hitherto beautifully clean, enameled walls of the station were besmeared at one portion with squirts of tobacco juice ejected from the windows of the Elevated trains. Even one of the employees spoke of it with disgust. If this is the condition where it can be easily seen, we know what it must be elsewhere along the route."

He further draws attention to the fact that bacteria will be much more likely to survive a considerable time in the darkened subway than in the open street exposed to the direct rays of the sun.

This is clearly a matter which needs attention. At present there are said to be no signs in the smoking cars prohibitive of spitting, and, if our memory serves us, there are likewise no receptacles for expectoration on the floors of the cars. Several possible remedies or improvements are open. Take off the smoking cars entirely; this would no doubt accomplish the most definite result, but would possibly be a hardship to those who know how to smoke with self-control. Allow smoking, but make rules which are enforced. There is no question in our mind that the arrest of a few persons would have a most salutary effect, and teach a much-needed lesson. As Dr. Bowditch suggests, why not, if necessary, have a special police force, whose duty it should be to enforce the law. In our judgment, although smoking cars may not be a necessity, there is every possibility of correcting the abuse to which they have given rise, by stringent measures short of their actual removal.

THE FOURTH OF JULY AND AFTER.

THE records are not yet all in and doubtless will not be for some weeks to come, but already we have sufficient evidence that the celebration of our national holiday has been carried out in the same old, time-honored way. Excitement is one of the keenest pleasures of life and, no doubt, were there not a certain element of risk and danger in our patriotic celebrations, the day would be far less attractive to many of our citizens. We sometimes regret that the Fourth of July orations made by national heroes, brimful as they are of popular patriotism, should not suffice for all our needs, but this is clearly not the case; and the usual fireworks and noise this year, as in all preceding years, have demanded their share of general attention.

It is, however, a gratification to note that the number of killed is less than last year, so far as the present statistics show, while the number of injured is, unfortunately, considerably larger. This year nineteen were killed, as against thirty

last year, but several hundred more were injured, more or less seriously. We await with interest the further reports, which are sure to come when the ravages of the toy pistol are known. It is stated that last year in Chicago no deaths from toy pistols were reported on July 5, but that before the end of the month twenty-five had died from tetanus, and similar figures came from other large cities. It is to be hoped that, owing to the ban which has been placed on this particular variety of pleasure-giving toy, a smaller number of tetanus cases will develop than in preceding years, but of this nothing definite can, as yet, be said. Fireworks of various sorts are always a source of danger, and this year has been no exception to the rule. Numerous explosions and unlooked-for casualties have resulted from the usual cause—carelessness. The aberrant rocket has apparently been particularly in evidence, with at least two deaths to its credit. It is unfortunate that people have not yet fully learned that rockets, like other less noxious things, need to be started in the right direction.

In general, we are glad the Fourth is again a day of the past. We can now enter upon the summer with a renewed peace of mind.

ANOTHER LEAGUE.

It is reported, upon what authority we do not know, that a National Locomotor Ataxia League has been formed in New-York, the requirement for admission being that the applicant be a victim of that disease.

The following statements with regard to this association are made: That the league intends to raise money for the erection and maintenance of a sanitarium, in the hope that the special study thereby afforded may result in the discovery of a cure; and, in the second place, that two members of the league have offered a reward of \$10,000 for the first permanent and guaranteed cure of the disease.

How much companionship, and the exhilaration which comes of talking over one's illness with a sympathizing fellow-invalid, may conduce to the amelioration of a disease like locomotor ataxia, we are not prepared to say; but we heartily approve of the scientific spirit which seems to prompt the sanitarium plan. Why not, in this age of hyperspecialization, have a separate hospital for each disease which claims any considerable number of victims? Epilepsy now has its special hospitals, tuberculosis has followed, and others, no doubt, will come. If the ataxias also wish such privacy, we see no reason why they should not have it; particularly if the burden of their disease may be lightened by the contem-

plation of each other's woes. We also commend the public spirit of those members of the league who offer \$10,000 for the first cure, but we trust there will be no keen disappointment if even this amount fails to develop the required genius. Money, no doubt, is a valuable stimulus in many walks of life, but locomotor ataxia, and chronic diseases in general, have an annoying way of disregarding even this engine of civilization. We wish the league all success, but we trust the first enthusiasm may not lead to the entertainment of false hopes.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the eight days ending at noon July 10, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 48, scarlatina 27, measles 177, typhoid fever 11.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for last week was 247, as against 204 the corresponding week last year, showing an increase of 43 deaths, and making the death rate for the week 22.5. The deaths from consumption were 26; pneumonia 6; whooping cough 1; heart disease 20; bronchitis 4; marasmus 2. There were 60 deaths from violent causes. The number of children who died under one year was 42; under five years, 67; persons more than sixty years, 52; deaths in public institutions, 76.

SMALLPOX IN RHODE ISLAND.—A recent report states that smallpox is increasing in several of the mill towns of Rhode Island. On July 5, 18 new cases are said to have been discovered in the Blackstone and Pawtucket Valleys. Those attacked by the disease are mill workers and their children, making the possibility of the spread of the disease considerable. The sanitary conditions of the tenement houses are reported to be very defective, and the State Board of Health proposes to take active measures to overcome the disease. Several new cases of smallpox have appeared at Natick, R. I., in a family living in one of the mill tenements. The persons afflicted are children, and the disease has not taken on a serious form.

CHILDREN'S ISLAND SANITARIUM.—This charity has again opened for the summer's work. The sanitarium located on Lowell's Island in Salem Harbor provides for the care of about 60 sick and debilitated children at one time, especially those who are suffering from chronic disease and who are convalescing from other illnesses. About 250

children are aided during the summer. This year it is hoped to keep the sanitarium open until Sept. 7, if sufficient funds are forthcoming.

THE PRAY PRIZE.—Persons eligible to the prize of the Pray fund must be members of the New Hampshire Medical Society. We are also informed that we were misinformed in speaking of this prize in a recent issue as the John W. Pray Prize. The donor was Thomas Jefferson Worcester Pray.

SMALLPOX IN FALL RIVER, MASS.—Several new cases of smallpox have recently been discovered in Fall River in one family. Those having the disease and the suspects have been removed to the contagious hospital.

SCARLET FEVER IN BEVERLY, MASS.—It is reported that upwards of a dozen cases of scarlet fever have recently occurred at Beverly, Mass., of a malignant type, from which several deaths have resulted.

BOARD OF REGISTRATION IN MEDICINE.—At the recent examination held by the Board of Registration in Medicine, between 175 and 200 candidates applied.

NEW YORK.

TRANSFER TAX ON LEGACIES.—The late C. P. Huntington, who died in April of last year, by his will gave \$20,000 each to the Roosevelt Hospital, Children's Aid Society, New York Society for the Relief of the Ruptured and Crippled, and the American Female Guardian Society and Home for the Friendless. The surrogate, reversing the appraiser, decided that under the taxable transfer law of 1896, which imposes a tax of 5% upon all transfers of property to corporations not exempt by law from taxation, no tax should be imposed against these corporations. The controller appealed, claiming that under the amendment of 1900 only a person who is a bishop and only such corporations as come under the head of religious corporations would be entitled to exemption from the transfer tax. The Appellate Division of the Supreme Court now holds, in an opinion by Justice Hatch, that only the Roosevelt Hospital and the Children's Aid Society are entitled to the exemption, and the surrogate's decision regarding the other two institutions is reversed.

NEW YORK TENEMENT HOUSE ACT.—The new Tenement House Act, passed at the last session of the legislature, went into effect on July 1. It appears, however, that the tenement house commissioner provided for by the act will not be appointed until the 1st of January next, and in the meanwhile the responsibility of enforcing the provisions of the law will devolve upon the Health Department, which has sent out to all owners of

tenements a circular containing the portions to be immediately enforced. One of these provisions is that a tenement house shall be subject to a penalty of \$1,000 if it or any part of it shall be used for the purpose of a house of prostitution or assignation, with the permission of the owner thereof or his agent, and this penalty shall be a lien upon the house and the lot upon which the house is situated. Another is to the effect that any prostitute residing in a tenement house shall be deemed a vagrant, and upon conviction shall be committed to a county jail for a term not exceeding six months.

HOSPITAL HELD RESPONSIBLE FOR DEATH OF PATIENT.—On July 1 a coroner's jury which has for some time been investigating the case of Herbert Wadman, who died in March last at the Manhattan State Hospital for the Insane, Ward's Island, rendered a verdict to the effect that Wadman came to his death by chronic nephritis and acute mania, aggravated and hastened by broken ribs and injuries to chest and head. They found that the bodily injuries were afflicted by an attendant, aided by one of the keepers, and also censured the hospital authorities, and especially the physician in charge of the case, for neglect of duty in failing to treat the patient for chronic nephritis. On the following day the keeper and attendant were arrested on the charge of being implicated in and accessories to Wadman's death, and on July 3 were held in \$2,000 bail to await the action of the Grand Jury.

MORTALITY REPORT.—The recent extended period of extreme heat was naturally attended by a greatly increased mortality. During the week ending July 3 the number of deaths in the various boroughs of the city caused by the direct effect of the heat is said to have exceeded 600, and during the twenty-four hours ending at noon on July 4, the total number of deaths reported from all causes in Manhattan and the Bronx alone amounted to 406. Before this, the largest mortality in any one day was 374, at the close of the period of extreme heat in August, 1896. All the hospitals were worked to their utmost capacity, and there was considerable difficulty in keeping up the extra ambulance service required, on account of the illness and mortality prevailing among horses, the number of automobile ambulances as yet in use being comparatively small.

ORDER REGARDING EXAMINATION OF INSANE PATIENTS.—The head of the Police Department has just issued the following order: "Hereafter, when male patients are taken by the police to the pavilion for the insane in Bellevue Hospital, the officer will remain present until the patient has been searched, stripped, and examined by the physi-

cians and nurses on duty for all contusions, fractures or marks of any kind." Recent investigations have shown that patients have had marks and contusions on their bodies, and it has been disputed whether they were received after their admission to Bellevue Hospital or were in existence before such admission.

SCARED BALDHEADED.—That intense fright should sometimes have the effect of turning the hair suddenly white has long been well recognized. That this emotion should cause the loss of the hair has much more rarely attracted attention. A ten-year-old lad of Bolivar, N. Y., is reported to have been so badly frightened at seeing a supposed apparition that his nervous system received a severe shock. This occurred about two months ago, and since then his hair has been coming out at such a rate that his head is now as bare as a billiard-ball, and there is no vestige left of either eyelashes or eyebrows. "Scared baldheaded" certainly makes a very effective phrase.

A CENTENARIAN.—One of the victims of the hot wave was Barney Morris, believed to have been the oldest citizen of Brooklyn. He is said to have been born at Central Port, County Caran, Ireland, on June 10, 1792, and was consequently one hundred and nine years old. For the past ten years, he had been a laborer in Prospect Park, and he remained faithfully at his work up to the day preceding his death, which occurred on July 2.

MEDICAL SUPERINTENDENT OF ELMIRA REFORMATORY.—Dr. Frank L. Christian, medical officer of the Eastern District Reformatory, Brooklyn, has been appointed medical superintendent of the State Reformatory at Elmira. He was graduated from the College of Physicians and Surgeons, New York, and afterwards served as house surgeon at Bellevue Hospital.

METEOROLOGICAL RECORD

For the week ending June 29, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r		Rainfall in inches.
		Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S..23	29.66	66	72	60	95	95	S E	N	E	15	G.	.18
M..24	29.83	68	76	60	93	84	S E	N	E	4	O. R.	.62
T..25	30.01	70	80	66	69	66	N W	S	W	8	O. C.	.09
W..26	30.11	78	87	68	62	64	N	S	W	14	O. C.	
T..27	29.98	82	92	71	66	66	W	S	W	12	C. C.	
F..28	29.87	85	97	73	75	73	W	S	W	15	C. C.	
S..29	29.80	83	92	74	76	74	S W	S	W	7	C. C.	
30	29.86	85	67		76							.29

* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threatening; N, snow. † Indicates trace of rainfall.
 ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 29, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from	Infectious diseases.	Acute lung disease.	Scarlet fever.	Diarrhoea and dysentery.	Diphtheria and croup.
New York.	3,437,202	1,265	422	29.70	8.06	2.37	7.19	4.27	
Chicago.	1,698,555	—	—	—	—	—	—	—	
Philadelphia.	1,293,697	—	—	—	—	—	—	—	
St. Louis.	575,238	—	—	—	—	—	—	—	
Baltimore.	509,957	195	76	36.42	5.13	—	18.46	1.53	
Cleveland.	381,768	—	—	—	—	—	—	—	
Buffalo.	352,387	—	—	—	—	—	—	—	
Cincinnati.	325,992	—	—	—	—	—	—	—	
Sanbridge.	321,636	—	—	—	—	—	—	—	
Washington.	278,718	—	—	—	—	—	—	—	
Milwaukee.	285,315	—	—	—	—	—	—	—	
Providence.	175,597	54	18	22.21	7.40	—	7.40	1.81	
Boston.	669,892	202	65	18.32	6.03	—	1.48	2.48	
Worcester.	118,421	40	9	20.00	5.00	—	5.00	—	
Fall River.	104,863	35	11	28.50	—	—	25.65	—	
Lowell.	91,969	30	16	25.12	13.86	—	5.55	8.33	
Cambridge.	91,886	14	5	28.57	14.28	—	—	—	
Lynn.	68,513	21	5	27.66	4.76	—	—	—	
Lawrence.	62,559	26	13	23.04	3.84	—	7.68	7.68	
New Bedford.	62,442	11	6	7.14	14.28	—	—	—	
Springfield.	62,069	16	12	12.50	6.25	—	—	—	
Somerville.	61,643	8	3	12.50	—	—	16.65	12.50	
Holyoke.	45,712	18	6	38.89	11.11	—	—	—	
Brockton.	40,963	3	5	33.33	—	—	—	—	
Haverhill.	37,475	9	5	23.10	—	—	—	—	
Salem.	35,956	13	5	23.10	—	—	—	—	
Chelsea.	34,072	10	1	—	—	—	—	—	
Malden.	33,641	11	1	9.10	—	—	—	—	
Newton.	33,587	3	3	33.33	—	—	—	—	
Fitchburg.	31,531	7	3	—	—	—	—	—	
Taunton.	31,036	13	1	15.40	—	—	—	—	
Quincy.	29,121	4	—	—	—	—	—	—	
Flycatcher.	24,526	2	—	—	—	—	—	—	
North Adams.	24,290	6	2	16.67	33.33	—	—	—	
Quincy.	23,869	10	—	10.00	—	—	—	—	
Waltham.	23,481	8	1	50.00	12.50	—	—	—	
Fittsfield.	22,566	5	—	—	—	—	—	—	
Brookline.	19,935	—	—	—	—	—	—	—	
Chicopee.	19,167	4	1	25.00	—	—	—	—	
Medford.	18,244	10	3	10.00	20.00	—	19.00	—	
Newburyport.	14,178	5	1	—	—	—	—	—	
Melrose.	12,962	—	—	—	—	—	—	—	

Deaths reported 2,112; under five years of age 630; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrhoea, whooping cough, erysipelas, fevers and consumption) 570; acute lung diseases 154; consumption 236; scarlet fever 32; erysipelas 8; typhoid fever 17; whooping cough 8; measles 12; cerebro-spinal meningitis 7; smallpox 16.

From whooping cough, New York 4, Baltimore 1, Lowell 1, Holyoke 2. From cerebro-spinal meningitis, New York 3, Boston 2, Worcester, Lynn and Waltham 1 each. From scarlet fever, New York 30, Boston 2. From typhoid fever, New York 10, Baltimore 4, Boston, Fall River and Lynn 1 each. From erysipelas, New York 6, Providence 1, Boston 1. From smallpox, New York 15, Worcester 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,217 for the week ending June 15 the death-rate was 14.5. Deaths reported 3,180; acute diseases of the respiratory organs (London) 150; whooping cough 78; diphtheria 11; measles 114; fever 21; scarlet fever 29.

The death-rate ranged from 8.5 in Croxden to 22.7 in Gateshead; Birkenhead 15.5, Birmingham 15.3, Blackburn 15.5, Bolton 18.5, Bradford 13.1, Brighton 13.1, Bristol 11.4, Burnley 11.8, Cardiff 9.5, Derby 9.8, Halifax 12.4, Huddersfield 11.3, Hull 13.6, Leeds 11.9, Leicester 12.0, Liverpool 18.1, London 15.7, Manchester 18.1, Newcastle-on-Tyne 16.1, Norwich 12.1, Nottingham 12.1, Oldham 17.8, Plymouth 13.0, Portsmouth 10.1, Preston 19.1, Salford 17.2, Sheffield 15.0, Sunderland 20.5, Swansea 22.6, West Ham 13.0, Wolverhampton 17.1.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JUNE 27, 1901.

BANKS, C. E., surgeon. Granted leave of absence for two days, June 21, 1901.

HASTINGS, HILL, assistant surgeon. To proceed to San Diego, Cal., for special temporary duty. June 21, 1901.

Adams, F. B., acting assistant surgeon. Granted leave of absence for three days from June 23, 1901, on account of sickness. June 24, 1901.

Bailey, C. W., acting assistant surgeon. Granted leave of absence for ten days from June 21. June 22, 1901.

BOARD CONVENED.

Board convened to meet at Washington, D. C., June 27, 1901, for the physical examination of applicants for the position of engineer officer in the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon H. D. Geddings, chairman; Assistant Surgeon J. B. Greene, Recorder.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JUNE 29, 1901.

E. M. Shipp, passed assistant surgeon. Detached from the "Michigan" and ordered to the Asiatic Station by vessel sailing from San Francisco, July 15.

W. B. Grote, passed assistant surgeon. Detached from the Naval Hospital, Norfolk, and ordered to the "Michigan," June 28.

G. C. Smith, assistant surgeon. Detached from the "Vermont," and ordered to temporary duty on the "Albatross," July 1.

H. M. Tolfree, assistant surgeon. Ordered to the "Vermont" as the relief of Assistant Surgeon G. C. Smith.

J. S. Taylor, assistant surgeon. Detached from the "Manila," and ordered to the Naval Hospital, Yokohama, Japan.

W. H. Bucher, assistant surgeon. Commissioned passed assistant surgeon from June 22, 1901.

Drs. R. T. Atkinson and A. W. Balch. Appointed assistant assistant surgeons in the Navy from June 22, 1901.

R. S. Blakeman, passed assistant surgeon, ordered to the Naval Hospital, Norfolk, Va.

RECENT DEATHS.

JAMES HENRY CONWAY, M. D., M. M. S. S., of Woburn died July 2, 1901, aged forty-seven years.

DR. B. F. HASTINGS of Whitman, as already announced, died recently at one of the Boston hospitals. He had been for years identified with the business and professional interests of Whitman. He was born in Richmond, Aug. 23, 1836, and was twenty-six years of age when he entered the Army of the Potomac, March 21, 1863, and was appointed assistant surgeon of the Eighteenth Massachusetts Volunteers. He was discharged as assistant surgeon Aug. 26, 1864. When the town of Whitman was set apart from Abington in 1874 he was chosen a member of the School Committee, a position which he held up to the time of his death. He was also a member of the Board of Health for a long term. He was a fellow of the Massachusetts Medical Society.

FRANK A. JEFFERKER of New York died from the effects of the heat on July 3. He was thirty-two years of age, and was graduated from Bellevue Hospital Medical College in 1892.

DR. TABOR B. REYNOLDS of Saratoga Springs, N. Y., died suddenly on July 3, at the age of eighty-one. He had been sheriff of the county and a member of the State Legislature, and had filled other prominent positions.

DR. HENRY C. WOODMAN of Somerset County, N. J., died from the effects of the heat on July 2, at the age of seventy-eight. For the past fifteen years he had been county physician, and at the time of his death was president of the medical board of Somerset County.

DR. ARON N. BRAMAN of Rochester, N. Y., who was prostrated by the heat on July 4, died on July 6.

BOOKS AND PAMPHLETS RECEIVED.

Eight Annual Report of the State Charities Aid Association to the State Commission in Lunacy. Reprint. 1900.

Twenty-fourth Annual Report of the Board of Health of the State of New Jersey and Report of the Bureau of Vital Statistics, 1900.

The Woman's Medical College of Pennsylvania. Catalogue and Fifty-second Annual Announcement. Reprint. Illustrated. 1901.

Endothelioma (Adenoma) of the Base of the Tongue Simulating a Struma of the Tongue. By J. E. Summers, Jr., M.D., Omaha, Neb. Illustrated. Reprint. 1901.

Clinical Lectures on Stricture of the Urethra and Enlargement of the Prostate. By P. J. Freyer, M.A., M.D., M.Ch. Illustrated. New York, William Wood & Co. 1901.

Lecture.

THE ALLEGED INCREASE OF CANCER IN MASSACHUSETTS.¹

THE SHATTUCK LECTURE.

BY WILLIAM F. WHITNEY, M.D., BOSTON.

MR. PRESIDENT AND FELLOWS OF THE MASSACHUSETTS SOCIETY: During the past few years attention has been called to the apparent rapid increase of the death rate from cancer, and prophecies of an alarming nature have been made for the future, based on this assumption. With a view to determine what may be the underlying cause of this, the statistics of the disease in this State have been studied, and a comparison made with those of other states and foreign countries; and it is to the results of this that I have the honor to invite your attention this evening.

At the risk of repeating what may perhaps be known to many of you, I will begin by briefly describing the way in which statistics are usually compared and explain a few of the common terms.

The standard by which the mortality of one year or place is compared with another is termed the death rate. By this is meant the number of persons who have died during a year out of a given number who were alive at the beginning. The number usually selected is 1,000, and the rate is easily obtained by dividing the total number of deaths for the whole year by the number of the population alive in the middle of it and pointing off the proper number of decimals. Thus, for example, if it is stated that the death rate of a given year or place is 19, it is meant that 19 out of every 1,000 persons, without regard to age or sex, alive at the beginning, died during the year.

The rate for any disease may be obtained in the same way by using the number of its deaths instead of the total number from all causes.

Another standard for a separate disease can be obtained by using the proportion of deaths from it during a year to the total number from all causes. This will be called the death ratio, and is best expressed in per cent.

It will be evident at once that the results obtained in these ways are very crude and inaccurate, if the age and sex are not taken into account. For example, the death rate of cholera infantum, a disease restricted to early childhood, would be very misleading if based upon the entire population of all ages.

So for cancer—99% of the cases of which occur after twenty-five years—it is useless to take into account the population or deaths before that age in estimating the yearly rate and ratio. Then, too, the female sex is generally regarded as more subject to this malady, so that the sexes also should be considered separately.

Unfortunately, in the published statistics of most states and countries these fundamental de-

tails are not given, and nothing beyond the crude death rate can be obtained.

In our own State the value of vital statistics was early recognized, and there are quite accurate reports going back to the year 1847, and covering very fully the particulars for the State as a whole. But when it comes to the arbitrary divisions called counties, simply the total number of deaths are recorded, and for towns they are altogether silent in regard to an important disease like cancer, although an entire column of space running through many pages is allotted to the record of those killed in battle or executed, with perhaps the necessity of a single entry for the year.

But, unsatisfactory and incomplete as they are in many respects, there is yet much that can be gleaned from them, which it is to be hoped will repay your consideration and criticism.

First, let us look at the death rate for cancer, from 1850 to 1895 by quinquennia calculated from the average deaths of five years, so arranged as to bring the decimal year in the middle, and thus coincide with the year in which the census is actually taken.

In order that the difference may be in whole numbers instead of decimals, the rate is made to apply to 1,000,000 persons, instead of 1,000. Further, two rates are given, one for persons of all ages, the other for those over thirty years of age, and are as follows:

DEATH RATE FOR CANCER FOR ONE MILLION PERSONS.

Year.	All Ages.	Over 30 Years.	Year.	All Ages.	Over 30 Years.
1850.....	153.....	375.....	1875.....	374.....	800.....
1855.....	183.....	480.....	1880.....	505.....	1,185.....
1860.....	257.....	625.....	1885.....	560.....	1,235.....
1865.....	290.....	650.....	1890.....	605.....	1,300.....
1870.....	348.....	815.....	1895.....	670.....	1,395.....

If a comparison is made between the figures of 1850 and 1895, it is found that the latter are four and one-third times greater for the crude and four times greater for the death rate "over thirty years."

Taking the latter figure as the more accurate, it can hardly be said that the death rate has doubled twice in the last fifty years. Assuming the increase to go on at this rate for the next hundred years, doubling every twenty-five, it would give a death rate of 3,000 in 1920; 6,000 in 1945; 12,000 in 1970; and 24,000 in 1995. A death rate more than equal to that of all diseases at the present day. In two centuries the figures would be 590,000 for each million, or, in other words, every second person over thirty would die of cancer during the year; and in another quarter of a century the race over thirty years would be practically extinct.

But it will be well to look back once more before we leap so rashly into the future. In the first place, it is certain that the progression is geometrical—for at its worst it may only be arithmetical.

The difference between the rate over thirty years for 1850 and 1895 is found to be 1,120,

¹ Delivered before the Massachusetts Medical Society, June 11, 1901.

which, if divided equally among the ten quinquennia, would give 112 for each.

If the increase is geometrical, it would be expected that the rate for the first half should be below this average, and for the last above it.

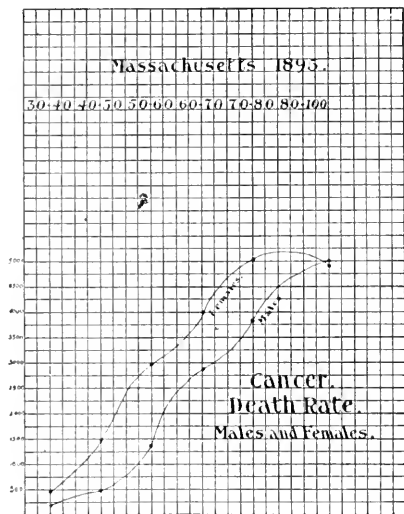


PLATE I.

The following are the actual differences for each five-year period:

1850 to 1855	106
1855 to 1860	145
1860 to 1865	25
1865 to 1870	165
1870 to 1875	75—Average 112
1875 to 1880	275
1880 to 1885	130
1885 to 1890	95
1890 to 1895	165

Great irregularity is the marked feature of this table, some of the figures of the first half being higher than those of the second half, and the increase of the last five years of the series corresponds almost exactly with that of the first. From this there is certainly much more proof of arithmetical than geometrical progression; and if, with this, the horoscope is again cast, it will be found that the rate for 1920 will be 2,060; for 1915, 2,620; for 1870, 3,280; and for 1895, 3,810 instead of 24,000.

Even this number, small by comparison with the other, is high enough, and I must ask you to look still further and see if a redeeming clause can be found for it anywhere.

In estimating the general death rate the failure to properly return or record the deaths is about the only source of error which has to be taken into account. But in the study of single diseases the errors in diagnosis and the proper classification of these death certificates also have to be considered. From this the possibility is at once

suggested, that the increase which has been shown above may be entirely due to more accurate diagnosis and more careful registration.

The question, then, is to find what is the real death rate or ratio for cancer, and how closely it corresponds with that obtained from the vital statistics. Where, then, are there cases which will prove this? And the answer is, in the great hospitals, where the diagnosis has been verified by post-mortem examination. Those in our midst are too small and the autopsies too infrequent to furnish very reliable information, so we must turn to foreign countries for it, and in the reports of the k. k. Allgemeiner Krankenhaus, in Vienna, it can be found. There the records of the autopsies have been carefully kept and classified for a series of years.

The cases have been collected by Nothnagel for the years 1870-1881, and 1882-1893, with 1875 and 1885 for the middle point, and for the single year 1865.

The figures and percentages are as follows:

	Autopsies.	Cancer Cases.	Death Ratio.
1865.....	1,512	122	8.02%
1870-81	220,180	1,460	7.15%
1882-93	220,358	2,121	10.90%

They have also been obtained from the reports of the Charité Hospital in Berlin for eleven years:

	Autopsies.	Cancer Cases.	Death Ratio.
1875-1885	8,068	569	6.37%

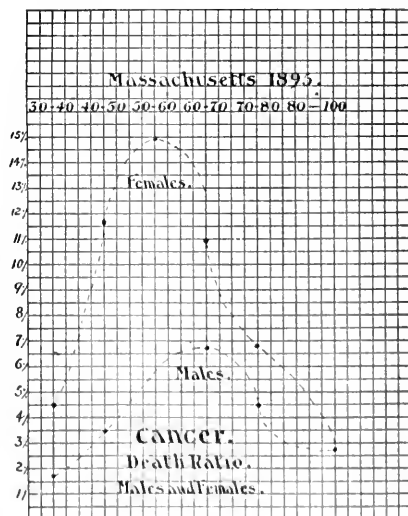


PLATE 2.

If now these are added to those of Vienna, the following is the result:

BERLIN AND VIENNA.

	Autopsies.	Cancer Cases.	Death Ratio.
1870-1892.....	19,806	4,153	8.37%

In these large hospitals, although the age is not given, the greater number of patients are adults, and so the ratios are fairly comparable with those for "over thirty years."

From this it is clear that the average death ratio for cancer, based upon carefully performed autopsies,

practitioner throughout the State, that the difference is not greater.

To the same conclusion have come Newsholme and King,² from their study of the statistics of Great Britain, which show a similar rate of increase to ours, and from a comparison of the figures of an insurance company and of the Frankfort Hospital.

Here this part of the subject may be left, and I will ask you to look back for a moment to see if any of the irregularities of increase, which have doubtless been noticed, are capable of explanation.

The following table gives the death rate of males and females over thirty years for the same period of fifty years, as has been done before for persons.

MASSACHUSETTS.—DEATH RATE FOR ONE MILLION LIVING OVER THIRTY YEARS.
MALES AND FEMALES, 1850-1895.

Year.	Males.	Females.	Year.	Males.	Females.
1850.....	290	445	1875.....	565	1,200
1855.....	342	508	1880.....	705	1,500
1860.....	413	822	1885.....	855	1,685
1865.....	408	868	1890.....	960	1,800
1870.....	532	1,070	1895.....	997	1,965

The first marked irregularity is between 1860 and 1865, where the death rate for males is lower than that for the preceding year. This can well be attributed to the draft the Civil War made upon the male population. But it is surprising that the rate for the females should have also been affected by this cause, yet it appears there is nothing like

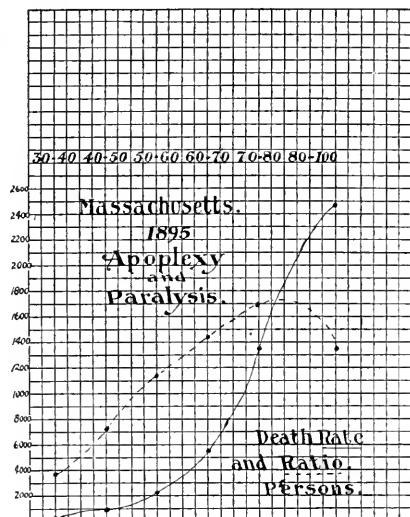


PLATE 3.

sies, was nearly 2% higher thirty years ago than it is today in Massachusetts, according to the recorded clinical diagnosis. So that until the death ratio, "over thirty years," reaches more than 8%, and then begins to show a decided increase, it is not justifiable to speak of it as due to anything except better diagnosis and more careful registration and classification.

What more careful diagnosis can do is shown from the statistics of the New York Mutual Life Insurance Company, where great care is exercised in verifying the cause of death. The data taken from their published figures is restricted to the ratio for the ages of fifty to seventy years, and is compared with that for Massachusetts in the following table:

RATIO OF CANCER DEATHS TO TOTAL DEATHS.

	Males (50 to 70 years).	5-year averages.	
	Massachusetts.	Mutual Life Insurance Co.	
1880	5.15	5.74	
1881	4.75	5.65	
1886	6.10	5.61	
1890	6.25	6.84	
1891			
1895			

This shows that the returns are about $\frac{1}{2}$ % higher when made with more care and accuracy. It speaks well, however, for the ability of the average

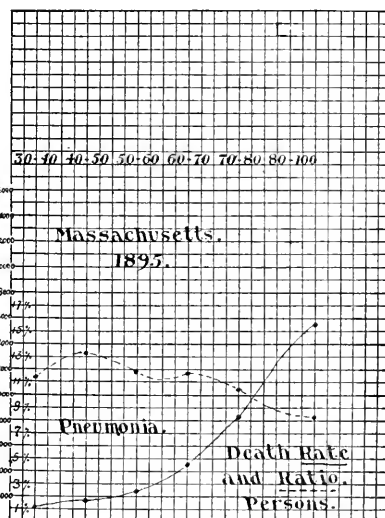


PLATE 4.

the increase between 1860 and 1866 that there was for the five years preceding or following. It can, however, be explained by the absence of the

² Proc. Roy. Soc., vol. liv.

surgeons in the field, and the faulty registration due to the unsettled state of the community. The effect of the war on the male population is still apparent for the next ten years, since a large proportion of them had perished in the field before

will have to be magnified, which is easily accomplished by estimating the rate on the basis of 1,000,000 living at each decade instead of 1,000.

If this is done, it will be found that the rate rises slowly from 30 to 45 or 50, rapidly to 70, and much less thence to the end of life. The curves for the males and females have a general similarity. The latter starts higher and increases more rapidly up to 70, beyond which time it is much less than for the males, so that at the end of life the rates are very close. (Plate 1.)

If now two widely separated years, 1865 and 1895, are compared, the proportion of increase of the two sexes for each decade can be found. At first glance it seems as if the highest must be in the later years of life for females, as the lines tend to go apart and assume the form of a cornucopia. But if the rate of increase is calculated, assuming the earlier year as one, it will be found that the highest rate is really for the males between fifty and sixty years of age, and the lowest is for them also between eighty and one hundred.

Another interesting comparison is to find in what decade the female death rate is proportionately the greater when compared to the males. It proves to be between 30 and 40, and then descends quite rapidly to the last decade, where it practically coincides.

In the same way, if it is desired to use the death rates, their numbers can be plotted in a

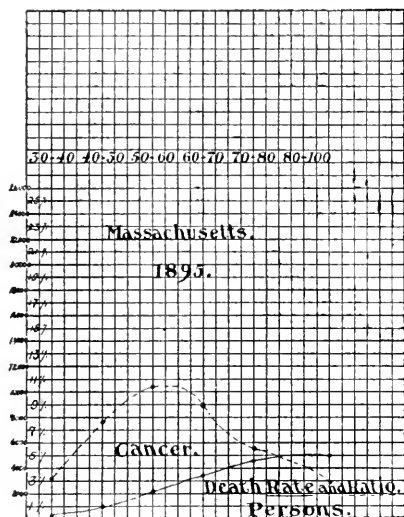


PLATE 5.

arriving at the "cancer age." On the other hand, the females resume their increase with the advent of more skilful attendance and settled conditions.

Between 1875 and 1880 is the largest single gain, and since then it has been gradual, but on a higher level. This era, however, is marked by general introduction of aseptic surgery; and, with the hope held out by it, cases have been attacked and brought to light which before had found their resting place in vital statistics, under the head of hemorrhage, marasmus, heart failure, old age and the like. And yet, for all this improvement, as has been shown above, the limits of accurate diagnosis have not been reached.

So far, in considering the rate and ratio, all ages have been taken together; but interesting relations are brought out when they are further separated into decades. But as these periods of time pass gradually into each other, the figures can be plotted into a curve to show the gradations between them. If the rates for cancer are expressed on the same scale as is used for the general death rate, namely, 1,000, there will be found such little variation that the line, representing the increase from the earlier to the later years, will be almost a straight one. If, furthermore, it is desired to compare the lines for different years, one with another, the space between them will be so small that they will often apparently coincide. In order to appreciate these differences the lines

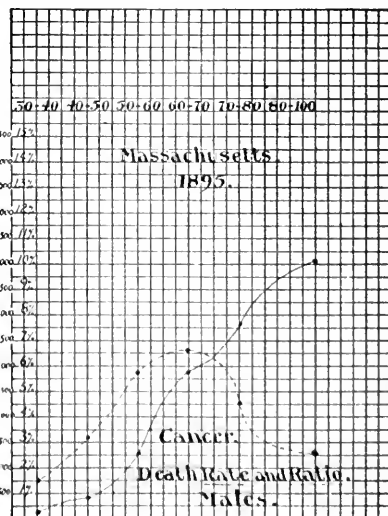


PLATE 6.

curve and compared by decades. They emphasize more clearly than the rate curves the high mortality of females during the period from forty-five to fifty-five years of age. The curve of the males follows at a lower level, with its highest

point at sixty-five years, while the females' is at a decade earlier. (Plate 2.)

Both the curves of the death rate and ratio can be shown together, and make what may be well termed a "graphic picture." It seems as if each

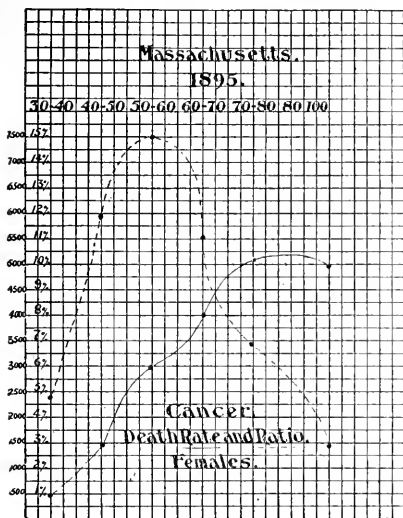


PLATE 7.

disease has its own characteristic one. This is strikingly shown if those for apoplexy and paralysis, pneumonia and cancer, are placed side by side. In the first, the ratio starts above the rate, ascends in almost a straight line to eighty years, and drops off decidedly in the last decade. The rate swings away from the ratio from forty-five years to sixty-five years, then rapidly rises to cross it and ends very high. (Plate 3.)

The ratio for pneumonia starts much above the rate, reaches its highest point at forty-five years and falls somewhat with an undulating curve to the end of life. The rate curve is at first a slowly, and finally a rapidly rising one to the end, cutting the ratio at about the same point as the first. (Plate 4.)

The ratio for cancer starts moderately above the rate and rapidly reaches its summit between fifty and sixty years, to fall lower than its starting point at the end. The rate curve, much more nearly approximating a straight line, rises gradually, and crossing the ratio ends at a much lower level than either of the others. (Plate 5.)

Of course the picture will differ a little from those shown, according to the relative space allotted to each per cent. of the ratio and 500 of the rate, which in those to be shown after this will be made more equal. It will be seen from them that, go where we will, to the other states of this country or abroad, this graphic picture of

cancer will be similar in its general outlines, although some of its details may vary.

I will now pass rapidly in review these graphic pictures of other states and countries, showing wherein they differ from that of our own, first stating that in some only persons are available, while in others both males and females are given.

The comparisons are all made with Massachusetts for the year 1895, the rate and ratio of which are as follows:

MASSACHUSETTS.—DEATH RATE FOR CANCER FOR ONE MILLION LIVING AT EACH DECADE.

	MALES.	FEMALES.		PERSONS.		
	1895.					
<i>Males.</i>	30-40	40-50	50-60	60-70	70-80	80-100
Rate	153	449	1,302	2,852	3,862	5,625
Ratio	1.53	3.37	5.78	6.65	4.42	2.64

(Plate 6.)

<i>Females.</i>	30-40	40-50	50-60	60-70	70-80 80-100
Rate	447	1,460	2,897	4,004	5,076 4,952
Ratio	4.7	11.9	1.5	11.1	6.87 2.85

(Plate 7.)

<i>Persons.</i>	30-40	40-50	50-60	60-70	70-80 80-100
Rate	300	955	2,069	3,428	4,469 5,340
Ratio	3.1	7.55	10.37	8.87	5.65 2.77

(Plate 8.)

MAINE.—PERSONS ONLY AVAILABLE.

	30-40	40-50	50-60	60-70	70-80 80-100
Rate	282	790	1,575	2,770	4,275 4,080
Ratio	3.6	8.44	10.07	8.25	6.37 2.8

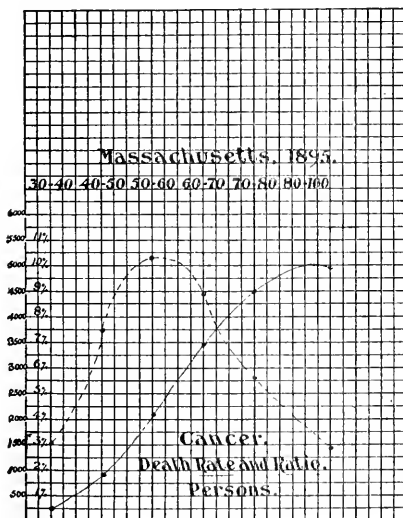


PLATE 8.

In comparing the ratio, it is found to start a little higher, but its summit is not as high as Massachusetts. The rate curve is also a little lower, and the drop at the end a little more marked:

NEW HAMPSHIRE.—MALES AND FEMALES.

Males.	30-40	40-50	50-60	60-70	70-80	80-100
Rate.....	75	298	550	2,041	3,960	4,125
Ratio.....	1.1	3.18	3.60	6.12	5.26	2.7

Females.

Rate.....	466	1,280	2,395	2,925	4,160	3,975
Ratio.....	5.15	12.25	14.08	9.76	6.12	2.85

Persons.

Rate.....	265	797	1,425	2,480	4,025	4,075
Ratio.....	3.34	8.22	9.05	7.9	5.7	2.76

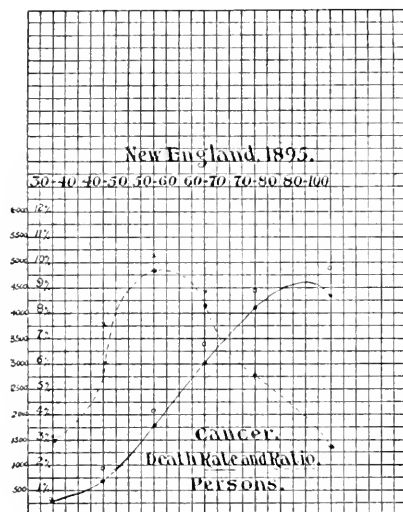


PLATE 9.

Males.—The ratio gives a very irregular curve, owing to a singular depression at the decade of fifty to sixty, which is also shown in the rate curve. They are both decidedly below Massachusetts.

Females.—The ratio is very close both in form and height to Massachusetts, and the rate parallels it at a lower level.

VERMONT.—PERSONS ONLY.

	30-40	40-50	50-60	60-70	70-80	80-100
Rate.....	290	480	1,390	2,190	3,240	3,460
Ratio.....	2.75	7.64	8.88	7.66	5.50	2.61

Both curves are somewhat lower, but follow the same general outline as that for Massachusetts.

RHODE ISLAND.—MALES, FEMALES, PERSONS.

Males.	30-40	40-50	50-60	60-70	70-80	80-100
Rate.....	107	346	1,025	2,210	2,825	4,675
Ratio.....	1.06	2.70	4.3	5.17	3.92	2.70

Females.

Rate.....	592	1,453	2,390	3,720	5,160	5,450
Ratio.....	5.43	11.20	12.45	9.25	6.75	3.14

Persons.

Rate.....	323	922	1,760	3,020	4,320	2,552
Ratio.....	3.27	6.92	8.29	7.30	5.37	2.96

The males are very much lower in both curves until the last two decades. The lines of both are very regular, perhaps fairer than for Massachusetts.

The females are also lower but similar, and the lines are regular.

CONNECTICUT.—PERSONS ONLY.

Persons.	30-40	40-50	50-60	60-70	70-80	80-100
Rate.....	243	875	1,635	2,618	3,230	3,860
Ratio.....	2.70	7.45	8.29	6.20	4.35	2.51

Both curves lower and rather irregular.

NEW ENGLAND STATES.—PERSONS ONLY.

Persons.	30-40	40-50	50-60	60-70	70-80	80-100
Rate.....	282	797	1,835	3,010	4,115	4,292
Ratio.....	3.08	6.10	9.40	8.37	5.52	2.72

(Plate 9.)²

Two quite fair curves, following almost exactly those for Massachusetts, at a little lower level. As in every composite picture the strongest feature predominates, so in this the type is essentially that of Massachusetts, but lowered a little in height from the poorer diagnosis and registration of her sister states.

MICHIGAN.—MALES, FEMALES, PERSONS.

Males.	30-40	40-50	50-60	60-70	70-80	80-100
Rate.....	192	410	1,285	2,000	4,325	5,530
Ratio.....	3.78	5.26	9.1	8.6	5.68	2.77

Females.

Rate.....	781	1,990	2,340	3,425	5,090	7,500
Ratio.....	5.70	13.5	17.60	12.4	6.8	3.88

Persons.

Rate.....	271	736	1,801	3,050	4,632	6,495
Ratio.....	4.81	9.06	13.65	10.55	6.17	3.30

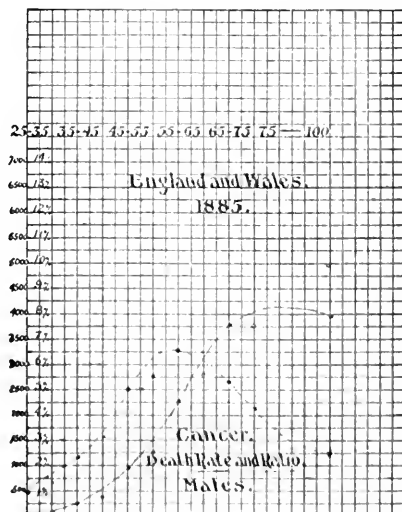


PLATE 10.

Michigan has but one year of vital statistics which are of value, namely, 1898, and therefore the curves are based on data from a single year. While the general death rate and ratio is very

² The r and o in this and the following plates show the ratio and rate for Massachusetts at each decade.

low, the number of cancer deaths is actually quite high, causing an extremely high ratio.

The males practically coincide with Massachusetts until sixty years, when they pass beyond and continue so for the rest of life. The rate curve is lower for females, while the ratio is higher except for the last period of eighty to one hundred. A

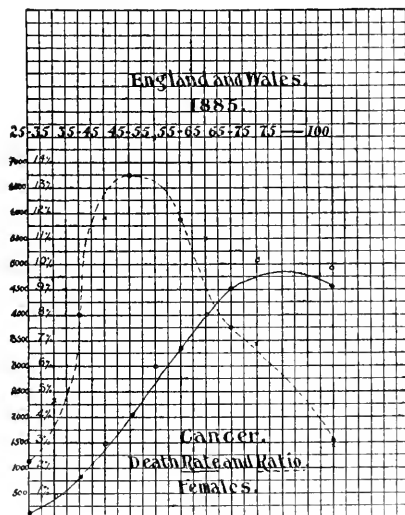


PLATE 11.

possible explanation of this high rate may be found in a large number of foreigners in the population, if it is true that they are more subject to cancer than native born Americans, as Lyon⁴ thinks has been proved by a study of the statistics of Buffalo. This is borne out by the fact that the proportion of cases of cancer of the stomach and liver is higher in Michigan than Massachusetts (namely, 1.85 to 1.68), from which form of the disease he also claims Germans show a high mortality.

These are the only states which have records in sufficient detail to compare with our own. For New York and New Jersey only the crude death rates can be obtained, which are 6 for New York, 5.12 for New Jersey against 6.70 for Massachusetts for 10,000 living.

Turning now to foreign countries, there are two of which the statistics are complete and accessible; these are England and Austria.

England has been very thoroughly worked up in the Report of the Registrar General and by Newsholme and King, so that I will not trouble you with the details of increase. The latest average date, however, that can be obtained is the year 1885, with which ours of 1895 is compared.

⁴Lyon, Irving Philip, M.D., Cancer Distribution and Statistics in Buffalo. American Journal Medical Science, vol. cxxi, p. 623.

ENGLAND AND WALES.—MALES, FEMALES, PERSONS.

Males.	25-35	35-45	45-55	55-65	65-75	75-100
Rate	79	297	908	2,290	3,742	3,914
Ratio	1.02	2.40	5.05	6.99	5.32	2.51

(Plate 10.)

Females.

Females.	25-35	35-45	45-55	55-65	65-75	75-100
Rate	172	852	2,042	3,368	4,506	4,578
Ratio	2.32	8.97	13.75	11.85	7.53	3.07

(Plate 11.)

Persons.

Persons.	25-35	35-45	45-55	55-65	65-75	75-100
Rate	128	584	1,545	2,868	4,160	4,295
Ratio	1.70	5.12	9.05	9.13	6.42	2.58

Males.—The rate is very close in general, except at the last period, when Massachusetts rises considerably higher.

The ratios are also very close, but the highest point in the English curve is sixty years, five years earlier than for Massachusetts.

Females.—The rates coincide quite closely and are in general similar, although the English is the fairer.

The ratio is lower than Massachusetts but in general on the same lines; but this may be due to the fact that their returns are given for forty-five to fifty instead of fifty to sixty.

This points rather to the fact that the English physicians, as a class, are about ten years ahead of us in diagnosis, and that the registration is also more accurate.

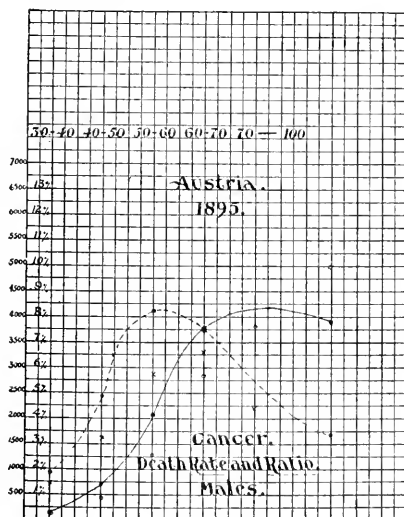


PLATE 12.

AUSTRIA.—MALES, FEMALES, PERSONS.

Males.	30-40	40-50	50-60	60-70	70-100
Rate	171	680	2,065	3,740	3,935
Ratio	1.91	4.50	8.20	7.42	3.33

(Plate 12.)

Females.

Females.	30-40	40-50	50-60	60-70	70-100
Rate	346	1,075	2,330	3,520	3,980
Ratio	3.38	8.97	10.46	7.60	3.24

(Plate 13.)

Persons.

Persons.	30-40	40-50	50-60	60-70	70-100
Rate	219	888	2,205	3,620	3,960
Ratio	2.70	6.78	9.19	7.52	3.29

The rate for males is distinctly higher than Massachusetts, except in the last period, which covers from seventy to one hundred instead of from eighty to one hundred years.

The ratio is higher throughout, its summit being a decade earlier, however.

The rate for females is very much lower than Massachusetts and coincides closely with its own male curve.

The ratio is also much lower and appears higher than the rate when compared with the males. This is the only country, so far, where the males are so close to the females both in rate and ratio. The curves are both very easy.

If the death rates of England, Austria and Massachusetts are placed side by side, the fact of the high rate of males compared to females is to be especially noticed, and that Massachusetts has both the highest crude death rate and that over

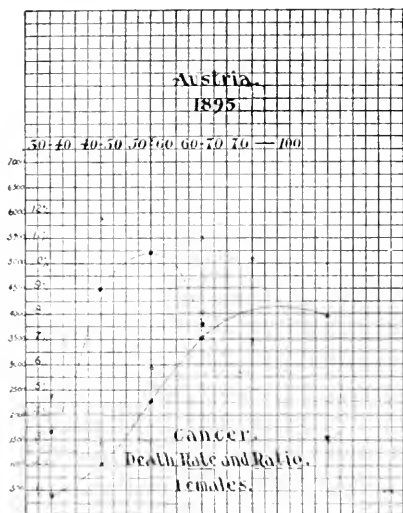


PLATE III.

thirty years. In decennial comparisons, it is markedly in excess of Austria, while the intermediate portion of England brings her into the proper place in the curve, as has been seen above.

Finally, let us return again to our own country and see what is the difference between the New England States, and, if any is shown, whether the geographical relationship offers any explanation for it. When this is done a single figure has to be used, and on the whole the most accurate comparison is based on the death rate or ratio over thirty years. It has been found that no essential difference results whichever is chosen, and, therefore, to avoid confusion, only one, the ratio, has been employed. If arranged on this basis the

states would appear in 1895 in the following order.

States.	Death Ratio over 30 Years.
1. Connecticut	5.50
2. Vermont	5.60
3. Rhode Island	5.88
4. New Hampshire	5.95
5. Massachusetts	6.53
6. Maine	6.75

They fall readily into two groups, one between 5.50 and 6, the other between 6.50 and 6.75. Neither group has any geographical relationship between them. When it is further remembered in reality how small the actual difference is, 1.25% between extremes, the assumption is warranted that it can be explained entirely upon statistical grounds without any local cause. Especially as the statistics of the two highest states are regarded as the most accurate of all.

For comparing the different counties of our own State, the total number of deaths over thirty years could be obtained, but the deaths from cancer were given without respect to age or sex. For the State as a whole, however, the number of cancer deaths over thirty had been found to be 96.50 for each hundred cancer deaths of all ages. This figure was used to correct the returns for each county, and thus a close approximation to the true number of cancer deaths over thirty could be calculated. With these two factors, then, the ratio for each of the counties was worked out for the years 1870 and 1895, as follows:

COUNTIES ARRANGED ACCORDING TO RATIO OVER THIRTY YEARS.

	1895	1870	Rate of Increase.
1. Plymouth	5.12	3.41	1.47
2. Hampshire	5.83	4.12	1.45
3. Barnstable	6.08	5.26	1.14
4. Worcester	6.19	4.06	1.54
5. Bristol	6.34	3.76	1.68
6. Norfolk	6.42	3.28	1.91
7. Berkshire	6.51	3.57	1.83
8. Franklin	6.65	4.44	1.50
9. Middlesex	6.72	4.31	1.56
10. Suffolk	6.79	3.28	1.70
11. Hampden	6.85	3.25	2.11
12. Essex	7.28	3.83	1.90
13. Dukes and Nantucket	8.16	4.37	1.84
Difference	2.16	2.91	

It also shows the rate of increase from 1870 to 1895, which in the case of Barnstable County is surprisingly low, and for which there is no special explanation from its location at any rate.

At first it seems as if there was no geographical relationship between the counties if the numbers are exactly followed. The two lowest on the list are practically widely separated by position and general character of the land. The one bordering on the sea, low and sandy, the other inland and high, with ordinary soil.

If, however, the counties are associated by their position on the map, and a new ratio obtained for each group, it is found that the ratio rises progressively from southeast to west for those with about the same population, judging from the number of deaths. The northeastern group, densely populated, and having one and a half more deaths than the rest of the State, shows the highest percentage, but then only one-third of one per cent.

more than the western part, with less than a quarter of its population.

COUNTIES BY GEOGRAPHICAL GROUPS.

1895.

RATIO OF CANCER DEATHS. OVER THIRTY YEARS.

	Total Deaths.	Cancer Deaths.	Ratio.
1. Plymouth	1,115.4	57.12	5.12
2. Barnstable	401.4	24.12	6.00
3. Bristol	2,022.0	128.33	6.34
	3,538.8	209.57	6.35
4. Norfolk	1,294.6	83.17	6.42
5. Suffolk	5,350.0	335.41	6.79
6. Middlesex	4,638.0	312.04	6.72
7. Essex	3,028.2	220.50	7.28
	14,910.8	1,011.12	6.85
8. Worcester	2,356.4	183.13	6.19
9. Hampshire	571.4	33.51	5.83
10. Franklin	413.0	27.59	6.67
11. Hampden	1,305.0	89.54	6.85
12. Berkshire	784.8	51.14	6.51
	3,077.2	201.78	6.65

To briefly recapitulate what has been said :

(1) If death from cancer should go on at the apparent geometrical rate of increase of the past fifty years, in two and a quarter centuries every person over thirty years would die from that disease.

(2) This rate is probably only arithmetical at its worst.

(3) The increase is probably due to better diagnosis and registration, and until the ratio of deaths over thirty years has reached 8 to 9%, which is shown by autopsies to be the true rate for cancer, it is not justifiable to speak of the increase as inherent in the disease itself.

(4) For purposes of comparison with other places or years, a "graphic picture," composed of both the rate and ratio curves, covering the period over thirty years, divided into decades, is the best.

(5) Comparison with other states and countries shows the rate for Massachusetts to be about the same as theirs, with greater variation between the males and females than is the case in Austria, which is remarkable for the correspondence between the two sexes.

(6) In the distribution in the New England States, there is no geographical feature that explains the slight variation, which is easily within the limits of better registration.

(7) In the State itself there is a slight increase westward for groups of counties of the same density of population. The densest populated part of the State, apart from these, shows a little higher rate.

So we will leave the subject for the present, but I feel sure that, with this as a starting point, the Shattuck lecturer of 1926 should be able to tell you surely whether this alleged increase is anything but statistical, as it now seems to be.

In closing, I must ask you to linger a moment that I may recall to your minds Lemuel Shattuck, a distant kinsman of the beneficent founder of these lectures, who must be classed as one of those who initiated movements which from his time on are perpetual. He may be called the Father of Statistics in Massachusetts, and it is to his wise

foresight and persistency that we are indebted for what we have. Such names should not be allowed to drop from our memory.

Then, even more than to the master, are we under obligation to the multitude of unknown men who have collected these facts, one by one, for future investigation. They have sown that others may reap, and have spun threads that are to be twisted into cables. We owe our thanks to these unnamed workers.

Original Articles.

THE CLINICAL VALUE OF SOME OF THE NEWER HYPNOTICS.¹

BY ALBERT E. BROWN RIGG, M.D., CONCORD, N. H.,

Assistant Physician New Hampshire State Hospital; Fellow of Massachusetts and New Hampshire Medical Societies; Associate Member American Medico-Psychological Association.

INSOMNIA is but a symptom, and hypnotics have no direct curative effect on the causative disease. Nevertheless, refreshing sleep is so necessary for the conservation of a patient's physical and mental powers, and has such an important bearing on the course of such a variety of disease processes, that the medical profession is ever clamorous for new means for its easy and safe production. Hence, there has been suggested all sorts of devices, and a long list of drugs, to be employed with this one end in view. Many of these means are so impracticable, or are used with such discomfort or danger, that they have but a scientific interest or can only rarely be employed.

Of the hypnotic drugs recommended, many are practically inert, while others are of such varying power or disagreeable taste as to greatly impair their reliability and general usefulness. In late years, by the advances in synthetic chemistry, there have been discovered many new compounds that have taken a permanent place in the list of available hypnotics. Every one who has used them extensively, however, finds that each has its drawbacks, but that there are special indications in practice where certain ones seem to act better than anything else. It is in the determination of these special indications that the chief difficulty in testing a hypnotic lies.

A great deal has been written about the *ideal* hypnotic, and efforts made by the advocates of some new product to prove that theirs alone meets all the requirements and should be used exclusively. But, in view of the great diversity of the causes of insomnia, it would seem unwarrantable to expect a universal remedy that would act best in every case. Indeed, it is not at all desirable that every case of insomnia should be treated alike.

Another reason for incorrect or biased opinion in regard to the value of hypnotics is the well-known fact that, in many cases where they are given, the

¹ Read before the New Hampshire Medical Society at Concord, N. H., June 16, 1901.

mental suggestion acts quite as powerfully in inducing sleep as the small dose of the drug itself. Indeed, we occasionally find that a nervous, sleepless patient will be quieted for the whole night by merely some seasoned water or little sugar pill. Obviously, then, conclusions based on observations with such patients might well be misleading, both as regards any real activity of a new drug or its proper dose. I have seen a patient go to sleep within five minutes after taking a capsule of sulphonal when hot baths and massage had previously been employed in vain, simply because the patient "wanted the medicine," and would only be satisfied and calmed when his whim was gratified. In such a case the capsule itself would hardly have had time to dissolve, without mentioning the difficult solubility of the drug; and certainly half the dose would have been as efficacious.

Another error to be guarded against in testing the merits of a hypnotic is giving an unnecessary dose, just because the patient has been sleepless for some nights previously. Often on the testing night the patient will sleep without anything, as is observed occasionally when the quieting powder fails to be administered. One often is obliged to give a harmless dose to insure sleep, when it is not absolutely certain that such is imperative; but such cases, also, should not be included in the test series.

Thus, in selecting a hypnotic, the suggestibility of the patient, his physical state and general mental condition should be considered, as well as the primary disease, and the general character and action of the drug itself. It is a safe rule to state that drugs that are recommended for many things are really good for but few. So hypnotics that possess many other supplementary powers are often found wanting in the essential effects for which they are given. Take for example the much-abused opium. It certainly will produce quiet and lasting sleep, but accompanied with so various by- and after-effects that its use for this purpose has justly fallen into disrepute. In a given case the drug selected should produce sleep, and sleep alone, and that promptly. Its effects should last not longer than five or six hours, and its use create no "habit" or other deranged function of any organ. This is our idea of the ideal action of a soporific. The drug itself or its dosage may have to be changed, however, to suit each individual case.

From the nature of the case it can then be readily seen that it is not always an easy thing to obtain a just appreciation of the hypnotic value of a drug. This difficulty is especially great in private practice, where often the imperfect reports of the patients themselves furnish the only basis for conclusions. As is well known, insomnia is most troublesome and frequent in certain diseases of the brain and nervous system, and probably the greater part of the hypnotic remedies manufactured are used in the many public and private institutions for the care of the nervous and the insane. And these places offer, too, special facilities for the careful selection and ob-

servation of suitable cases in testing the properties of new sedatives.

In a recent investigation of the comparative value of some of the newer hypnotics at the New Hampshire State Hospital at Concord, the compounds dormiol, chlorotone and hedonal received, among others, most careful attention. After a brief separate description of the properties and physiological actions of each, a summary of their comparative value as hypnotics in our hands will be attempted. Special attention is drawn to the fact that all the cases in which they were tried were such as offered no probability of natural sleep on account of continuous nervous unrest or noisy agitation; so that it seemed fair to refer the prompt effects to the action of the drugs alone.

DORMIOL.

Dormiol, $C_6Cl_3 \cdot C(OH)_2 \cdot (CH_3)_2 \cdot C(C_2H_5)_2$, is a chemical compound of equal molecules of chloral and amylene hydrate. Its chemical name, therefore, would be "dimethylethylcarbinol-chloral or amylene chloral." At ordinary temperatures it is a colorless, limpid, oily fluid with a specific gravity of 1.24, and it is not decomposed by boiling. It is volatile, with a peculiar penetrating odor and an aromatic, slightly burning taste. It is readily soluble in alcohol, ether, chloroform, acetone, benzine, and the fatty and ethereal oils. With an equal quantity of water it at first forms a milky fluid, which slowly becomes a perfectly clear 50% solution of the drug, and in this form is supplied to the trade. It is usually dispensed in a 10% solution made by shaking four parts by weight of distilled water with one of the stock solution; but this weak solution is not permanent, and has to be kept cool and from light. For a full report on the chemical properties of dormiol the reader is referred to an article by its inventor, Dr. E. Fuchs, in the *Zeitschrift für angewandte chemie*, 1899, No. 49.

Physiological Actions.

External.—Dormiol possesses marked antiseptic properties, but is too irritating and painful to apply to abraded surfaces. When applied on cotton to the skin, and bound on so as to hinder evaporation, "vesication" over the area of direct contact is produced, surrounded by a wide margin of erythema. In these respects it very much resembles chloral. Hypodermatically, it produces considerable pain and local irritation.

Internal: Alimentary canal.—Although the taste is not very agreeable, patients take weak solutions remarkably well. We have usually given it several hours after food, and in no case has it given rise to disagreeable gastric sensations. The appetite is unimpaired even under its continued use, and it is not constipating.

Blood.—It probably is not decomposed in the stomach but circulates in the blood unchanged. It is very rapidly absorbed, often producing its systemic effects within fifteen minutes after ingestion.

Circulation and respiration.—In over 250 instances, in which its effects were closely watched, no depression of either of these functions was noticeable beyond that natural to quiet sleep. At first this was a matter of considerable surprise, when observing, for instance, an agitated melancholic who would, almost immediately after taking the drug, quiet down and drop into a dreamless slumber. Of the effects of poisonous doses we have had but little experience. In one case, however, owing to a mistake on the part of the druggist, 15 cc. (4 dr.) of the 50% solution was given instead of the same amount of the 10% solution that had been ordered. Thus the patient took 8 gm. (120 gr.) of pure dormiol, or five times the usual maximum dose. The patient slept all night and late into the next day. He could be easily roused, and was perfectly rational, but very drowsy. He was gotten up to dinner and partook rather heartily. This but aggravated the drowsiness, and he fell from his chair as in a faint. Immediately he was put to bed, his heart beat was regular and strong and 88 per minute. He slept for nearly all that day,—rousing only for meals,—all through the next night and part of the next day, and it was not until the third day that the full effects had disappeared. This excessive dose was purely accidental, but fortunately served to show the comparative harmlessness of this preparation, as no ill effects were noticeable on the heart, respiration or digestion. We would not recommend any such doses as safe for the ordinary patient, as this man was particularly large and robust. By physiological experiments on animals, Fuchs and Koch found it took 48% more dormiol to produce toxic symptoms than with pure chloral hydrate.

Brain.—It is upon the functions of the cerebrum that dormiol seems to have its first and chief action. As to *how* the nerve cells in the brain are affected, we would not guess. To the theory advocated often of late, which prettily explains the action of hypnotics by picturing a sudden retraction of the dendrites of the neurons under the stimulus of the drug, and a consequent disruption of nervous continuity in the brain centres, resulting first in incoherence of thought and act, wanderings, drowsiness, with, finally, complete mental inaction, we cannot lend our sanction. What we do know is that dormiol will almost invariably quiet nervous unrest and induce sleep, and often in the severest grades of mental exaltation and depression. Occasionally, however, it fails. Sometimes this may be due to lack of absorption from a deranged stomach. Generally, however, repeated doses in such a case demonstrate a peculiar personal tolerance to the drug, or individual idiosyncrasy. In the vast majority of instances it has proved of eminent value, one of the safest, surest and quickest hypnotics that we possess, particularly in the various stages of mental depression.

The following analysis of 250 cases in which this hypnotic was administered strikingly illustrates its rapidity of action, its reliability, and its

total freedom from injurious effects on the heart. Most of the data were collected for me by a very reliable night nurse. Doses of dormiol were not administered for simple "sleeplessness," but to induce sleep in insane patients during their periods of restless or noisy excitement. The dosage varied from 4 to 15 cc. (1 to 4 dr.) of the 10% solution. As a rule, it was found better to give one large dose than several smaller ones. A practical point in this connection is that we have found the 10% solution bought at our druggists and that obtained direct from manufacturers not as powerful as that made fresh by us from the 50% stock, which is a more permanent preparation.

As can be seen by referring to the table, the usual time for administering the doses was late in the evening. But it would reproduce sleep after the patient had awakened with noisy agitation from a previous nap. At such times its prompt action saved much disturbance in the wards, which usually occurs with other commonly employed but slower acting agents. When given in the daytime it often would fail in these doses in producing sleep, on account of the many disturbing influences then, but was most acceptable in always inducing a calmer and more rational habit of mind.

In 37.6% of the cases sleep was induced within fifteen minutes after ingestion of the drug; in 43.2% in from fifteen to thirty minutes; so that in all about 81% of the patients went to sleep in less than half an hour, while the average interval between the administration of the drug and sleep was only twenty-six minutes. This places dormiol, we think, at the head of the list of hypnotics administered by the mouth, in regard to rapidity of action. In 15% of the cases a second or a third dose had to be given to induce sleep, and in about 6% no sleep occurred. In these last cases, however, the dose was not repeated, but most of them became more quiet and restful. In only 2 instances, or .8%, no effect whatever was noticeable.

The duration of the sleep varied from one hour to ten and one-half hours. The average duration in the 250 cases was about five hours. When the patients awakened in one or two hours, they were apt to be somewhat drowsy and quiet for some time thereafter. But after a nap of four or five hours they almost invariably showed no further effects of the drug, and might immediately continue their talk or activity as if no interruption had occurred. In no case did any one complain of subsequent headache or other disagreeable subjective symptoms which so often follow the administration of chloral and some other hypnotics.

CHLOROTONE.

When caustic potash is slowly added to equal weights of chloroform and acetone, a new compound is formed which may be isolated from the mixture by distilling with steam. This compound is a white, crystalline solid which at body temperature slowly sublimes to form glistening white

needles, and has been named "chlorotone." It has a strong camphoraceous odor and taste, and is readily soluble in chloroform, acetone, strong alcohol, ether, benzine and glacial acetic acid, but only slightly soluble in water. It melts a little below the boiling point of water and boils at 167°C. Dilute acids or alkalis seem not to affect it in the least. Its chemical formula is said to be $\text{CCl}_3(\text{CH}_2)_2\text{COH}$ and its chemical name would therefore be "trichlor tertiary butyl alcohol."

Physiological Actions.

External.—Laboratory experiments show that this drug also possesses marked antiseptic properties. Blood serum and other organic fluids keep indefinitely when saturated with about one-half of 1% of chlorotone. It will also destroy living bacteria. Thus it has been used as an antiseptic wash in burns and other painful injuries, both on this account and because of its powerful local anesthetic properties when applied to abraded surfaces or to mucous membranes. Dilute solutions are very safe and efficient as local anesthetics when given hypodermatically as a substitute for cocaine.

Internal.—When ingested it soon produces anesthesia of the mucous membrane of the mouth, throat and stomach. Thus it may be retained in irritable stomachs, when most other things might be speedily ejected. It is not absorbed very quickly, and it is usually nearly an hour before systemic effects are produced. The patients first complain of the taste, and of disagreeable sensations in the stomach which are apt to cause anorexia and some impairment of digestion. They then describe a peculiar parasthesia of extremities, pricklings, formication, and such like, which may pass on to more or less complete general anesthesia. These effects may be dominant for some time previous to sleep. In a case of acute mania with symptoms of exhaustion a large dose had been given about 11 A.M. He continued active about his room until the middle of the afternoon. Then he grew quiet but was determined to stand. He seemed dazed, and physical examination revealed considerable anesthesia of the skin over his whole body. It was only after considerable effort that he was induced to go to bed, but soon afterwards he dropped into a quiet sleep which lasted well into the next day. In this case the heart beat, though regular, was much slowed and became markedly weaker.

Chlorotone has been used in experimental physiology, pharmacology and surgery to produce complete general anesthesia in the lower animals. Spectroscopic examination of their blood when anesthetized shows no change in the hemoglobin, although chlorotone circulates as such in solution in the blood. The pulse rate is slightly lessened, and kymographic tracings taken from the carotid in dogs show the blood pressure usually unaffected.

This drug seems to have a selective action upon nervous tissue, and it is in this way that it produces its hypnotic effect. It lulls to inactivity both motor and sensory cells, but the latter would

seem to be sooner and more gravely affected than the former. By thus relieving any bodily pain and cutting off the many influences of the surroundings which tend to stimulate sensory reflexes, chlorotone isolates the mind, so to speak, from its disturbing influences, and a dreamless sleep is soon induced.

We have tabulated the results of our observations in 71 instances, in which the effect of this drug was studied. The patients were in many instances the same ones to which we had given dormiol on previous occasions. To be efficacious a considerably larger dose was necessary than is generally recommended. Thus small doses of 3 to 1 gm. (5 to 15 gr.) had to be repeated several times in order to induce sleep. Finally it was found best in our patients to commence with a 1.3 to 1.6 gm. dose (15 to 20 gr.) and repeat it once or twice, if necessary, at hour intervals. The largest dose given was about 5 gm. (72 gr.) within an hour and a quarter. In 18.3% of the cases sleep followed within fifteen minutes after administering the drug, though some of these cases had had previous doses that had been ineffectual. In 29.5% sleep followed in from fifteen to thirty minutes. So that in nearly 48% of the cases sleep was induced within the first half hour. This is a little more than half as many as went to sleep under smaller doses of dormiol. In nearly one-quarter of the cases (23.9%) three or four doses had to be given before sleep was produced. The average time of all cases between the last dose and the time when they first dropped to sleep was forty-eight minutes.

The duration of the sleep was from one-half an hour to twelve hours, with an average duration of about four and one-half hours. Even after awakening there was a tendency to anesthesia and drowsiness for some hours, though no permanent untoward effects were ever noticed. The pulse was apt to be somewhat depressed both in volume and frequency, though often no change could be noted by the finger even after repeated doses. A few of the patients soon learned to dislike this preparation, both on account of its taste and also from the disagreeable after-sensations, which were rather hard to describe but uniformly disagreeable. Those who usually voluntarily chose hypnotics almost invariably preferred dormiol or hedonal to this preparation, on account of these subjective sensations.

HEDONAL.

This compound is a derivative of urethane, and is chemically methylpropylcarbinolurethane. It is a fine, white, crystalline powder, insoluble in cold water, and but slightly soluble in warm water and in alcohol. It is rather disagreeable to the taste, and is best taken in capsules or wafers, or mixed with a small quantity of syrup. The usual dose for an adult is 15 to 15 gr.

Physiological Action.—Professor Dresser experimented with this drug on dogs, and found that in them it took only about half as much hedonal as chloral hydrate to produce sleep. He

found no evidence of deleterious action upon the heart or respiration. Dr. E. Raimann of Vienna concluded, from prolonged research on a variety of animals, that the ordinary lethal dose was 15 gr. for every 2 lbs. of body weight. After administering very large doses he noted considerable depression of the circulation, respiration and temperature. A number of reports of its extensive trial the last year in several of the hospitals in Germany are highly commendatory of its use as a hypnotic.

From our experience in 35 cases we cannot speak as unguardedly of its uniform results as have some others. In only 8.2% of these cases was sleep produced within fifteen minutes after the first dose, and in less than 30% within the first half hour; while in over 25% no sleep occurred on the night hedonal was used. In many of these last cases no effect whatever was noticeable, though some grew more calm. The intervals between the last dose and the first sleep varied considerably, with an average interval of thirty-seven minutes. The sleep was quiet and restful, but easily disturbed. Its average duration was two hours and a half. No disagreeable after-effects were complained of, and no depression of the circulation or respiration was at the time noticeable. The drug did not seem to affect the appetite or digestion at all, and, in fact, one of its chief recommendations is its innocuousness. This is associated, unfortunately, with such feeble hypnotic powers as makes it generally unreliable in emergencies, but certainly applicable to the milder forms of simple insomnia.

CRITICAL SUMMARY.

In contrasting the relative merits of these three hypnotics,—dormiol, chlorotone and hedonal,—but a few of their general characteristics will be touched upon.

(1) *Ease of administration.*—On account of its perfect solubility and more agreeable and more easily disguised taste, dormiol is taken much more readily than either of the others. The abominable taste and anesthetic effect of chlorotone make it especially objectionable in this connection.

(2) *Safety.*—In our hands both dormiol and hedonal have proven perfectly safe in any ordinary dosage, even when given repeatedly to feeble or exhausted patients. With chlorotone, however, as above stated, we have seen symptoms of dangerous depression, beside which its disagreeable by- and after-effects render its field of usefulness more restricted.

(3) *Rapidity of action.*—In this respect dormiol stands easily first. Next, perhaps, comes hedonal, with chlorotone a later but more powerful third.

(4) *Character of sleep.*—On account of the accompanying subjective symptoms chlorotone ought not to be employed for simple sleeplessness, but is sometimes invaluable where pain or bodily discomfort is a causative factor. Hedonal and dormiol are more purely hypnotic in their action, and both give refreshing rest, both physical and

mental. The duration of the sleep with dormiol is liable to be longer than that with chlorotone, and much longer than that produced by the use of hedonal.

(5) *General utility.*—Hedonal, we would say, is applicable to slight forms of insomnia unassociated with bodily pain or severe mental excitement. It is valuable as a placebo, having a direct though not very powerful tendency to produce sleep. Patients take it quite readily, and it should be useful in a very large class of cases in general practice.

Chlorotone is a powerful and pretty certain hypnotic if given in sufficient doses. Its general use to produce sleep, however, should be discouraged on account of its secondary effects. But these very defects may make it especially valuable in certain selected cases. Its action should always be carefully watched. The disagreeable subjective sensations it may produce are oftentimes insurmountable objections to its employment.

Dormiol, while certainly not the most powerful sedative that we possess, answers well the requirements for a generally serviceable hypnotic. Its rapidity of action, we believe, is unsurpassed by any other hypnotic taken internally. This characteristic, together with its ease of administration, reliability in almost all forms of insomnia unattended with great bodily discomfort, and almost total absence of by- and after-effects, subjective or objective, makes it one of the most valuable acquisitions to the physicians' armamentarium of recent years. It probably will win a place in the Pharmacopœa.

CASES ILLUSTRATING MINOR SURGERY OF THE KIDNEY.¹

BY JOHN BATIST BLAKE, M.D., BOSTON.

As an explanation of a possibly misleading title, it may be said that the writer has made a perfectly arbitrary division of the various operations on the kidney, according to extent and severity; and has for the purposes of this report classified nephrectomy, nephrolithotomy and extensive resections as major operations; the minor operations are, therefore, nephrorrhaphy, nephrotomy, combinations of these two, and resections of small amounts of renal tissue.

The group of cases illustrates fairly well the conditions and indications which suggest the advisability of the minor operations. Three were under the writer's care; the fourth was on the hospital service of Dr. H. W. Cushing, to whom the writer was at that time acting as temporary assistant.

These cases bring up little or nothing that is new or startling, but emphasize certain points which it is always well to remember.

They do not suggest any important modifications of accepted technique, but rather bring into prominence the questions of operative indications and after-treatment.

¹ Read before the Obstetrical Society of Boston, March 9, 1901.

CASE I. NEPHRORRHAPHY; NECESSITY OF CONTINUAL AFTER-TREATMENT.

S. C., age twenty-four, married, housewife; born in Ireland. Entered the hospital Feb. 14, 1901.

Family history.—Negative.

Personal history.—Married nineteen months. Eighteen months ago had inflammation of bowels; sick seven weeks. Baby born six months ago; nursed five months. Uterus everted four weeks after delivery; catamenia only once since, five days before entrance.

Present illness.—Five years ago noted tumor at right costal border, which at times disappeared. It had been "lost in abdomen" since baby was born. Pain in left flank; yellowish vaginal discharge; hemorrhoids for six months; no urinary symptoms.

Physical examination.—Pale; fairly developed and nourished; tongue clean. Abdomen lax; easily palpated; tender and resistant in suprapubic region. In right abdomen there is a tumor 4x2½ inches, reniform, movable; slips away under pressure, with slight pain. Urine: specific gravity, 1.032; 1-8% albumin.

Feb. 22. Nervous, restless. Pain in right ovarian region.

Operation.—Took place, under ether, Mar. 2. A five-inch incision was made; kidney moving freely with respiration. Three kangaroo tendons through cortex and muscle on both sides; kidney anchored as high as possible, but not in normal position. Wound closed tight with catgut and silk.

Mar. 9. First intention stitches removed. Pain in abdomen.

Mar. 15. Healed firmly. Abdominal pain less. Urine: specific gravity, 1.027; normal.

Mar. 19. Abdominal examination negative.

Mar. 23. Up part of day; relieved. No "lump"; scar firm and tight; swathe. Discharged relieved. Urine, according to chart, always diminished in quantity.

The patient reported several times after leaving the hospital. Almost immediately she began to get worse again. There was pain and dragging in the scar; apprehension that the kidney would get loose again or actually had become loose; increased vaginal discharge; slight but persistent loss of flesh, and the accentuation of a long series of nervous and neurasthenic symptoms. At one visit she was sure that something had "snapped in her back," and that she could feel the kidney as before operation; and careful examination of the extremely lax abdomen did seem to show that the kidney, or at least its lower border, could be palpated, and that it was a little lower than when last examined in the hospital. Her liver was also low and unusually movable, and there were suggestions of an abnormal mobility of the left kidney. The slightest reference of this last possibility almost threw her into hysterics. She admitted taking care of her baby and not sleeping well, but did not describe her work as exacting. A visit to her home explained the situation, which was as follows: Her husband was a believer in labor unions and unionists, and preferred to work only a portion of the year. This made it unusually hard for the wife during certain months.

The baby was found to be a young giant of enormous size, who divided his time between crying and eating, except on occasions when he combined both. He howled for everything he saw, and was given everything he asked for. He came to the table with the parents. He waked the mother continually during the night, and she was beginning to become frightened when he was quiet and ready to sleep, for fear he might die. She carried him in her arms much of the day, and only went out to wheel him in a broken-down carriage. The conditions seemed to be permanent, and the possibility of changing them was very remote. It was obvious that here was enough, and more than enough, to negative the result of almost any otherwise successful operation. The woman was steadily breaking down and becoming more and more neurasthenic, and there seemed to be little prospect of relief. Finally, after much plain and forcible conversation with both

husband and wife, an arrangement was made by which the entire care of the child was given to another woman, and the patient restricted to caring for her health. Under the simple régime of rest, sleep, plain food, air and sunshine and a bitter tonic, she improved immediately and very rapidly, and her symptoms, particularly those referring to her kidney, disappeared with equal rapidity. Yet it is altogether probable that if she returns to her worried and overworked conditions again the old symptoms will begin to reassert themselves to a greater or less degree.

The indications for operation in this case were clear enough. For years the patient had been conscious of a "tumor," which became more noticeable after the baby's birth. To it, consciously or unconsciously, she attributed all her woes, many of which were in reality due to other causes. To cure this woman necessitated first, the arresting of this vagrant viscus, and its return to its normal home; but it needed more than this, and under such conditions operation alone cannot be expected to be always effective. It is a part only of the treatment; an essential part, but not the whole.

It may be questioned whether it is wise to use kangaroo tendon in such cases, where there is more than the usual tendency to relapse. A more permanent suture would probably be better.

In regard to the result of the operation upon the kidney, examination two days after showed a very slight trace of albumin, and microscopically a little blood. Five days after operation the slightest trace of albumin microscopically, an occasional normal red corpuscle, an occasional leucocyte, and an occasional small round cell.

CASE II. TRAUMATIC RUPTURE OF KIDNEY; NEPHROTOMY; RECOVERY.

CASE III. ACUTE ABDOMINAL SYMPTOMS; LAPAROTOMY; ABSCESS OF KIDNEY; NEPHROTOMY; RECOVERY.

Wm. H. M., age twenty-three, single, clerk, West Webster, N. Y. Entered hospital Sept. 4, 1899.

Family history.—Father and father's brother died of consumption.

Personal history.—No previous attack.

Present illness.—Two weeks before entrance had fever, anorexia; seven days ago had dull ache in right lumbar region and loin, which slowly spread to front right abdomen; no limp, but quick motion of right leg caused sharp pain; soreness worse at night, but never any cutting pains. Has not been in bed. No vomiting. Bowels irregular and constipated; moved this morning. Urine dark, otherwise no urinary symptoms. No nuchal or jaundice.

Physical examination.—Fairly developed and nourished; pale; tongue thickly coated. Pulse 112, temperature 102.8°. Abdomen on right side is dull to flatness above line from anterior superior spine to umbilicus, extending up to liver; spasm of whole right side; palpation. A firm mass, apparently not just under abdominal wall, but rather deep; long in long axis of body; about size of open hand; somewhat tender. Urine high; slight trace of albumin; leucocytes, 20,000.

Sept. 5. Temperature down; pain as before. Operation advised and accepted.

Operation.—Three and one-half inch incision from one inch below costal border to one inch below umbilicus, extending down one inch. Indurated mass in region of right kidney. Nothing abnormal in appendix region. Faint foul odor came from posterior

* To be published in detail later by Dr. H. W. Cushing.

peritoneum. Intestine pushed inward and walled off with gauze; peritoneum dissected up from outer edge of wound in flank, and an opening made in kidney, extraperitoneal.

After some exploration with the finger, there was a slight discharge of thick, foul, yellow pus from kidney. The cavity was small, and connected probably with other small ones. Irrigated. Counteropening in flank in posterior axilla line just beneath incision into kidney; through this was inserted a rubber tube into kidney for drainage. Peritoneum closed; wound drained both ways. Good ether recovery; not much vomiting; considerable pain; slight chill four hours later.

Sept. 7. First dressing; no discharge from tube; slight discharge from anterior incision. Temperature oscillating from 98.6° to 100°.

Discharge from anterior wound ceased about Sept. 20. Irrigation in front at this time comes out almost clear behind. Temperature oscillating 3°; patient pale and losing flesh. Pus, which had been present in urine from immediately after operation,—possibly before it,—gradually diminished.

Sept. 24. Dr. Paul Thorndike, on the question of nephrectomy, advised against present operation.

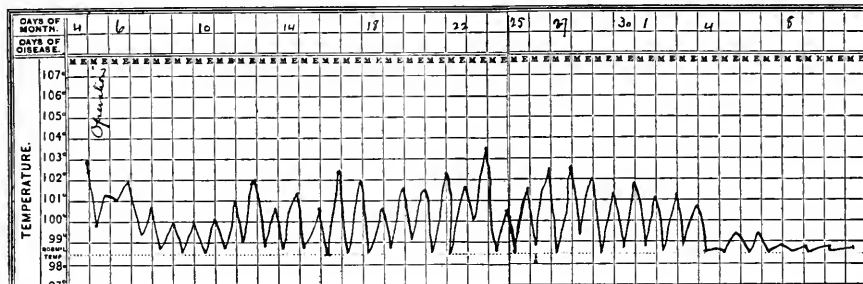
Oct. 1. Patient continued to grow paler and thinner. Discharge from post wound slight but thick; no tubercle bacilli in it. Pathological diagnosis showed staphylococcus pyogenes, aureus and albus; urine clearing up, however, and temperature gradually making shorter evening excursions.

Oct. 4. Temperature normal this evening for first time since entrance, and never again above 99°, save

was recently examined by a doctor, who told him that his "lungs were O. K.," and the kidney tumor seemed to have disappeared entirely.

No definite diagnosis was established in this case before operation, though it was supposed that an abscess existed which originated from the appendix, and had worked backward and upward. Certainly a kidney of this sort was not suspected.

The character of the original process is still questionable. The tubercle bacillus was never found at any examination, and the staphylococcus, aureus and albus were present in the swab taken at the operation. The subsequent relapses suggest tuberculosis in spite of the negative examinations; and the family history of course agrees with this. Whether a conservative operation was justified in this case could only be decided by careful examination of the patient in his present condition, and in the light of his pre- and post-operative history. In any event, the incision should have been made in the usual position in the loin. Through the loin the drainage would have been better from the first, the kidney could have been incised more freely and effectively, and the constant apprehension of infecting the peritoneal cavity avoided.



during a severe attack of tonsillitis from Nov. 14 to 19. This abrupt drop to normal was not accompanied by any sudden appearance of pus either in urine or from wound, and not followed by any immediate change in general condition, but within a week the patient began to feel better, and color improved.

Oct. 24. Tube out from post wound; anterior wound healed. Kidney smaller; less tenderness.

Oct. 29. Bed rest. Kidney smaller than one week ago. Neither albumin, sugar nor pus in urine. Urine had always been acid, and was never markedly diminished or increased in amount, according to chart.

Nov. 1. Dr. Ogden examined urine for tubercle bacilli; none present.

Nov. 7. Kidney much smaller. Patient improving and out of bed.

Nov. 14 and 18. Tonsillitis.

Dec. 2. All wounds healed save pin-point sinus behind. Probe enters three-fourths of an inch. Has gained flesh.

Dec. 5. Discharged, relieved, with small antiseptic bandage.

A letter from this patient, received Apr. 18, 1901, states that he never felt better in his life, and can stand about anything in the line of work. He

The reason why the temperature suddenly became normal, and the patient suddenly improved in general condition, is also not obvious. The severe tonsillitis was the only case of the sort in the ward, and was not preceded or followed by others. For the present, at least, the diagnosis must rest as abscess of kidney of nontubercular origin, apparently, permanently relieved by nephrotomy.

CASE IV. HYDRONEPHROSIS; NEPHROTOMY; RESECTION OF KIDNEY; NEPHROECTOMY; RECOVERY.

M. S., age twenty-six, married, housewife, German. Entered hospital Nov. 23, 1899.

Family history.—Negative.

Personal history.—Always well and strong. Two children.

Diagnosis.—Erysipelas; pregnancy, seven weeks. Urine: Much squamous epithelium. Many large and small round cells, and spindle cells; occasional red corpuscles. Has had facial erysipelas for two days. Complains of indefinite abdominal pain. Abdomen lax, tympanitic, not tender; more fullness visible on the left than on the right side. Uterus enlarged, freely

movable, retroverted in second degree. Transverse laceration of os. No tenderness and no mass felt in vaginal.

Dec. 7. Erysipelas has disappeared. Patient transferred to gynecological service. Mass in left ovarian region. Cervix not that of pregnant uterus. On the left side an elongated, cyst-like body, and a smaller one on the right.

Dec. 15. Ether examination showed pelvis normal and a probably retroperitoneal cyst.

Dec. 19. Cured for moderate uterine hemorrhage.

Jan. 10, 1900. Transferred to surgical wards. In the abdominal left lower quadrant, extending nearly to median line and upwards to about level of umbilicus, is a moderately firm tumor, dull, not tender; not moving with change of position.

Jan. 11. Urine normal, acid, specific gravity 1.028; no albumin, sugar or bile.

Jan. 19. Up and around ward. Urine 20 to 40 oz.

Jan. 25. Ether; operation. Incision four inches in left flank, down to one inch above crest of ilium. Incision to perinephritic fat, beneath this a dark-colored cyst, apparently thin walled. Incision allowed two pints of thin, serous, odorless liquid to escape. It was under pressure. Cyst emptied; cavity explored at upper part, apparently part of kidney formed part of cyst wall; no suggestion of calculi. Part of wall removed; it proved to be thicker than expected; bled rather freely and sewed over and over with catgut to stop hemorrhage. Cyst packed, and wicks introduced on either side. Wound partially closed, silkworm gut, and cyst attached to body wall with coarse catgut. Large sterile dressing; swathe.

Jan. 26. Good recovery; no pain or subjective symptoms.

Jan. 26, 1900. Examination of fluid from cyst (Dr. Ogden): Slightly smoky, 100° F., acid, urea+uric acid+chl—; slight trace of albumin; bile absent. Sediment considerably normal and abnormal blood. Numerous small round cells, cordate and irregular cells, stained brown; occasional brown granular cast with renal cells and blood adherent; some fibrin; few fatty, small round cells.

Jan. 27. Dressed. Large dressing soaked; wound looking well. Amount of urine passed from bladder compared to before operation markedly diminished.

Feb. 2. Much discharge of clear fluid. Sinus three inches deep.

Feb. 6. Discharge diminished. Dressed every second day.

Feb. 11. Wick omitted. Nothing albuminous in abdomen. No symptoms.

Feb. 16. Sitting up in bed. No discharge from wound; granulating cavity one-half inches deep.

Feb. 20. Up and about ward. Almost healed.

Feb. 23. Abdominal examination negative, save a slight tenderness in left lower quadrant. Wound healed. Subjectively and objectively well. Discharge relieved.

This patient was found at her home in Mt. Hope, March 10, 1901. She was engaged in washing not only the floor, but the walls of a room which was at once kitchen, dining-room, nursery and bed-room for the newest baby. It will be remembered that she left the hospital Feb. 23, 1900. The latest baby was born Jan. 25, 1901, the anniversary of her operation, a fact of which she seemed quite proud. She looked very well—thin, but healthy. The scar was firm, not painful or tender, four inches long and puckered in the centre, and did not bulge on coughing. The abdomen was very lax, and no evidence of tumor could be felt in any part. She said that she passed the same amount of urine as before, and that in general she felt perfectly sound. In June, 1901, she again appeared at the hospital,

complaining of vomiting, and was found to be pregnant. Right kidney region negative.

Perhaps the early history of this case was that of a left floating kidney, which had assumed a position constricting or kinking the ureter, with a resulting gradual hydronephrosis, of which the patient was entirely unconscious. The symptoms that led to the first vaginal examination on the medical side were not the knowledge of a tumor in her abdomen, but the fact that she suspected that she was six weeks pregnant. Had it not been for the erysipelas, the kidney tumor would probably have been very much larger before she sought advice in regard to it.

The difficulty which at times attends the establishment of the diagnosis of hydronephrosis is too well known to need comment, but is aptly illustrated by this case, as well as the absence of marked symptoms, even in the presence of an extensive tumor.

Whether the left kidney is acting at present, or the right one hypertrophied and doing the work of both, could only be determined by catheterizing the ureters. There is no question, however, that a sufficient quantity of normal urine is being secreted.

There is no doubt that in a case like this nephrotomy is the operation of choice. Sewing the cyst wall into the wound prevented subsequent floating kidney and kinking of the ureter, and is certainly an important step in the operative procedure.

ADVANTAGES OF SANATORIUM TREATMENT OF PULMONARY TUBERCULOSIS

BY HENRI T. FONTAINE, M.D., RUSCOOK, N. H.

SINCE the profession has realized that there is no specific remedy, no specific climate for pulmonary tuberculosis, it has turned its attention to those various methods which experience has shown to be of benefit. It is not one, but a combination of these measures, rationally applied, that is proving the ideal method of treating consumption. To be sure, this hygienic-dietetic treatment, as it is called, can be carried out anywhere to a certain extent, but the results vary according to the degree of perfection with which the details are carried out. The object of this paper will be to show how much more easily and thoroughly these principles can be applied in closed resorts than in open ones, and how imperfectly they must be carried out in private practice.

Régime.—One of the principal elements of successful treatment is the constant supervision of the patients by the physician or trained attendants. We cannot emphasize the importance of this too much, when we realize the manifold dangers to which a consumptive is exposed, such as sudden chilling of the body, congestions from exposure to the direct rays of the sun, from undue exercise, etc., or the advent of cataracts, hemoptysis, pleuritis, gastric or intestinal disturbances, elevation of temperature or other complications. Should any of these arise, the physician can deal

with them at their very onset and often prevent their becoming serious.

The amount of exercise and rest are carefully prescribed and varied in each case, according to the condition of the heart and the elevation of the temperature. The patient finds his food, toilet, ablutions, breathing exercises, amusements even, superintended. The idiosyncrasies and peculiarities of each case are noted and treated separately, so that there is no routine treatment. The patient soon learns to work with the doctor for the advancement of his cure. He is taught how to regulate his cough and prevent reinfection. The institution of such a régime is practically impossible outside of a sanatorium. Yet its importance is so great that most authorities would place more reliance upon it, even if carried out under the most unfavorable climatic conditions, than upon the best climate in the world, were the régime not to be carried out.

Fresh air.—No one will question the necessity for a consumptive to breathe fresh, pure air all the time, if he would recover. Here, again, we are handicapped in private practice. The patient has been accustomed to the overheated air of close rooms, fearing the slightest draught even in summer; never daring to sit quietly out of doors for a single hour in winter; afraid of dampness and cold. To break down the habits of years, to overcome the barrier of prejudices against constant exposure to fresh air, is a very difficult, often impossible, task, unless the patient sees others doing these things with impunity.

In a sanatorium he soon gains confidence from the assurances of the physician, and especially from the example of his fellow sufferers. In a very few days his courage has increased to such a point that he finds himself "taking the cure" for the prescribed number of hours, sitting or reclining on the veranda, properly clothed, unmindful of cold, wind, or rain. He does not hesitate to take his exercise in the spacious grounds. Instead of dusty streets, he can tramp through fields or shady lanes in the forest. He need not fear fatigue, for he is sure to find shelters along his route, where he may rest as long as he wishes, still "taking the cure," or find refuge against strong wind or rain.

Keeping the windows of the sleeping room open day and night, summer and winter, is another difficult lesson for the physician to inculcate at home. Association with others pursuing the same mode of life makes it easier for the individual. It seems the natural way of living in a sanatorium. At home it seems altogether artificial, out of harmony with the surroundings, and all the harder to carry out.

Rest.—Nowhere as in a sanatorium is the all-important element of rest obtainable. This applies not only to the physical system, but to a certain extent, also, to the mental and emotional. In private practice the popular idea of fresh air taking is almost invariably associated with exercise of some kind. Social duties can never be completely eliminated; while a hundred little

family cares and petty happenings never cease to worry and fret a sensitive patient.

In a sanatorium, on the other hand, the consumptive takes the cure while reclining on a chair all day, or lying down on his cot out of doors when feverish, only taking exercise when his condition warrants it. His social duties are only such as will keep him amused and cheerful. Above all, they are never allowed to interfere with his habits of regularity, or to be a tax upon his strength. Freedom from household duties affords him a great degree of mental rest.

Diet.—In a disease where superalimentation is one of the essentials of the treatment, the quality and preparation of the food are not things to neglect. In a sanatorium abundant, nutritious, properly cooked food is always to be found, which, unfortunately, cannot always be said of hotels, boarding-houses, or even private homes, in an open resort. The individual diet can also be carefully regulated. Three principal meals daily, with forenoon and afternoon lunches, when wanted, are usual in our American institutions. Their regularity assists greatly in keeping the digestive functions in good condition.

Sanitation.—The sanitary precautions enforced are of inestimable value. No one is allowed to expectorate anywhere except in a proper receptacle, which can be either burned or easily disinfected. In this way the bacilli in the sputum are destroyed, and cease to be a source of reinfection to the patient or of infection to others. The table utensils, like knives, forks, spoons, cups, etc., are thoroughly steamed and scalded. The entire dwelling is kept clean without the raising of dust. Every room, all the furniture and linen, may be easily disinfected. Strict rules ensure proper ventilation and heating.

Mental atmosphere.—In a sanatorium patients make it a business to get well. There is no choice of another occupation or pastime. There is nothing else to do, and no time for anything else. Everybody does the same thing. The example of others is a strong incentive to do what is right and proper, and the entire environment of the patient is suggestive of getting well. The mind is stimulated in that direction as well as the body, creating a feeling of hope and buoyancy. It has been advanced by a few that the atmosphere of a sanatorium must necessarily be depressing, with so many people afflicted with the same malady. But it is a matter of common experience that the tone of such a place is far from morbid. On the contrary, it is cheerful. Imagine a company of fellow sufferers, all bent on the same object,—that of getting well,—rarely discussing their symptoms, except perhaps to refer with levity to accidents like hemoptysis, which at home would be a source of great alarm and worry to them; vying with one another in putting on flesh and growing strong, with the sicker ones removed from view to the infirmary; seeing others depart every day cured or wonderfully improved; noting the improvement of symptoms in themselves; then add to this the wonderful element of hope, so

common among consumptives, and you cannot imagine a cheerless company. Reading and amusements of all kinds are antidotes for dullness.

Benefits to the individual, the public and the State.—A sanatorium is not a place to go for a few months with an almost certain hope of complete recovery. No doubt some cases are cured in a remarkably short time, but these are exceptional. The rule is a slow improvement, extending over months or even years. We should consider a sojourn at a sanatorium as a means of educating the patient into those rules and habits of living by which alone he can expect in time to entirely eradicate the disease. So the benefits of sanatorium treatment should not be gauged entirely by the condition of the patient at the time of leaving the institution.

The benefits of this education are not limited to the individual. The public at large also gains immensely by it. Whether the patient is discharged as cured, improved or unimproved, he ceases to be a source of infection to the community in which he lives. Besides, his example and instructions will benefit many less fortunate fellow sufferers among the circle of his acquaintances.

We should not forget the purely economic point of view. The return to the State of so many lives which otherwise would have been sacrificed, of so many workers capable of earning a livelihood for themselves and family, is an item of no mean value, even if appreciated in dollars and cents. Estimating at \$1,500 the cost of rearing and educating the average person, it is easy to compute the value to the State of so many lives saved and restored to usefulness.

Clinical Department.

OVARIAN CYST WITH TWISTED PEDICLE: ACUTE SYMPTOMS; OPERATION; RECOVERY.

BY CHARLES E. SCUDDER, M.D., BOSTON.

Assistant in Clinical and Operative Surgery, Harvard Medical School, Surgeon to Out Patients, Massachusetts General Hospital.

B. P., twenty-two years old, unmarried, was seen in consultation with Dr. Richmond of Reading, Mass. She was a tall, neurotic, thin and pale girl. Menstruation was established when she was about fourteen years old, and has followed a regular and painless course. In January her breasts enlarged, milk appeared in them, and during an illness in bed of about two weeks she had a miscarriage. The last catamenial period was in April. In May, exactly four weeks from the date of the April period, the catamenia appeared. About this time, on a Tuesday, she felt badly in the abdomen, complaining of a soreness and an aching through the bowels. On Wednesday she vomited. She was uneasy and restless. Friday evening her temperature was 101.5° F. and her pulse was 110. On Saturday morning she had a

natural movement of the bowels. The Saturday morning temperature was 101.8°, and the pulse 100. Saturday evening the temperature reached 101.5°, and the pulse 120. Sunday morning the temperature was 100.5°, and the pulse 118. I saw the patient Sunday afternoon. She had some pain, referred to the right side of the abdomen, low down.

Examination of the abdomen revealed a moderate fullness below the umbilicus, rather more marked upon the right than upon the left side. Palpation found a firm, fluctuating mass, the size of a child's head, in the right lower abdomen close to Poupart's ligament. This mass was slightly movable, tender to touch, and extended to the median line.

Vaginal examination discovered that the uterus was slightly enlarged, and was lying over to the right side of the pelvis. The uterus lay close to the mass felt by abdominal palpation, and could not be put into its normal position. The blood count was 10,800 whites; hemoglobin 47%.

The patient had noticed that her abdomen had been enlarging during the past few weeks.

A tumor, fluctuating and tender, in the lower right abdomen of a young unmarried girl who had had a miscarriage a few months previously, suggested, in view of the regular catamenia, the presence of pain, the existence of slight fever and the history of slow abdominal enlargement, an ovarian cyst with twisted pedicle. Operation confirmed this diagnosis. The operation revealed a cyst of the right ovary, with its pedicle twisted twice to the right. Flakes of fibrin were found about the pedicle; the surface of the tumor was dark and rough in appearance. The cyst was removed. The recovery was uninterrupted.

Medical Progress.

REPORT ON PROGRESS IN THERAPEUTICS.

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

(Concluded from No. 2, p. 39.)

ALCOHOL FERMENTATIONS.

SEVERAL articles have recently appeared on the action of alcohol in the treatment of tuberculous peritonitis. These depend in great measure on the ideas advanced by Buchner¹ in 1899, in Munich. He considers the blood to be the chief antibacterial agent in the body, and ascribes its power to the albuminous elements which it contains. These exhibit their action only in the presence of neutral salts, and on account of this quality and also their sensitiveness to heat, they suggest an analogy to the animal ferments. He was strengthened in this belief by the experiments of Bierstew, who found that cholera vibrios, when preserved in active serum for a few days, were changed into granules and, finally, mostly dissolved. From this and other investigations Buchner concludes that the bactericidal power of the body juices is in reality

¹Therap. Monat., 1899, p. 696.

of a digestive nature. The leucocytes, which we have learned to recognize as the source of bactericidal products, in reality are producers of energetic ferments capable of dissolving albumin.

There are numerous clinical and experimental reasons for this view. As one example, can be mentioned the yielding of tissues in abscess formations. It is not necessary that the abscess contain bacteria in order to bore its way through to the surface, as one resulting from chemical irritants will do the same thing. The tissue-dissolving power of the abscess is in the leucocytes. The presence of peptone in pus, and the absorption of catgut in sterile wounds, are other illustrations of the activity of the white blood corpuscles. But it is presumable that the production of these ferments is not confined to the leucocytes alone, but is a function of many other cells in the body, if not a function of every cell. The presence of ferments in the juice obtained from yeast cells and the bacilli of tuberculosis and typhoid would lend weight to this view.

Protective substances or alexines are always present in the body. They are not special products made for a specific purpose at a specific time, but form a part of the general and necessary protective arrangements of all animal organisms. The body, however, is not always in position to make use of this means of protection in the best possible way, and this leads to the practical application of Buchner's teachings.

The blood, then, not only carries nutriment to the tissues, but by its ferments, originating in the white blood corpuscles, exercises an absorptive action which displays its greatest power in the presence of foreign bodies. Bier was the first to point out the healing influence of the blood upon infectious processes. To bring this influence into play more blood must be brought to the part, not to produce a congestion, but to afford a freer exchange of products between the blood and the tissues.

Various measures have been adopted to bring about this desired effect:

(1) *Venous congestion*.—This is produced by the elastic compression of an extremity with a rubber bandage. Venous congestion has been used by Bier and many other surgeons with excellent results in the treatment of joint tuberculosis, gonorrheal arthritis, acute and chronic rheumatism.

(2) *Arterial hyperemia*.—The treatment of arthritis deformans and chronic rheumatism by means of hot air, hot water or sand is so commonly employed that attention is paid more to the temperature as the agent in the cure than to the arterial hyperemia, which is the main factor.

(3) *Mixed hyperemia* by the suction apparatus constructed by Bier on the principle of Junod's boots. According to Bier the greatest arterial-venous hyperemia is attained by this means and affords excellent results in chronic rheumatism.

(4) *Finally alcohol bandages*.—These were first introduced by Salzwedel in the treatment of carbuncles, furuncles, mastitis, etc., and have been

received with favor by reliable surgeons. They consist of bandages saturated with absolute or 96% alcohol. After the application of such a bandage to a phlegmon the inflammation subsides, the fever goes down, the doughy swelling decreases, the skin becomes wrinkled, and the core of pus softens, to heal quickly after the surgeon's incision.

What is the action of the alcohol? It has been proven that it is not because of any disinfecting power, for alcohol possesses such to a very slight degree. It can only be attributed to the hyperemia caused by the dilatation of the vessels which alcohol, more than any other chemical irritant, can produce. This action is not uniform for all the vessels. Its action is weaker on those of the skin, stronger upon those of the muscles, but greatest upon the vessels of the stomach, intestines and mesentery. The hyperemia caused by the alcohol is not superficial merely, but extends for a considerable distance below the surface. This has been proven with especial clearness in the use of alcohol bandages upon the abdomen.

Schwald⁸ and Meyer⁹ have each used alcohol in tuberculous peritonitis. Meyer's case was more striking. The patient was a child with advanced tuberculous peritonitis, apparently too hopeless for an operation. A thin layer of wadding soaked in 96% alcohol was applied to the whole abdomen and frequently renewed. The alcohol fomentation was covered with gutta percha paper. For the first two days there was a burning sensation in the skin, which was later followed by a feeling of warmth, which was so agreeable that the child became restless if she did not have the alcohol. At the end of a fortnight tenderness developed near the navel, and a week later a pint of moderately thick yellow pus was discharged. The pus flowed two weeks, and a few weeks later the patient was able to get up. (At the suggestion of Dr. Pfaff the reviewer used alcohol bandages in a case of tuberculous peritonitis during the past winter. The patient also had pulmonary and intestinal tuberculosis and ultimately died, but the action of the alcohol appeared so satisfactory that at the present writing he would repeat the procedure in another suitable [inoperable!] case.)

ALCOHOL IN CARBOLIC ACID POISONING.

Wilcox and Stevens¹⁰ sum up some of the reports on the antidotal action of alcohol in carbolic acid poisoning. Rodman reports a case in which about 2 oz. of the pure acid had been swallowed. When first seen the patient was in a state of profound collapse. Four ounces of alcohol were poured into a stomach tube passed as far as the pharynx. Two or three minutes later the tube was pushed down into the stomach, and the latter was then washed out with warm water and again with diluted alcohol. Within an hour consciousness had returned, and the general condition was

⁸Therap. Monat., 1900, p. 243.

⁹Loc. Cit., 1901, p. 29.

¹⁰Gould's American Year Book of Medicine and Surgery, 1901, p. 495.

much improved. In a few days recovery was complete. Another writer has taken pains to look up a large number of reported cases of carbolic acid poisoning that have occurred in the past, and finds that when no alcohol was given, in cases that were known or reasonably believed to have retained 60 gr. or upward of absolute carbolic acid, the termination in nearly every one was fatal. On the other hand, in all cases where alcohol was given, under the same conditions, the patients survived, although the physicians in attendance had no idea that alcohol possessed any specific antidotal action. Success in treatment depends largely upon promptness.

SUBCUTANEOUS INJECTIONS OF GELATIN FOR THE CONTROL OF HEMORRHAGE.

The action of gelatin in favoring the coagulation of the blood is not yet explained, but its usefulness is becoming so much more apparent that it deserves another mention in these columns. Wagner¹¹ has recently summarized many of the articles which have appeared relating to the subject, and gives the results of his employment of gelatin subcutaneously. His method consisted in injections of a 2% sterilized solution of neutralized gelatin made up in normal salt solution. Of this solution there were injected into the thigh or under the breast, with the customary aseptic precautions, 150 to 200 cc. (5 to 7 oz.).

The hemorrhages of advanced phthisis were most favorably affected, though often it was necessary to inject the gelatin on many successive days. In gastric ulcer he met with equally good success. No harmful occurrences followed the injections.

Dr. C. H. Hare allows me to report the following case which occurred in his practice. A girl of thirteen, coming from a family of bleeders, and herself subject to severe attacks of epistaxis, menstruated for the first time in July, 1900. Catamenia lasted from eight days to a month and was always profuse. On Dec. 6, 1900, she was seen by Dr. Hare for the first time. She had been flowing for two weeks and was *in extremis*. There was marked pallor and weakness, the respiration was sighing and the temperature 102° and pulse 150. Salt solution injections and packing with fene subulphate, which had to be repeated three times because of leaking, were of no avail. On Dec. 8 she was delirious, and death was expected. As a last resort a half pint of 1% solution of sterilized gelatin was injected under the breast during the morning and again in the afternoon. The hemorrhage ceased, and the patient recovered.

Dr. S. WEIR MITCHELL was entertained on May 9 by the medical profession of Tokio and Yokohama, at a reception given in his honor at the Maple Club, Shiba Park. Addresses were made by Drs. S. Suzuki, M. Ogata, Kitasato, K. Minra, K. Takaki, and Stuart Eldridge.—*Medical Record*.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

REGULAR meeting of March 19, 1901, the president, Dr. G. J. ENGELMANN, in the chair.

Dr. J. BAPT BLAKE, by invitation, read a paper entitled

CASES ILLUSTRATING MINOR SURGERY OF THE KIDNEY.¹

Dr. J. G. BLAKE: I have been much struck by the greater frequency of movable kidney in women than in men, and would like to ask the other members of the society whether their experience has been the same. Apropos of the difficulty in recognizing hydronephrosis, I am reminded of a case I saw many years ago, in which two of the men then most prominent in surgery in Boston entirely failed to recognize a hydronephrosis of large size, which was due to the occlusion of a ureter by a calculus impacted near the entrance into the bladder. This collection of urine finally ruptured into the thoracic cavity and caused the death of the patient.

Dr. J. C. MUNRO: The writer's paper brings up so many possible subjects for discussion that I can touch upon but one or two. The question of nephrectomy for ruptured kidney is a very important one. Personally, I do not think it wise to remove such kidneys. In two cases I have drained ruptured kidneys with good results. As to the use of kangaroo tendon I can say that it has been satisfactory in the cases in which I have used it. I remember one case where I had an opportunity to examine the patient three and a half years after I had performed a nephrorrhaphy upon her, and, in spite of a sarcoma having developed meanwhile in the kidney, the anchorage held well. In another case I found the kidney in place a year after operation.

Dr. ENGELMANN spoke of Vullier's method—fastening the kidney by the aid of the tendon of the dorsal muscle.

Dr. EDWARD REYNOLDS: I am especially interested in the question of the indications for nephrorrhaphy. I have done very few such operations, as I find most cases get well under suitable hygienic measures, while the cases that are operated upon are most unsatisfactory without such general treatment. I make it the rule not to operate unless the kidney rotates as well as sinks down. When there is a general ptosis, there is very little use in operating upon the kidney. I agree very strongly with the reader as to his preference for the lumbar incision, so much so that if I happened to open the abdomen first and found a purulent kidney, I would close the abdominal incision and enter by the loin, on account of not opening the pus into the peritoneum and the better chance for drainage. I have several times seen an infection of a lumbar incision that would doubtless have been fatal had it taken place in

¹¹ MITCHELL and d. Grenzgeb. d. Med. u. Chir., 1900, p. 700.

¹ See page 65 of the Journal.

an abdominal wound. This is brought especially prominently before me by a recent case in which, after doing a nephrectomy for a tuberculous kidney, I found it necessary to remove the entire cheesy ureter. The inevitable prolongation of the lumbar incision gave a wound of really tremendous extent, and, as was natural under the circumstances, extensive infection took place. Yet, thanks to the opportunity for drainage, the patient did perfectly well.

DR. F. A. HIGGINS: When I saw the last case that the reader reported I rather felt that it might be a cyst of the kidney, rather than a hydronephrosis. In such a case drainage seems to me to be very reasonable.

DR. M. STOKER: I agree cordially with what Dr. Reynolds has said about the importance of hygienic measures in prolapsed kidney. In my experience most of the cases can be helped quite as much by feeding up, combined with a properly adjusted bandage and pad, as by operation; nor do I find prolapsed kidneys by any means as frequent as some observers would have us believe. Some skepticism has been expressed tonight as to the value of restraining pads or belts. I have in mind a patient who, with a belt and a proper pad adjusted every morning before she gets out of bed, is perfectly comfortable; while before it was applied she was on the verge of nervous prostration.

DR. MUNRO spoke of a similar case.

DR. R. F. O'NEIL: I remember a case of hemorrhage from the kidney following a shot in the back. There was a wound of entrance, but none of exit; and as the man developed a pneumonia it was supposed that the bullet passed into the thoracic cavity. The amount of blood in the urine was small and evident only by the microscope. Dr. Vincent operated by the usual gall bladder incision approximately, and found free blood in the abdominal cavity, coming from a wound of the under surface of the liver and a hole in the kidney. The incision was carried downwards in the shape of a T, so as to provide for drainage. The patient made a good recovery.

DR. W. F. WHITNEY: It is important for the surgeon to remember the possibility of the presence of one of the large cysts of lymphatic origin that may develop in the kidney in which there is little urea, and the kidney itself is but little involved. In cases like that the cyst might be removed and the kidney left. One should also remember the cases of double ureter, in which one-half of the kidney may be the seat of a hydronephrosis and the other half perfectly normal. As regards hydronephrosis, the question of the nature of the obstruction is important. When it is intermittent, acting much like a ball valve, we get enormous sacs, as is also the case sometimes where a kink in the ureter may allow partial emptying of the sac, from changes in position possibly. On the other hand, when the occlusion is gradual, as in cancer, such large sacs are hardly ever seen, as the kidneys seem gradually to change to connective tissue. As to the relative frequency of

movable kidneys in the two sexes, few such cases come to the pathologist's notice, possibly from the congealing of the fat post mortem and to his not examining his subjects in the erect posture.

AMERICAN MEDICAL ASSOCIATION.

PROCEEDINGS OF THE FIFTY-SECOND ANNUAL MEETING, HELD AT ST. PAUL, MINN., JUNE 4-7, 1901.

SECTION ON PRACTICE OF MEDICINE.

(Continued from No. 2, p. 45.)

SECOND DAY.

A CASE OF ACROMEGALY PRESENTING FEATURES OF UNUSUAL INTEREST.

DR. CHARLES LYMAN GREENE of St. Paul, Minn., presented a case of a young man twenty-five years of age who had had no fixed occupation, but for some years prior to the development of the disease had spent the winter months on the ice, a point of some importance, inasmuch as the history of many of these cases has strongly suggested the influence of long exposure to cold and dampness as a predisposing or exciting cause. The family history was negative. Syphilis was denied. Three years ago he suffered from a swelling of the knee-joint, from lassitude and general weakness. Two years previous to this (five years ago) he noticed a rapid enlargement of the hands and feet, and the members of his family noticed a change in his physiognomy. The enlargement of the hands and feet steadily continued and progressed quite rapidly up to the time that he presented himself, three years ago. At this time the hands and feet were enormous, the wrists and ankles free from inflammation, but bulky, thick, and in strong contrast with the forearms and legs. He complained of languor and weakness, but has had none of the severer vertical pains so common in acromegaly, nor did he complain of pain in the lumbar region or limbs. There were no signs of disturbance of the special senses nor of the nervous system. The skin was nearly normal and lacked the harshness of myxedema. The appearance of the face was especially interesting, the skin being thickened and hypertrophied, though not rough. Both upper and lower eyelids were thickened, and the ears appeared clumsy and tumid, as also did the nose. The nasal arch is prominent, the malar bones project, and the lower jaw is apparently enlarged, both from the angle to the symphysis and vertically. The enlargement of the upper jaw had no doubt masked the changes in the lower jaw, depriving the case of one of the so-called typical signs of the disease. The tongue is large, the larynx is enlarged, and its cartilages appear to be the seat of hypertrophy. The radiograph demonstrates the remarkable enlargement both in length and thickness of the bones. The feet presented the same typical characteristics as the hands. There were no marked enlargements of the great toes. The hands and feet were not the seat of pain, nor are

their movements much restricted. A feature of especial importance is the marked increase in the bulk of the overlying tissues, which present the appearance and sensation of a hard edema exactly like that of myxedema. The treatment had been solely hythyroid extract, the result being immediate and marked amelioration of the disease.

Dr. Frank A. Jones of Memphis, Tenn., was chosen chairman, and Dr. Robert B. Preble of Chicago secretary for the ensuing year.

CIRRHOSIS WITH PIGMENTATION.

Dr. THOMAS D. FUTCHER of Baltimore read this paper. The association of pigmentation of the skin and tissues with a form of hypertrophic cirrhosis of the liver rather than with the atrophic form was emphasized. He discussed, at length, the pigmentation associated with the hypertrophic cirrhosis of the liver, which occurs in the disease described by von Recklinghausen as "hemochromatosis." He also dwelt with the source, chemical composition and distribution of the pigment. He endeavored to show that diabetic cirrhosis with bronzing of the skin,—diabète-bronzé,—was probably identical with von Recklinghausen's hemochromatosis. So far as he knew only four cases of cirrhosis of the liver with general pigmentation (hemochromatosis) have been reported from this country.

THIRD DAY.

MODIFIED TREATMENT OF TYPHOID FEVER.

Dr. T. B. GREENLEY of Meadow Lawn, Tenn., read this paper. He advocated the use of acetanilid with quinine, which he claimed had a soothing and quieting effect, and prevented the possible irritating effects of the latter. He had never observed any depressing effects of the drug upon the heart. The dose was increased or diminished according to the rise or fall of the temperature.

MENTAL SHOCK.

Dr. O. T. OSBORNE of New Haven, Conn., read this paper. He did not wish to advocate the use of the term medical shock for conditions of failing heart due to distinct pathological conditions, or due to a gradual break-up in the system by very acute or prolonged intense processes; he thought the term was justifiable when a badly acting and gradually weakening heart was the most urgent cause for anxiety, and its weakness was out of proportion to the pathological conditions or symptoms present. He believed that we were justified in using the term medical shock as we are in using the term surgical shock. The symptoms of this are a more or less rapid heart, irregular, perhaps dicrotic or intermittent pulse, incomplete inspirations without much actual dyspnea, interspersed with frequent sighs, and the subjective symptoms of precordial oppression. The temperature is generally low, the flesh cool and clammy, and if quick relief be not obtained death will soon take place by heart failure or medical shock. He believed that medical shock

was just as certainly a vasomotor paralysis as in surgical shock, and, as a consequence, the major part of the blood is to be found in the abdominal veins. The blood flows slowly into the dilated and, therefore, non-elastic arterioles, hence slowly into the capillaries, and returning slowly in the veins, imperfectly fills the heart cavities. The heart contracts irregularly, incompletely and arrhythmically. The aorta has not the pressure ahead or the forcible quota of blood from behind, and consequently does not give enough elastic rebound to force blood properly into the coronary arteries, and the heart muscle is improperly nourished. By the lowered blood pressure all the functions of the body begin to fail, all digestible processes are impaired, and molecular death begins to take place; at least, almost unaccountably gradual failure of body and mind occurs, until death closes the scene. Severe acute nerve pain will, if continued, give a lowered vasomotor tension, and if too long continued or too severe, vasomotor paralysis or shock perfectly similar to that due to profound injuries of these nerves, or surgical shock. In acute feverish processes our aim should be to make the elimination at least equal to the production of decomposing and fermenting products, and to prevent the absorption of these products if possible. Keep the emunctories all in good order. In all diseases or conditions where there is a piling up in the blood of absorbed poisons, be they from typhoid fever or dysenteric ulcers, from pus collections, from malarial plasmodic or hemoglobin debris, from cancerous disintegration, or from catarrhal, unhealthy, edematous mucous membranes, etc., any treatment which hastens the evacuation of the excreted bile impregnated with toxins, will prevent systemic and nervous poisoning, and ultimately vasomotor disturbances and mental shock.

THE VALUE OF THROAT CULTURES IN DIPHTHERIA.

Dr. M. H. FUSSELL of Philadelphia presented this paper. He said that the following statements could be proven: (1) True cases of diphtheria may have few or no clinical symptoms; (2) cases of tonsillitis or pharyngitis may have severe symptoms and be serious, but no true diphtheria being present, and no Klebs-Loeffler bacilli, there can be no transmission of diphtheria; (3) a diphtheritic exudate may be easily detached and leave no bleeding surface; (4) an exudate due to some other organism may be a true membrane impossible to detach from the mucous membrane. He said that cultures can most surely and with less risk of mistake be made in the laboratories, but that they could be made at home and should be made there if we intend to keep pace with the rapid strides of recent medicine.

(To be continued.)

LEPROSY IN THE UNITED STATES.—It is reported that there are about 900 cases of leprosy in the United States, none of which are in Massachusetts.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, JULY 18, 1901.

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SOME SUGGESTIONS REGARDING MEDICAL
EDUCATION.

At the recently held annual meeting of the Harvard Medical Alumni Association, a report on the Harvard Medical School was read by Dr. David W. Cheever, the chairman of a committee appointed to draw up such a report. In introducing the subject Dr. Cheever remarked that it was the duty of the committee to criticise, and in turn to invite criticism.

A number of points were brought up in the report, which are now in the forefront of discussion. To some of these we wish to refer. It is evident enough that no unanimity of opinion has as yet been reached in this matter of medical education, and we strongly suspect that none will be for many years to come. Like most other fundamentally important questions, a final solution is possible only after a long period of experiment and trial, and then rather through the natural and inevitable course of events than through the opinions of any one person or group of persons. In the meantime, however, anything which will induce people to think and to depart from the beaten track is altogether to be desired. Out of free discussion undoubtedly comes the stimulus which leads to the adoption of new methods, which then must stand or fall as experience shows their utility or worthlessness. It is a good sign that doctors are at last turning their best attention to methods of education. It means great things for the future, however much apparently unnecessary discussion it may give rise to in the present. It is at the outset a little unfortunate that we have no better basis of discussion; that our terms are not more clearly defined. For example, apparently no two men have precisely the same idea as to what constitutes a general practitioner and what a specialist; so-called scientific medicine is opposed to practical medicine, as if there really

were a logical distinction between the two; and we find the vaguest conceptions of what is meant by scientific work. These and innumerable other matters should be settled, or at least the attempt made to settle them, before we plunge into the sea of difficulties which the whole subject presents.

In the abstract of the report before us, we would draw attention to several matters of interest. We quote the following summary, as sent us by the secretary of the association:

Teaching should be less didactic and more clinical. The specialties should be taught largely by clinics. Recitations should be held in sections and in clinics. Therapeutics should be taught more in connection with cases.

The chemistry department has too much time assigned to those subjects which it covers.

Medicine and surgery should be taught more together and not further separated.

Common diseases should be dwelt on at greater length.

The sense of touch should be further educated than it is at present in our school.

There should be a change in the perspective of studies to educate more as general practitioners and less specially before graduation. After graduation a student should perfect himself in any special line he may elect.

Examinations should be more frequent and largely practical and not oral or written ones.

That a medical student's work should be as much clinical as possible has come to be generally recognized. It is, however, equally evident that every year brings into prominence new subjects, which may by no possibility be studied clinically. There is also a certain danger at present that the very definite place which didactic teaching holds and should always hold will be filled by an inferior equivalent. The reaction against didactic teaching is very likely to go too far.

With the general statement that the specialties should be taught largely by clinics we are not in accord. Of course, we do not know precisely what the report — which is later to be published in full — means by specialties. In our view, however, the only justification for the existence of so-called specialties is thoroughness of knowledge. It is quite impossible at the present time to attain such knowledge by clinical study alone. If special branches are to be taught at all they should be taught by every possible resource at our command. We are neither doing the public nor our students any good by providing the latter with a little superficial knowledge. It is better to omit the subjects wholly from the curriculum. We are quite in agreement with the proposition that therapeutics should be taught more in connection with cases, and we may further suggest that the application of remedial measures other than drugs should be far more dwelt upon than is, at present, the case. We are glad to note the protest against the further artificial separation of medicine and surgery. Apart from operative technique, surgery

and medicine deal with precisely the same problems, a fact of which medical students need most definitely to be apprised.

A much more difficult question is presented when it is suggested that special studies should be deferred until after graduation. Here we are inclined to find fault with the undefined use of the term "general practitioner." We presume internal medicine is meant by general practice, but of this we have no evidence. One thing is at least certain, that the so-called general practitioner of today practises over a far narrower field than did his namesake fifty years ago. In this connection we are a little surprised to find no mention in the report of the probability if not inevitableness of the introduction of at least a modified elective system. Space does not permit of a discussion on our part of this question, but it is clearly one to be met, and one that cannot be put aside by vague statements of the desirability of educating students as general practitioners.

We hope the report when finally published will have a wide circulation among men interested in the problems of medical education, and we shall, moreover, look forward with interest to the details of arguments which are of necessity omitted from the preliminary summary.

MEDICAL NOTES.

A HOT DAY IN LONDON.—July 14 was reported as the hottest day up to that time in London, with the thermometer at 85° at noon. There were many cases of sunstroke and prostrations from the heat. The ambulances were in frequent request, and horses suffered greatly.

RAILWAY HOSPITALS.—A system of hospitals is being developed by the New York Central Railroad for the care of the sick and injured; emergency boxes are placed in cars, shops and roundhouses, and the men receive instructions in "First Aid to the Injured."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon July 17, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 47, scarlatina 24, measles 89, typhoid fever 3.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending July 13 was 187, as against 206 the corresponding week last year, showing a decrease of 19 deaths, and making the death-rate for the week 17.03. Of this number 92 were males and 95 were females; 183 were white and 4 colored; 114 were born in the United States,

71 in foreign countries, and 2 unknown; 35 were of American parentage, 130 of foreign parentage, and 22 unknown. The deaths from pulmonary consumption were 22; pneumonia 7; whooping cough 1; heart disease 18; bronchitis 3; marasmus 2. There were 23 deaths from violent causes. The number of children who died under one year was 28; the number under five years, 50. The number of persons who died over sixty years of age was 36. The deaths in public institutions were 53. There were 12 deaths because of the excessive heat.

ASSISTANT SURGEON A. W. BALEH, U. S. NAVY.—Assistant Surgeon A. W. Baleh of the U. S. Navy, recently assistant in pharmacology in the Harvard Medical School, has been ordered to the receiving ship *Wabash* at the Charlestown Navy Yard.

NEW YORK.

MORTALITY STATISTICS.—The mortality of the city in the month of June represented an annual death-rate of 17.16, against 18.26 in May and 18.55 in June of last year. The greatest reduction in the deaths from any one disease was in the case of pneumonia, the weekly average of deaths from which declined to 89, from 130.5 in May. The lowest mortality of the present year from this disease was reached in the week ending June 22, when there were but 81 deaths reported from it. The weekly average of deaths from scarlet fever declined from 41.5 to 33.5; from typhoid fever, from 7.05 to 6.25; from bronchitis, from 31.75 to 19.75; and from influenza, from 5 to 2.25. During the week ending June 15 there were no deaths reported from influenza, and this is the first time in the year that this disease has not appeared as a cause of death in the weekly reports of the Health Department. Among the diseases in the mortality from which there was a slight increase were the following: The weekly average of deaths from diphtheria and croup increased from 44 to 45.75; from measles, from 8.5 to 10; and from smallpox, from 13.75 to 15.5. With the advent of summer a more marked increase in the mortality from diarrheal diseases was of course to be expected, and the weekly average of deaths from this cause increased from 41.75 to 59.75, while the weekly average of deaths from diarrheal diseases in children under five years increased from 35 to 49.5. There was also a considerable increase in the deaths from cancer, the weekly average of which rose from 11 to 17.75. The weekly average of deaths from phthisis (150) and from diseases of the urinary system (102) remained just the same as in the month of May.

DEATHS FROM HEAT.—The official reports of the Bureau of Vital Statistics show that the num-

ber of deaths from heat during the week ending July 6 was greater than in any one week previously recorded. The total mortality was 989, the deaths in the different boroughs being as follows: Manhattan and the Bronx, 689; Brooklyn, 264; Queens, 24; and Richmond, 12. While the bureau records as regards all the boroughs go back only to the consolidation, they cover a long period for Manhattan and the Bronx, comprising the limits of New York before consolidation. The nearest approach to the recent heat mortality was in the week ending August 15, 1896, when there were reported in the two boroughs 671 deaths, or 18 less than in the week ending July 6, 1901. During the week ending at midnight on July 7, when there were 590 admissions, the number of deaths in Bellevue Hospital amounted to 64, the largest number in any one week since the period of extreme heat in August, 1896.

RESOLUTIONS REGARDING BELLEVUE HOSPITAL.—At a meeting of the State Board of Charities, held in Albany on July 10, the following resolution was adopted: WHEREAS, The State Board of Charities, having in view the fact that the demands upon Bellevue Hospital are greater than upon any other hospital in the country, and its frequent and thorough inspection having convinced the board that the main buildings of the said hospital are too old and ill-adapted to their purposes to be sufficient to meet the proper demands of the service, and being also convinced that the only remedy for present conditions is in a new hospital, it is, therefore, *Resolved*, That the authorities of the city of New York are hereby urged to consider favorably the subject of the erection of a new and modern hospital to take the place of Bellevue as soon as possible. An additional resolution was also passed to the effect that in the opinion of the board the compensation of attendants and other employees in Bellevue Hospital should be reasonably increased, so as to secure the services of competent and satisfactory persons, and that suitable provision should also be made for the care of such employees. On the day following Commissioner of Charities Keller announced that next month he would ask the Board of Estimate and Apportionment to appropriate at least \$2,000,000 to build a new Bellevue Hospital. He suggests that all the buildings, both old and new, now standing on the grounds (which extend from 26th to 28th streets and from First avenue to the East River), should be torn down, and that on three sides of the quadrangle a succession of modern hospital buildings should be erected, leaving the court outside to be made into a park, with trees and flowers, fronting on the river. Controller has also expressed himself as heartily in favor of such an appropriation.

OPENING OF VACATION SCHOOLS AND PLAY-GROUNDS.—On July 8 there were opened 16 vacation or summer schools and 28 playgrounds supplied with gymnastic apparatus. Last year the number of similar schools was 10 and of playgrounds, 19; while the number of teachers and instructors has been increased from 450 to nearly 900. By the development of this system, which has hitherto proved very successful, the Board of Education aims to increase the facilities for the education, physical as well as mental, of the children of the city, and also to provide a means for keeping the children off the streets during a portion of the hot summer days. The first free baths ever installed in a public school of New York were put into operation on July 11 at School No. 1, situated in an East-side tenement district. The plant consists of 14 well-arranged shower baths, and it is proposed to put similar baths into all the school houses located in crowded neighborhoods.

EXAMINATION OF PHARMACISTS.—At a meeting of the Municipal Civil Service Commission, held July 12, it was decided that in the future all applicants for positions as pharmacists to city institutions must pass an examination by the State Board of Pharmacy before coming before the commission. This action was taken because of complaints that the commission has been certifying pharmacists who held no license, and that it was a violation of the law to do so. After the meeting President Knox explained that the commission had certified pharmacists in the belief that the same law applied to them as to engineers. The law, he said, required that engineers must have a license before they could be employed, and the commission were under the impression that pharmacists, after being certified, also had to get a license.

DEATHS FROM SMALLPOX.—During the week ending July 6 there were 25 deaths, and on the first day of the following week 7 deaths, from smallpox at the hospital on North Brother Island. These are stated to be the highest figures as yet recorded since the beginning of the present outbreak of the disease.

Miscellany.

IMPRESSIONS OF A GERMAN MEDICAL CONGRESS.

HUMAN nature is very much the same everywhere, and we take it that the following description of a German medical congress, quoted from the *British Medical Journal* has a wider applicability than the writer implies:

An occasional correspondent who speaks from experience has been moved to unburden his soul as to the

mode in which discussions are carried on at some German scientific congresses. The picture he draws is not, he declares, exaggerated, but his remarks must be understood as applying only to these congresses which are not divided into sections but in which the discussions take place in plenary session. There is a large room where the congress is to take place, filled with hundreds of our colleagues, of German and other nationalities. These gentlemen are prepared for several days' *cram*, but are also resolved not to let it be all dull. They present a very varied appearance, and produce a very varied impression by the complexity of sound which their conversation, before the commencement of the proceedings, creates. The management consists of a chairman, who is changed at each sitting, and his confrères, the president, the secretary, and the other members of the council. The chairman opens the day's proceedings by informing the readers of papers that the time limit—namely, half of an hour for papers, and ten minutes for discussion speeches—will be rigidly adhered to. At first all goes smoothly, until a speaker has occupied the attention of the house for twenty minutes or so, when there is heard an ever-increasing buzz of conversation from the back part of the room. Of this the speaker takes no heed, and when the half-hour is past, the chairman merely stretches himself and remains quiet. The next speaker has obviously not been fortunate in the impression that he has made on the house, for the conversation, begun during the last speech, continues, and becomes disturbing. But he, being accustomed to such trivial inconveniences, labors on steadily. The hands of the clock steal slowly onward, and when they register that the speaker has been standing at the desk for nearly twenty minutes, a single cry of "End!" (*Schluss*) is heard. Soon the air is rent with wild, delighted cries of "End!" and feebly tempered by a few subdued remonstrating "*Gsché*." The chairman rings his bell. Some order is restored, and he tells the speaker that he has two minutes more. Poor speaker! he has lost the thread of his argument (for papers must be given from memory, not read); he is face to face with the fact that he has but two minutes more to live—as a speaker—and he thereupon invariably pitches himself headlong into his subject, at such an enormous rate, and with so much energy, that it becomes a matter of impossibility to understand what he is speaking of. The noise at the far end of the room continues, and in one minute the second "sound" of the bell is heard. The chairman now shows his humanity and asks the house to decide whether the speaker shall continue or not. This is done either by direct appeal and an interpretation of the responsive sound, as to what the wish of the majority is, or by a show of hands. There is a subtlety in the decision, for if the chairman wishes he can rule on a single show, or he may ask for "Ayes" and "Noes," or he may compare the number of hands shown with the number of persons present. But it is decreed that our friend, the speaker, must stand down, and there is something pathetic in his self-conscious, proud and satisfied bow, and the death-like silence which follows it for one moment. A discussion now takes place. At first absolute oblivion of time seems to surround the Chair, and the first intimation which the occupant of it receives of the fact that one member has occupied the platform for nearly half an hour is that his conversation with a colleague is interrupted by a dozen eager members who wish to have their say. Then he rings the bell and asks if the speaker has much more to say, but to do this he waits until the latter has reached the middle of a sentence. "I am just finishing," is the reply. Five minutes later a further ring, the same question, the same reply. Still five minutes later the chairman says that Herr X. is in possession of the platform, and requests the loquacious one to stand down. He forgets to bow, and collecting his notes and papers slowly, mumbles that he has no time to present his most important points of argument.

Will he try to continue his arguments at next year's congress?

Correspondence.

[From our Special Correspondent.]

SOME MEDICAL ASPECTS OF THE PAN-AMERICAN EXPOSITION.

The Pan-American Exposition presents certain features of particular interest to medical visitors, which, however, are so widely scattered that many of them are overlooked by the casual observer, who has no official guide to their location. Hence a brief mention of their whereabouts and special points of interest may be of value.

The Emergency Hospital, supported from the funds of the Exposition, and treating its cases gratuitously, is located immediately on the right of the East Amherst street gate, through which the majority of visitors enter the Exposition grounds. It is an artistic little building of cream-colored stuff, topped off with a dull red roof. It was erected early in the process of constructing the fair, to meet the medical and surgical emergencies contingent on the presence of a large or less hazardous gathering, many of them engaged in more or less hazardous callings. Its functions are confined purely to emergency work, and any severe cases received during the day are transferred to the Buffalo General Hospital, or other points outside the grounds, if prolonged treatment is required. No cases are allowed to remain over night in the Emergency Hospital, and no venereal cases are treated therein. The institution has a capacity of 26 beds, and includes a small dispensary fitted up with a few simple remedies, a surgical dressing-room, an excellent little operating-room, and a small diet kitchen. It is admirably administered under the supervision of Dr. Roswell Park, the Medical Director of the Exposition, whose surgical abilities are well known to the profession, assisted by Dr. Vestner Kenerson, both of whom visit the institution one or more times daily. The personnel of the hospital consists of six young physicians who act as the house staff, and two of whom are constantly on duty. Four nurses constitute the nursing staff. The hospital supports an ambulance service, consisting of one automobile ambulance, the drivers of which are medical students from the University of Buffalo. Up to the present time, the hospital has treated about 2,200 cases, of which about 700 were surgical. At present most of the cases requiring attention are of a medical nature and are of trivial character, about 30 cases being treated daily. The majority of these cases are of a diarrheal nature and are furnished by the employees of the large foreign concessions in the Midway, such as the "Streets of Cairo," "Indian Congress," "Filipino Village," etc. One member of the house staff usually visits these larger concessions daily, to ascertain the presence of any cases needing medical attention. So far, the professional work has been very light. A few deaths and seven accidents occurred as a result of falls by workmen during erection of the Exposition buildings, and, as was to be expected in a fair where electricity is made such a prominent feature, several fatal accidents among the workmen have occurred from contact with defectively insulated electric conduits. Scarcely any cases of sunstroke and heat exhaustion have as yet occurred, even during the hot wave which recently prevailed over the eastern part of the United States. Cool lake breezes are a pleasant feature of the Buffalo summer climate and seem to substantiate the claim that Buffalo is the coolest city in the Union during summer. There has not been a night this season when the visitor would not require the use of a blanket to sleep in comfort. Mosquitoes and flies are almost unknown in Buffalo, and the visitor is certain to be free from their annoyance. To return to the subject of the Emergency Hospital, it may be said that while this institution possesses no unusual features to those acquainted with hospital service, its equipment is of the most modern type, and its neatness and order, together with the efficacy of its service, reflect much credit upon those in charge.

A few steps from the Emergency Hospital is a building which somewhat resembles this institution in appearance. It is the building of the "Infant Incubators," which a "barker," in high hat and frock coat, terms "the only scientific attraction on the Midway." The Qbata Company, which controls this concession, appears to be coining money, for, strange as it may seem, this attraction is one of the most popular on the Midway. Its patrons are not only those who have a professional interest in the subject, but also a large proportion of the curious, particularly those of the feminine persuasion. As the "barker" says, "there is nothing improper in the exhibit," but his statement that there is "a whole houseful of infants" must be taken with the usual Midway grain of salt. Inside, the visitor is ushered into a large room, with impermeable walls and floor, railed off around the walls. There are about a dozen of the Qbata incubators, something more than half of which are usually occupied by small mites of humanity prematurely introduced to the world. The incubator consists of a nickel frame with glass sides, making a box about two feet square, to which access is had by a door in front. The infant, neatly bundled up, lies on a small mattress supported on springs so delicate that the whole frame gently oscillates with every movement, even the breathing of the child. The temperature in the incubator is regulated by a thermostat, which maintains a constant temperature of about 26°C., the necessary warmth being supplied from water pipes running from a small tank heated by an oil lamp. Ventilation of the incubators is secured by small aspirating fans, the incoming air being rendered sterile by filtration through cotton. Wet nurses provide nature's food for the sustenance of the infants, the latter being removed from the incubators and fed every two hours, weighed, and the cleanly condition of their linen verified. This is done in a small nursery, adjoining the incubator room, which is fitted up with bath tubs, baby baskets, etc., in a way to satisfy aseptic ideas and delight the esthetic. A chart on each incubator shows the age, sex, weight, temperature and period of gestation of each child. One small morsel of humanity on exhibition was stated to have weighed 2 lbs., 4 oz. on entrance and to have gained 5 oz. in about a fortnight's sojourn in the incubator. The period of gestation of nearly all the infants is stated as about seven months. The appearance of some of the infants would appear to justify this statement, though it would require a slight elasticity of the professional imagination to believe this with regard to others. The supply of infants is recruited from Buffalo and vicinity, they being cared for gratuitously by the Qbata Company. I was informed that a premature arrival in a family prominent in Buffalo society and a small papoose from the Indian Congress were admitted on the same day.

The Qbata Company claims that 85% of viable infants may be saved by their incubators. The question naturally presents itself as to whether this is worth while; whether the race as a whole does not suffer from the preservation of these weaklings to perpetuate their kind. Medical science is a little illogical in respect to the results obtained, and in its efforts to preserve the individual it forgets to consider the effects of such action upon the race as a whole. Every stock raiser appreciates the necessity of healthful environment, abundant food and fresh air in maintaining a breed of animals in a state of high physical development; and sanitary science insists upon the necessity of these conditions for the physical uplifting of the human race. The stock raiser, however, breeds only from the most sound, healthy and perfect animals, and thus secures a physical conformation and constitution upon which conditions of environment can act most advantageously. Medical science, on the other hand, does not hesitate to undo the advantages gained by the hygienic rules it has promulgated, by preserving the weakling, the deformed and the tuberculous, and placing these defectives—who would otherwise surely have perished in an active struggle for existence—in a condition to transmit their deficiencies, deformities and vices to gen-

erations as yet unborn. Certainly, in regard to the physical standard of the human race, the medical profession is in the position of tearing down with one hand while it builds up with the other.

On the whole, the exhibit of infant incubators furnishes much food for reflection, and is well worth the cost of admission. The concession is well cared for and everything about it is kept neat, clean and attractive, and elicits the commendation of visitors in this respect. I suspect that the general opinion in regard to the infants themselves is fairly well expressed by the Englishman whom I overheard remark as he emerged from the incubator room, "Only fancy commencing life as a Midway exhibit, don't you know!"

* * *

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 6, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrhæal diseases.	Diphtheria and croup.	
New York . .	3,437,292	2,767	960	22.18	1.80	1.19	11.53	1.22	
Chicago . . .	1,698,575	857	306	12.36	2.80	1.17	36.47	.81	
Philadelphia .	1,229,697	575,238	451	27.69	2.21	—	—	—	
St. Louis . . .	508,367	351,768	—	—	—	—	—	—	
Baltimore . .	352,387	325,962	—	—	—	—	—	—	
Cleveland . .	321,616	278,718	219	17.02	6.81	1.36	2.72	1.36	
Buffalo . . .	278,718	232,315	—	—	—	—	—	—	
Cincinnati . .	232,315	175,597	91	32	38.50	1.10	19.80	2.20	
Pittsburg . .	560,892	247	67	24.70	4.05	1.22	4.05	2.83	
Washington .	118,421	49	11	24.48	2.04	—	16.32	2.04	
Milwaukee . .	104,863	33	12	12.12	—	—	6.06	—	
Providence . .	94,969	50	17	18.00	2.00	—	8.00	4.00	
Boston . . .	91,886	31	14	29.07	—	—	16.15	3.23	
Worcester . .	68,613	14	3	14.28	—	—	—	—	
Fall River . .	62,559	26	11	30.72	11.52	—	15.36	7.68	
Cambridge . .	62,442	13	4	7.50	7.50	—	—	—	
Lynn	62,659	18	—	33.30	5.55	—	22.20	—	
Lawrence . .	61,643	20	5	15.00	11.10	—	—	—	
New Bedford .	45,712	26	11	38.46	—	—	26.88	—	
Springfield .	40,063	2	2	50.00	—	—	—	25.00	
Somerville . .	37,175	11	2	9.09	9.09	—	—	—	
Holyoke . . .	35,966	8	—	25.00	12.50	—	—	12.50	
Brookton . .	34,072	13	2	38.46	—	7.10	—	—	
Haverhill . .	33,567	3	3	16.67	—	—	—	—	
Salem	31,531	—	—	—	—	—	—	—	
Chelsea . . .	31,036	—	—	—	12.50	—	—	—	
Malden . . .	26,121	4	1	50.00	—	—	—	—	
Newton . . .	24,336	9	1	11.11	22.22	—	—	—	
Pittsburg . .	24,200	5	1	20.00	—	—	—	—	
Taunton . . .	23,890	4	—	—	—	—	—	—	
Gloucester . .	23,481	7	—	57.20	—	—	—	14.30	
Everett . . .	21,766	4	—	—	25.00	—	—	—	
North Adams	19,935	—	—	—	—	—	—	—	
Quincy . . .	19,167	8	3	25.00	—	—	12.50	—	
Waltham . .	18,244	5	—	20.00	—	—	—	—	
Pittsfield . .	14,478	4	—	25.00	—	—	—	—	
Brookline . .	12,962	—	—	—	—	—	—	—	
Chicopee . . .	—	—	—	—	—	—	—	—	
Melrose . . .	—	—	—	—	—	—	—	—	
Newburyport	—	—	—	—	—	—	—	—	
Melrose . . .	—	—	—	—	—	—	—	—	

Deaths reported 5,061; under five years of age 1,748; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebro-spinal meningitis, diarrhæal diseases, whooping cough, erysipelas, fevers and consumption) 1,101, acute lung diseases 123, consumption 268, scarlet fever 51, erysipelas 8, typhoid fever 48, whooping cough 22, measles 30, cerebro-spinal meningitis 10, smallpox 26.

From whooping cough, New York 8, Philadelphia 5, Baltimore 1, Pittsburg 2, Providence 1, Boston, Cambridge and Springfield 1 each, Holyoke 2. From cerebro-spinal meningitis, New York 3, Boston 2, Somerville, Marlboro and Southbridge 1 each. From scarlet fever, New York 33, Philadelphia 10, Pittsburg 2, Boston 3, Chelsea 1, Beverly 2. From typhoid fever, New York 14, Philadelphia 17, Baltimore 2, Pittsburg 9, Providence 2, Boston, Fall River, Gloucester and Chicopee 1 each. From erysipelas, New York 3, Philadelphia 1, Boston 4. From smallpox, New York 25, Worcester 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,217, for the week ending June 22 the death-rate was 15.0. Deaths reported 3,301; acute diseases of the respiratory organs (London)

150, whooping cough 68, diphtheria 39, measles 101, fever 17, scarlet fever 37.

The death-rate ranged from 8.0 in Brighton to 22.1 in Liverpool; Birkenhead 13.1, Birmingham 16.8, Blackburn 18.0, Bolton 13.3, Bradford 15.0, Bristol 12.3, Burnley 13.4, Cardiff 14.5, Croydon 10.8, Derby 13.8, Gateshead 17.5, Halifax 18.8, Huddersfield 11.5, Hull 16.9, Leeds 16.2, Leicester 15.2, London 15.8, Manchester 18.3, Newcastle-on-Tyne 16.9, Norwich 10.7, Nottingham 14.5, Oldham 15.2, Plymouth 16.9, Portsmouth 10.7, Preston 17.1, Salford 16.0, Sheffield 16.5, Sunderland 18.4, Swansea 12.1, West Ham 12.2, Wolverhampton 16.6.

METEOROLOGICAL RECORD

For the week ending July 6, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Wet bulb		Rainfall in inches
	Daily mean	Barometer	Daily mean	Thermometer	8.00 A.M.	8.00 P.M.	Daily mean	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	
S... 20.29.83	83	93	75	65	70	58	W	W	W	10	7	C	.12
M... 21.29.84	84	92	76	66	71	59	W	W	W	10	7	C	.06
T... 22.29.86	86	95	77	67	68	58	W	W	W	8	14	C	.06
W... 23.29.82	82	96	75	67	55	61	W	W	W	12	5	C	.06
Th... 24.29.87	75	67	63	69	64	66	E	E	E	7	9	C	.11
F... 25.29.88	68	62	64	92	85	88	E	E	E	6	6	C	.11
S... 26.29.85	64	66	61	92	100	96	E	E	E	8	8	C	.11
Mean for week	29.88	84	70		68								.40

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JULY 1, 1901.

STONE, G. W., surgeon. Granted leave of absence for thirty days from August 3. July 2, 1901.

KINYON, J. J., surgeon. Directed to proceed to Yokohama, Japan, and Hong Kong, China, as inspector. June 28, 1901. Granted leave of absence for four months upon completion of duty as inspector. June 28, 1901.

GREENE, J. B., passed assistant surgeon. Granted leave of absence for two days from July 5. July 2, 1901.

HASTINGS, H. L., assistant surgeon. Granted leave of absence for two months from July 15. June 28, 1901.

PAEKER, H. B., assistant surgeon. Relieved from special temporary duty at San Francisco, Cal., and directed to rejoin station at New Orleans, La. June 29, 1901.

BILLINGS, W. C., assistant surgeon. Relieved from duty at Baltimore, Md., and special temporary duty at San Francisco, Cal., and directed to proceed to Los Angeles, Cal., and assume temporary command of the service during the absence of medical officer in command, reporting to him for duty upon his return to station. June 29, 1901.

MOORE, DENLOP, assistant surgeon. Relieved from duty at Port Townsend quarantine, Washington, and directed to proceed to Nome, Alaska, for special temporary duty. July 1, 1901.

FOX, CARROLL, assistant surgeon. Relieved from duty at Portland, Ore., and directed to proceed to Port Townsend quarantine, Washington, and report to medical officer in command for duty. July 2, 1901.

ALEX, G. C., hospital steward. Relieved from duty at Mullet Key, Fla., and directed to proceed to Norfolk, Va., and report to medical officer in command for duty. June 29, 1901.

FRICK, F. H., hospital steward. Relieved from duty at New Orleans, La., and from special temporary duty at San Francisco, Cal., and directed to proceed to St. Louis, Mo., and report to medical officer in command for duty and assignment to quarters. June 28, 1901.

PHILLIPS, W. C., hospital steward. Directed to proceed to Chicago, Ill., and report to medical officer in command for duty and assignment to quarters. May 15, 1901.

W. C. PHILLIPS of Iowa appointed Junior Hospital Steward in the U. S. Marine Hospital Service. May 13, 1901.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JULY 6, 1901.

T. A. BERRYHILL, surgeon. Detached from the Naval Laboratory, Brooklyn, N. Y., and granted sick leave for three months.

J. H. DICK, assistant surgeon. Detached from the Naval Hospital, Chelsea, Mass., and ordered to the "Lancaster," July 8.

G. L. ANGENY, assistant surgeon. Detached from the "Lancaster," and ordered to the Naval Laboratory, Brooklyn, N. Y.

RECENT DEATHS.

AUGUSTA ALICE STEADMAN, M.D., M.M.S.S., died in Amsterdam, N. Y., Feb. 1, 1901, aged fifty years.

THOMAS S. BRENNAN, Deputy Commissioner of Public Charities, died on July 9, at the age of fifty-seven. It was for many years thoroughly identified with Bellevue Hospital, where he commenced service as a watchman and finally rose to the position of warden. While serving in the latter capacity in 1875, he was appointed one of the Commissioners of Charities and Correction. Mr. Brennan was of unusual size, being six and one-half feet in height, and, like most very large men, was of a markedly genial disposition. He was always popular with the many medical men with whom his duties brought him in contact and regarded with the kindest feeling by those under his charge.

BOOKS AND PAMPHLETS RECEIVED.

Communications (Institut de Laryngologie et Orthophonie de Paris). Illustrated. Reprint. 1901.

Crazes, Credulities and Christian Science. By Charles M. Oughton, M.D. Chicago: E. H. Colegrove. 1901.

Second Report of the Brockton Hospital, Brockton, Mass., 1899-1900. Illustrated. Campello, Mass.: Howard John Print.

Albany Medical College. Register of Students, 1899-1901. Illustrated. Albany: Press of Brantford Printing Company. 1901.

What Routine Shall We Adopt in Examining the Eye Muscles? By Alexander Dunne, M.D., New York. Reprint. 1901.

The Semi-Centennial Anniversary of the Middlesex East District Medical Society. Held at Woburn, Mass., Friday, Oct. 25, 1900. Boston: The Idea Press.

Syphilis Tertiaire du nez chez une jeune fille. Infection, au cours de l'allaitement, par la nourrice. Séquestres et polypes muqueux. Illustrated. Reprint. 1901.

Transactions of the Massachusetts Medico-Legal Society, 1897, vol. ii, No. 7; 1898, vol. ii, No. 8; 1899, vol. iii, No. 1; 1900, vol. iii, No. 2; 1901, vol. iii, No. 3. Published by the Society. 1901.

Diseases of the Intestines. By Dr. I. Boas. Authorized translation from the first German edition with special additions by Seymour Basch, M.D. Illustrated. New York: D. Appleton & Co. 1901.

Proceedings of the Ninth Annual Meeting of the Association of Military Surgeons of the United States, held at New York City, May 31, June 1 and 2, 1900. Chicago: R. R. Donnelley & Sons Co. 1901.

Viability of the Bacillus Pesticus. M. J. Rosenau, Passed Assistant Surgeon, Director Hygienic Laboratory, U. S. Marine Hospital Service, Washington, D. C. Washington: Government Printing Office. 1901.

A New Clinometer for Measuring Torsional Deviations of the Eye, Delimiting Para-Central Scotomata and Metamorphopsia and Detecting Simulation of Blindness. By Alexander Duane, M.D., of New York. Illustrated. Reprint. 1901.

Annual and Analytical Cyclopaedia of Practical Medicine. By Charles E. de M. Sajous, M.D., and one hundred associate editors, assisted by corresponding editors, collaborators and correspondents. Illustrated. Vol. VI. Philadelphia, New York, Chicago: P. A. Davis Co. 1901.

Surgical Treatment of Palatal Defects. By Truman W. Brophy, M.D., D.D.S., L.L.D., Chicago, Ill., President Chicago College of Dental Surgery, Dental Department Lake Forest University, Chicago, Ill.; Professor of Oral Surgery, Chicago College of Dental Surgery, etc., etc. Illustrated. Reprint. 1901.

Address.

SPECIALISM IN MEDICAL PRACTICE: ITS PRESENT STATUS AND TENDENCIES.¹

BY F. H. DAVENPORT, M.D., BOSTON.

At the annual meeting a year ago the orator of the day gave some delightful reminiscences of this society, which had then completed fifty years of its existence. It was eminently appropriate that in a year which marked at once the society's life of half a century, and was at the same time the closing year of the nineteenth century, the address should have been retrospective and reminiscent. Its brilliant and sympathetic account of the men, now departed, who helped to make this society what it is, still remains in our memory. Since then we have entered upon a new era. A new century has begun with all its hopes and possibilities, and we stand as it were on a new height, looking back into a fruitful past and forward into an unknown future.

It is true that no violent convulsion of nature, no change in the harmonious laws which govern the universe, marked the birth of the new century. The closing day faded into the night, and the night gave place to the dawn, and the twentieth century had begun. Yet I venture to say that with the transition, however silent, there was in all of us a sense of change, a subconsciousness, if I may so call it, of a difference in our outlook upon life and its activities. Especially during the last decade we had been accustomed to characterize everything which was particularly novel or startlingly iconoclastic as *fin de siècle*, and with even a possible suggestion of decadence. Nor was this strange when we realize that our standpoint of comparison was nearly a hundred years behind us. We had grown old with the century, and the things we were doing were the fruits of what our forefathers sowed. The same things today when the new century is but just born and a hundred years stretches before us, with all its possibilities of marvelous development, are now the feeble expressions of a youthful energy, as yet untried. We are prepared to start anew and to work out on new lines, and in new ways it may be, the problems which are confronting us, and which will certainly come up for solution.

It seems to me appropriate, therefore, that on this, the first of a new series of annual gatherings, the keynote of what I have to say should be prophetic rather than retrospective; what we are doing and will do, rather than what we have done; and I therefore ask your attention briefly to some of the tendencies of medical practice and what our attitude towards them should be. In doing this it will, I am sure, be pardoned if I consider these tendencies from the standpoint of the specialist, and limit myself, as I must necessarily do in a short address, to a few of the many aspects of the subject, which have impressed me as a gynecologist.

¹ Read before the Norfolk District Medical Society.

In the first place, what is a specialist, and what should be his relation to general medicine? It has been said that this is preëminently the age of specialism. In a general way this is true; and yet specialism is as universal as society and as ancient as is the human race. It began as far back as the fall of man, when Cain showed an aptitude for farming, while Abel thought he could do better at sheep-herding. Since then its development has kept pace with the increase of knowledge and the density of the population. It has invaded all callings, and is as inevitable as growth; but its spread has been gradual and irregular. It has had its fluctuations, its periods of rapid or slow growth; and these have been influenced and directly measured by the two factors which I have mentioned above,—increase of knowledge and density of population. It has been most marked in those periods of the world's history which have been characterized by material prosperity, revival of learning and rapid growth of population.

Applying this idea to medicine, we see why the past half century has been called the age of specialism. The marvelous advances which have been made in the last fifty years in every branch of our science have so heaped up the facts to be learned that no man can keep abreast of it all. He has to choose some part which especially interests or appeals to him, and as far as possible make himself master of that. A single organ or group of organs and the diseases to which they are liable are sufficient to absorb the energies and tax the resources of a man, no matter how thorough his research or untiring his activity. He must, perforce, leave large fields of knowledge wholly untitled as far as he is concerned.

It is, therefore, perhaps not saying too much to affirm that all doctors, except possibly those practising almost alone in isolated rural communities, are specialists. If they call themselves general practitioners, they are so only in a limited sense; for they have in their own consciousness, and in the opinion of their fellow doctors and of the community, a special taste for, and skill in, the treatment of the diseases of some particular branch of their profession.

Even the exceptions quickly disappear. As the community grows and population increases, specialism becomes more and more marked. In our own old Colonial days, to quote a familiar illustration, with a sparse and impecunious population, one man had often to unite the two professions of preaching and physics, the care of souls with the cure of bodies. The minister was the doctor. Later, when the growing village could support both parson and physician, the latter had to be in the fullest sense of the term a *general* practitioner. Medicine, surgery, midwifery,—all were his departments; and he could truly say that his only specialty was diseases of men, women and children. As soon as the village and its neighborhood expanded sufficiently to give a decent living to two doctors, there was a beginning of specialism within the healing profession itself.

Dr. A was considered better in fevers, and Dr. B in childbirth. So the evolution would go on, the community growing and the guild of doctors increasing, until we have the stage of development at which we have arrived today, where in the larger towns and cities all the departments of medical practice into which our calling is divided have their representatives.

Face to face, then, with the fact of specialism, it becomes pertinent to inquire what is its future, and what should be our attitude towards it. In the first place, it has come to stay. It is a necessary phenomenon of progress, and cannot be ignored. Nay, I would go farther, and would say that it should be fostered and encouraged, for in this direction only is healthy growth to be attained. If this is so, it is perhaps not at first sight obvious why there should ever have arisen any question as to the benefits of specialism, or in what respect it may be dangerous.

It is a fact, however, that there is a feeling more or less prevalent that the limiting one's self to a special branch of study and practice does in some way have a deleterious effect upon that broad development which should be the ideal of every physician. Justification for any such feeling seems to me to lie in the fact that the practice of medicine is not an exact science, nor indeed ever can be. We deal with human beings,—complex organisms made up of body, mind and spirit; and the interdependence of these various elements on each other presents a variety of problems which can never be solved by scientific formulae. The body and the mind react upon each other, and there are hidden forces which cannot be demonstrated, many of which are only recently being vaguely recognized, which nullify any attempt at exhaustive or even definite conclusions. In the close study, therefore, of any one set of organs, and the diseases to which they are liable, we are apt to ignore that a human being is a complex whole, of which no one member can suffer without involving the possibility of remote or general changes, both physical and psychical, in other parts of the economy.

The trouble, therefore, would seem to be not with specialism in the abstract, but with specialists. The principle is correct and beneficent; but in its application there is opportunity for narrow views and slack methods to creep in, and there is no doubt that the criticism referred to is in some degree well founded.

In the light of this it is evident that a broad basis of knowledge in general medicine is the very best preparation for the specialist. This should not be confined to the medical school, but should extend through the first years of practice. I am of the opinion that no encouragement should be given the students in our medical schools to choose special lines of study. They should be graduated with at least a working knowledge of all the branches of practical medicine. It may be said that there is not time for this, even in a four-years' course, and as the time is divided now that may be true; but I think it is a question which is not

yet definitely settled, whether too large a proportion of a student's time is not devoted to laboratory courses in branches which have a less practical than scientific value. Nine-tenths or more of all the students of medicine are to devote themselves to the task of treating disease, and the greater the knowledge gained by clinics, direct observation of patients, bedside instruction, and opportunities for diagnosis and treatment by the student himself, the better doctors of medicine we shall have.

Let the physician, then, in the first years of his professional activity be catholic in his practice. There are usually many opportunities, varied in character, for seeing and studying disease. Making use of these opportunities will broaden his outlook, increase his skill and ripen his judgment. More than that, his experience will show to him in what particular line his faculties are best trained and his efforts most successful. In that direction let him specialize, and become a specialist because he must. A man so trained will be the best specialist; and particularly fortunate is he who in a certain sense is made one by his patients from their recognition that in a certain class of cases he has exceptional success.

Such a training will minimize the great danger of specialism referred to: that a too exclusive study of one branch of a subject narrows the horizon and warps the judgment. The specialist is apt to look at a case only from a single standpoint. In an obscure case—for instance, of headache—into which a number of factors may enter, the neurologist will see some lesion of the nervous system as the underlying factor, the ophthalmologist eye-strain, the gynecologist some trouble with the generative organs. They may possibly all be right as regards the existence of the various factors, but the mistake will lie in exaggeration of their relative importance. Each specialist has a right to insist upon the value of what he has found abnormal towards the definite solution of the problem in question, and to that extent it is inevitable that his point of view must be limited. As some one has recently very aptly said:² "The specialist must, to a certain extent, become a narrow man in a general sense, in order to become at the same time an expert in a limited sense. Such is the paradox that confronts the medical man of the day."

The practical side of what I have been saying lies in the consideration of what may be done to counteract this tendency to narrowness which is conceded to be the greatest danger of specialism. The first remedy I have already pointed out. Let the student as far as possible in his four years get the most practical training obtainable in the whole field of medicine. Let the medical school send out doctors of medicine in the broad sense of the term: men fitted to treat intelligently the ordinary run of cases of whatever character.

Second, let the first few years of active practice be general: medical, surgical, obstetrical, and as far as may be, include even the more limited specialties—certainly as far as diagnosis is con-

² Philadelphia Medical Journal, Feb. 16, 1901.

cerned. Supplement this practice with reading, so as to keep in touch and sympathy with what is being discovered in the broad field of medical science. In the early years of a man's career, when the demands of private or hospital work are not as great as they will be later, there is time and opportunity for this, and the cultivation of this habit will do much towards counteracting the narrowness of vision which insidiously but inevitably tends to creep in.

Third, as a help toward the attainment of a broader outlook, I would urge the value of more frequent consultations. Theoretically this is not denied. It is recognized that two heads are better than one; but practically the advantage which might be gained by a consultation is neglected.

There are, perhaps, two considerations which are especially potent in this neglect; one is the underlying feeling that the wish for a consultation is a confession of ignorance; the other that one's hold on the patient is weakened when a consultant is called in. With regard to the first, there is nothing which is more evident to an honest man than the fact of his own ignorance, and the prompt and frank confession of it will injure him in the esteem neither of his fellow practitioners nor of his patients. There is no man so unsafe to follow as he who thinks he knows it all, or if conscious he does not know it all, is too conceited to confess it.

The feeling that by bringing in a consultant there is danger of losing the patient has a certain hold upon the profession at large, and it is going too far to say that it may not sometimes be justified. The code of ethics provides against this; but beyond that law is the principle which should always be uppermost in all our professional work; namely, the good of the patient. Both parties should have that in view. If the specialist suggests some treatment which the family doctor can carry out perfectly well, it should be left to him; but if better and quicker results can be attained at the hands of the specialist, the management of the case should be cheerfully entrusted to him. No other course can commend itself to the conscientious man, and such an ideal of professional honor should be cultivated.

The conceptions of the claims of professional etiquette vary very much in different parts of the country. I think we are fortunate in living in a community where the standards of medical practice are high. There is a spirit of mutual regard, an absence of petty jealousy, an *esprit de corps* which to the same extent hardly exists in any other large city. I have often heard this testimony from distinguished physicians in other cities. Since that is so, may we not feel that the level of professional etiquette is too high to allow the fear of losing a patient to weigh against what our better judgment tells us may be for his or her good.

The conception of a consultation has imperceptibly changed in the last fifty years. In those days a physician "asked counsel" of some older,

wiser man. I like the old-fashioned term, which to my ears already sounds quaint. But a consultation today is more often a meeting of experts, who from different standpoints look at the case and supplement each other's lack of special knowledge.

So far we have been considering specialism in its general aspects. There are, however, certain features of the subject which have to do with gynecology which seem to me of interest, and for the consideration of which my own relation to that branch of medical practice must be the excuse. The story of the development of this specialty is an interesting one, but it has been often told, and I do not propose to more than touch upon a few salient points. Up to a time within the memory of some of us, the vagina was the only route by which pelvic diseases could be recognized and treated. Hence, the subject was practically limited to diseases of the vagina and cervix, and was in no sense broad enough to rank as a specialty. Inflammations and so-called ulcerations bounded the horizon of practice, and it was the day of the topical application of caustics and astringents. Then followed the era of the rise and development of plastic surgery, as applied to the repair of lacerations of the cervix uteri and the vaginal outlet, and the cure of vesico-vaginal fistula.

With the fresh impetus given to pathological research in the seventies, the true nature of the inflammatory processes in the pelvis and their results became known, and the coincident discovery and application of antiseptic principles made the successful treatment of these affections by the abdominal route a possibility. Then began the era of surgical gynecology, rapid in its development, alluring and seductive in its performance and brilliant in its results.

The first general application of this method was to the removal of ovarian tumors, easily diagnosed and inevitably fatal if left to themselves; and the story of thousands of women saved from certain death forms a chapter of medical history of which we may well be proud. The perfection of the technique, and the avoidance of peritonitis by strict antiseptic precautions made it possible to extend the bounds of pelvic surgery by the abdominal route, until today it is possible to attempt—I was about to say—anything. The removal of all varieties of tumors, the partial or total removal of organs, the rectification of displacements, the conservative treatment of these organs so vital to a woman's complete life, are the lasting results of this wonderful development. So far has this gone that the advance today is almost wholly in new methods and not in new operations. The live questions which now occupy the thoughts of progressive men are of this character: route of operation, whether abdominal or vaginal; methods of hemostasis; total removal or conservative procedures in the treatment of minor affections of tubes and ovaries; myomectomy or hysterectomy in cases of fibroids and the like.

How has this development of gynecology on new lines affected the opinions and practice of the profession? There is no doubt that it has stimulated the surgical aspect to the partial neglect and discredit of the nonsurgical. But that was to be expected; and it is a shortsighted and partial view which would look upon any exaggeration of one phase as permanent. What is more natural than that the glamor of a brilliant surgical operation, skilfully done, with the opportunity under ether of clearing up doubtful points, when offset against the slower, more uncertain nonsurgical methods, more or less blindly groping, should have gained the day? Hence there has been such an impetus given to surgical work that there has followed the inevitable reaction, and from all sides we hear a protest raised against unnecessary operating. That there is a basis for this protest, that there has been *some* unnecessary operating, perhaps much, in certain quarters, is undoubtedly true; but it must be remembered that it is only by the over-zealous insistence upon one side of a question that the germ of truth which lies at its heart is recognized at last.

While admitting, then, that there have been and still are performed unnecessary operations, I think it should be borne in mind that that is not synonymous with saying that they are harmful. In fact, I am of the opinion that this difference has not been clearly perceived, and that undue emphasis has been accorded to that prejudice in the lay mind called the "horror of the knife." I think the sober judgment founded on observation of patients before and after operation, when sufficient time has elapsed to allow the legitimate results to be apparent, would be that in the vast majority of cases no harm has resulted, and the patient is not worse for the operation. It may be true that a case of dysmenorrhea will in time be relieved by drugs, or a change in the mode of life; but if a dilatation is performed, though it may have proven unnecessary from the fact that it has failed to relieve the pain, it practically never makes the patient worse. A plastic operation on the cervix and perineum may not cure the backache and nervous symptoms which may have been wrongfully attributed to it, but it does not add to their severity. In the case of the removal of organs, as ovaries or tubes, the innocuousness of such operations cannot be so definitely taken for granted; yet even here I am strongly of the opinion that it is rare for the patient's condition to be made worse. The production of the artificial menopause is, to be sure, a shock to the system; but my own experience leads me to the belief that the rule is (to which there are undoubted exceptions) that the change of life thus prematurely and suddenly imposed is less disturbing to the general health, and the system more quickly recovers its equilibrium, than is the case with the natural menopause.

If this is so, it may, perhaps, be also taken for granted that the descriptions of the dire effects to women of removing these organs essential to menstruation and reproduction, the so-called "unsex-

ing a woman," have been exaggerated. It is only natural that so complete a revolution in the external manifestations of the generative system should at least have excited apprehension lest it should be accompanied by remote and far-reaching changes in her nature, but such fears are, I think, in the vast majority of cases unfounded.

Ever since these organs began to be removed for disease, exhaustive attempts have been made to prove the existence of serious ill effects from such operations, but the experience of any surgeon who has occasion to operate frequently, fails to substantiate this view; and even our neurologists and alienists, while they may see the exceptional cases, cannot attribute to this class of operations any very decided increase in nervous diseases. As I said before, it is the production of an artificial menopause, and it does not differ essentially from the natural change of life. I do not wish to be misunderstood in this matter, nor to convey the impression that I would advocate indiscriminate operating, because in most cases the patient is not made worse. On the contrary I would urge conservatism. No one would condemn more strongly than I do the performance of serious operations for trifling symptoms or slight pathological changes, and particularly the removal of healthy organs in young women for pain; but I do think that there is often an unreasonable prejudice — sometimes, I am sorry to say, encouraged by the medical adviser — against operative interference, when that would be the quickest and surest road to health.

The development of the surgical side of gynecology has therefore been a boon to suffering woman. It has rescued thousands of women from certain death, and relieved other countless thousands from years of invalidism. It has substituted for prolonged local treatment, which is too often merely inefficient palliative tinkering, with its strain upon the delicate nervous organization, a brief, thorough and practically safe method of effecting a cure.

Is there, however, no other side to this question? Is the welfare of our patients so perfectly secured by this preponderance of surgical methods that we may feel satisfied with the present status of the question? I am by no means convinced that it is. The danger, as I see it, is not so much that of unnecessary operations as that, blinded by the brilliant results of surgery, the simpler methods of gynecological treatment will fall entirely into discredit. There are signs that this is to some extent true. We read of the decline and fall of the pessary, and the inadequacy of local measures for the relief of even temporary functional disturbances. We forget to inquire into our patient's mode of life, environment and habits, and having detected some error of position, change of form, or variation in size, see that and only that, and fly to surgery for their relief. More than one well-known observer has hazarded the opinion that in the near future there will be no gynecologist as such, but the field will be divided up between the surgeon and the family physician.

That may be so, but not before the surgeon becomes a more expert diagnostician in minor pelvic disorders, and the family physician has both the time and patience to wisely apply the broadest principles of general medical and judicious local treatment to his cases. Be that as it may, the present danger is that even in suitable cases, if no surgical procedure can be thought of which can be justified by the conditions present, or the suggestion of an operation be not entertained, nothing will be done. The simpler methods will be despised and rejected, and with the dictum "either this or nothing," our patients will be driven to the alternative of suffering resignedly and patiently, or becoming ardent devotees of Christian Science or whatever latest fad is prevalent.

While, therefore, appreciating what has been done by surgery, and believing that the surgeon's knife, more often than is sometimes rather lightly maintained, is the cruel but necessary means to the restoration of health, I would yet make a plea for the humbler side of this specialty known as minor gynecology, and would urge a just weighing of its claims, a deeper study of its principles, and a keener appreciation of the importance to the woman of absolute health, not only in respect to the graver ailments which threaten to make her an invalid, but also the minor discomforts which at least render her incapable of living her complete life.

The general practitioner, the family doctor, can do much towards this end. There are countless minor ailments, inflammations, displacements and functional derangements which can and should be successfully treated, where the question of operation should not enter, and the consulting specialist should stand ready to help with suggestion as to methods, under control, it may be, from time to time. Such common interest in a patient may be ideal, but it is not for that reason unpractical or impracticable. It would result on the one hand in a strengthening of the doctor's hold upon the patient through an intelligent attempt to relieve minor discomfort, to prevent what at first may be trivial alterations in structure and function from developing into serious disease, and to recognize in time the necessity of expert advice, and on the other hand in a more healthy and cordial relationship between the attending physician and the consultant.

The one quality which in my mind stands out preëminently as essential to the well-trained specialist is judgment. This is of course true of a physician, no matter in what branch his practice lies. But inasmuch as the more obscure and the more desperate cases are the ones in which advice is sought, a judicial frame of mind is the one to be cultivated. The doubtful point is more often not the diagnosis, but the etiology and the treatment; and here the calm, sober opinion of a mind accustomed to take a broad view of all the facts and circumstances in the case, to weigh evidence and to clearly see the relation of cause and effect, is what is sought and prized.

That this attitude of mind can be encouraged and the training towards it started in the years of preparation in the medical school is true, but it is usually the result of experience, which can only be gained in the solution of problems and the decision of questions, for which the physician himself is wholly responsible. This emphasizes again what I said before as to the value of some years of broad, general practice before limiting one's work to a special branch.

A certain class of cases seems to me to require in a preëminent degree this matured judgment for their explanation. They are the cases where we find coexistent a train of nervous symptoms and evidences either functional or otherwise of disturbances of the genital sphere. They are familiar to us all. With loss of energy, change of disposition, a weakening of mental grasp, neuralgias in various parts of the body, disturbances of function, especially digestion and circulation, we find associated unmistakable proof of some trouble with the reproductive organs. The question that then presents itself for solution is the unraveling of the tangle, so that the true relation of cause and effect which underlies the complex whole may be found out. Is the threatened or actual neurasthenia the result of the local disturbance, or is the latter but one phase of the more general nervous affection? To such a problem one must bring all the powers of a trained logical mind. The dangers of a limited sphere of the specialist are here apparent. The neurologist will see in the backache and the dysmenorrhea and the menstrual headache only the expression of the overstrained nervous system, while the gynecologist will see in these symptoms the *fons et origo* of the nervous breakdown. Each sees but his own side of the shield. Nor does it contribute materially to the clearing up of the question to say that these are the extreme views, and the true solution lies in the mean between the two. Either may be right, but both cannot be; and each individual case must be analyzed in the light of the special features which are present. A careful study of the symptomatology in a large series of cases will be rewarded by a clearer insight into the true relation as regards cause and effect of these complicated problems.

The most constant factor that we find is a constitutional weakness of the nervous system. These patients are of the neurotic type; under favoring conditions, a healthy mode of life, appropriate environment, and absence of special strain they do very well, but the balance is very easily disturbed. Any mental strain, be it overstudy, care of an invalid, a sorrow or a disappointment, is sufficient to upset the delicately poised nervous system. The same is true of any physical disturbance. A displacement of the uterus, or an increase of the pain suffered at the menstrual period, may be the little extra weight which is just too much. The order of the appearance of the symptoms will therefore often give a clue to the true cause. If the local symptoms antedate the more distinctly nervous manifestations, they may fairly be looked

upon as a cause. Where, as is often the case, the order of events cannot be told, the marked increase of suffering at the menstrual epoch will be significant. In such cases the obvious course to pursue is to eliminate the local pathological conditions as far as possible.

On the other hand, where the symptoms which might suggest pelvic lesions are distinctly secondary in their appearance, are not markedly aggravated at the time of menstruation, and are not progressively more severe as time goes on, their causal dependence upon the general nervous state may be taken for granted. With this statement of the case, however, the question is not always settled. In many cases where there can be no reasonable doubt that the primary factor is the general nervous system, which has either caused disturbances of the pelvic organs or brought into activity local troubles which were latent and causing no symptoms before, the pelvic trouble becomes a secondary cause of such importance that no permanent improvement can be looked for until this is relieved. The nervous system is not able to throw off the incubus of the additional local disorder, and it is a weight which must be removed before lasting cure can be effected. A stormy menstrual period may undo all the good effect of three weeks' steady gain under appropriate general treatment, and the wise practitioner will first devote his energies to removing all such obstacles and smoothing the road to recovery.

I have rather elaborately detailed this class of cases, because they seem to me to illustrate well the character of the highest type of work which the specialist is called upon to do, and to emphasize the kind of training which is necessary to success.

At the beginning of my paper I suggested that it was appropriate that in the year 1901 what I had to say should be prophetic in character. I find, however, as I read over what I have written, that there is very little of prophecy in it in the restricted sense of the word, which is perhaps wise. He is a bold man who would attempt to foretell in any more than the most general way what the future holds for us. I find that I have rather tried to analyze certain tendencies of medical practice, to point out their advantages and their dangers, and to suggest in what ways the advantages may be secured and added to and the dangers avoided.

And yet in a certain sense that is prophecy; for do we not know that we must advance, and that progress must be along certain inevitable lines, and that if we resist the temptations to worship strange gods, if we keep clearly in our minds certain high ideals and consecrate our energies to their attainment, the results can be foretold? We cannot know all the steps which will mark that advance, nor the pitfalls which will hamper our progress, nor the bypaths into which we may be tempted to stray; but the results are certain. These results, which will come as surely as day follows night, are increase in knowledge in all

branches of our noble profession, greater opportunities for rendering unselfish service to suffering humanity, and cordial coöperation with each other in the great work which is our heritage.

Original Articles.

THE AFTER-TREATMENT OF OPERATION ON THE NASAL ACCESSORY SINUSES.

BY WALTER A. WELLS, M.D., WASHINGTON, D. C.

THE after-treatment of any operation, unfortunately for the patient, never possesses for the surgeon and his assistants that degree of attraction which attaches to the operation itself, or even to the preoperative stage of the case. With the operation professional interest ascends to a climax, from which the descent is all too sudden, and the interest, thereafter, may be said to be in inverse ratio to the length of time the patient persists in remaining uncured. Nevertheless, the reflective surgeon knows that much depends upon the manner in which the after-treatment is carried out, and if he be careful and conscientious as well as intelligent, and have the welfare of his patient at heart, he will personally supervise every detail of the after-treatment of his case.

An operation is generally judged from the circumstances only which are present during its execution, and is considered successful merely with regard to the finding of suppuration or other suspected diseased focus, or, perhaps, according to the skill with which the incision, the flaps or the sutures are made, and the other manipulation procedures are carried out. Many an operation, therefore, which is to the surgeon and the spectators brilliant, is for the patient an ignominious failure. To no class of cases do these remarks more aptly apply than those of operation upon the various accessory sinuses of the nose. There are cases which will get well promptly, no doubt; but, as every specialist knows, there are others which drag on, not for months only, but for years, to the great chagrin of the physician and discomfort to the patient.

Killian,¹ who succeeded in curing 22 of 36 cases of antrum empyema (61%), found that the average length of time required to bring about a cure was 82.6 days; 5 cases, however, required more than 2 months, of which 2 were nearly 4 months, and 1 was under treatment over 2 years. In 5 other cases no recovery, but only an improvement, could be obtained, while in 9 others the antrum disease remained unchanged. Some of these cases had been under treatment many months, and 1 for more than 4 years.

The cause or causes of the delayed healing,—or as it may be, even of its ultimate failure,—if not owing either to some inherent, diathetic state of the patient's constitution, or to local causes, must be attributed to the insufficiency of the treatment. The latter may be either of the operation itself, or it may be of the treatment subsequent. It is

¹ *Month. Med. Week.*, 1892, XXXIX, 61, 70, 88.

superfluous to insist here upon the necessity of thoroughness in surgical procedure, the curetting of necrosed bone, the removal of all granulations or polyps, if they exist, and the eradication of all pathological conditions, which if left would maintain a suppurative process.

The conformation of these cavities, and the position and size of the surgical opening, are such as to make it improbable, if not impossible, that every vestige of disease has been removed. At any rate, we should proceed in the after-treatment of these cases not with a perfect satisfaction of having done all that needed to be done at the time of the operation, but with a mind open to conviction upon the observation of signs pointing to disease still present.

There are two general methods of local treatment which have been recommended for the nasal accessory suppurations; namely, the dry and the wet methods. The former was used and strongly recommended, especially for antrum empyema, by Hartman of Berlin.

His assistant, Friedlander, reported a number of cases treated by the dry method, and T. Melville Hardie and a few others have advocated its use in this country. Iodoform, boric acid and iodol are the favorite powders for insufflation by the partisans of this method.

Those who use the dry treatment in sinus suppurations have generally objected to irrigations, on the ground that they were insufficient, that they sometimes left in the cavity shreds of pus, and that in cases of abnormal septa, or where the opening was not at the lowest point of the sinus, some of the fluid would remain within the cavity and work harm. If there be objections to irrigation, they are not such, it seems to me, as are overcome by resorting to the use of powders instead of fluid. The former are far less capable than the latter of penetrating to all the recesses of the sinus, and I do not see that the long continuance of a fluid is any more to be feared than in the case of a powder, especially of iodoform, known to have under such circumstances toxic effects. Irrigation must be made effective by its thorough and industrious employment, and by having the patient, if need be, assume positions which will favor the outflow of the fluid which has been injected. It is certainly apparent that the nasal sinuses do not offer such favorable fields for the dry method of treatment as do other more accessible cavities of the body; as, for example, the middle ear. Here we have better control of the part; we can first thoroughly cleanse the cavity of all pus and detritus before applying the powder, and afterwards we can remove the latter, to prevent an over-accumulation and caking, as otherwise might occur.

As to the selection of an agent for irrigation, I think this is of no small consequence. Boric acid, bichloride, formaline and nitrate of silver are those most in vogue. Hajek uses boric-acid solutions, alternating with the occasional application of a 5 to 10% solution of silver nitrate in cases which prove particularly obstinate.

For the past twelve months I have made habitual use of protargol solutions in sinus suppurations, and have seen from its use better results than from any other agent. My attention was called to its applicability to these cases by an article by Alexander of Berlin² on the use of protargol in rhinolarngological practice. The class of cases in which he got the best results were those of antrum empyema. In 11 of the 16 cases in which he used protargol (5% aqueous solution preceded by sterile water) he obtained very successful results. Shortly after reading this article I had a patient come under my treatment who had bilateral frontal empyema. The patient was a woman, with history of nasal suppuration of six months' duration. As she was averse to any radical procedure, I undertook treatment by irrigating through the natural opening. I thought it a good opportunity to compare the effects of protargol with other irrigating fluids. Accordingly, I selected one side upon which to use exclusively a solution of protargol varying from 2 to occasionally 10%, while I used simultaneously upon the other boric acid, alternating occasionally with peroxide of hydrogen solution. The patient was treated every day for two weeks, then every other day. In six weeks the side upon which the protargol was used ceased to suppurate, while on the other side some pus could be always brought away with the irrigation. A month later the condition was the same, and having felt that sufficient time had been allowed to compare the relative worth of the different agents, I began to employ protargol on the still suppurating sinus, with the result of bringing about a lasting cure in fifteen days—using the solution daily.

The two following cases of antrum empyema will illustrate my principles of treatment subsequent to operation:

CASE I. Male, age forty-six, railroad conductor, had suffered from "catarrh on one side of the head" for about two years, the trouble begun seemingly in an attack of the gripe. He was compelled to use a half dozen handkerchiefs daily, and often brought away large clumps of yellowish secretion. In the morning on arising the trouble was always much aggravated. He sometimes suffered from neuralgic headaches. His head was nearly always stopped up, and he was subject to frequent attacks of coryza. Upon rhinoscopic examination I found the right nasal fossa normal, with the exception of some slight hypertrophy, while the left side was almost completely filled with polyps, springing apparently from the middle meatus. Pus was also visible, but its source could not be made out. In two or three sittings the polyps, six in all, were thoroughly removed, under cocaine, by the use of the cold snare. I then proceeded to discover which sinuses were interested in the suppuration. Illumination gave a positive result in that no reflex was produced on the left side corresponding to the situation of the antrum. With this encouragement I proceeded to make puncture through the

² Arch. f. Laryngol. u. Rhinol, Berlin, 1899, ix, 113-125.

inferior meatus, which resulted in bringing away a mass of exceedingly foul-smelling pus. In this case the first molar was missing. By means of a drill a large opening was made, the cavity thoroughly irrigated with boric-acid solution and packed with iodoform gauze. The latter was left *in situ* thirty-six hours. After its removal I inserted a small rubber drainage tube, and ordered the patient to irrigate every morning with sterile water. In the afternoons I used sometimes a 2% and sometimes a 5% solution of protargol. Every third day I applied a cotton swab saturated with a 20% solution in glycerine and water, which I rubbed thoroughly into all parts of the cavity. The secretion was really insignificant after the first week of treatment, and was altogether missing after the second. I, nevertheless, persisted in the treatment for three weeks longer, keeping the wound open for the purpose.

CASE II. Mrs. K., age thirty-five, first consulted me in July, 1900, in regard to some very annoying symptoms referable to her nose and throat. For some time past especially she had removed from the postnasal space every morning, on arising, large clumps of mucus, mixed with blood. She was accustomed also to frequently discharge bloody mucus anteriorly from the nose. Her nose was generally so obstructed as to prevent free nasal respiration; at nighttime she was afflicted with more or less oppressive breathing of an asthmatic character. She suffered often from pavor nocturnus, had severe frontal headaches, and was altogether greatly depressed mentally and physically by her suffering. In appearance she was anemic and somewhat poorly nourished, and made the impression of one who had neurasthenia. She had had measles, but very few other illnesses, either during her childhood or later life. She was the mother of three children, all of whom were generally healthy. There was no evidence of any serious systemic predisposition.

On rhinoscopic examination I found that, except for some narrowing on account of deviation of the septum to that side, the right nasal fossa was normal. On the left side, however, I saw occupying the space just above the inferior turbinate, and almost completely obstructing the nose, a large, rounded, rather smooth tumor, which pressed against the septum. On the use of an alkaline solution and of application of cocaine, a rather large, hardened crust of brownish yellow color was found to be occupying the surface of this tumor, which was directed towards the lateral wall. Upon its removal there escaped a few drops of creamy pus, mixed with blood. The sound showed the tumor to be somewhat resistant, as though having a bony wall. Although in some doubt as to whether we had here to do with only a simple bulbous middle turbinate, or one distended with mucus (hydrocele) or pus, or whether it might possibly be an enlarged ethmoidal bulla, I was sure that it was in some part responsible for the symptoms, on account of its size and pressure against the septum. I removed it then with cold wire, the tumor crushing as though it were

an eggshell. There escaped some, though not a large quantity, of lumpy, purulent matter and blood clots. I packed with iodoform gauze, and three days later, when the conditions were more favorable for examination, it was clear that we had to do with a suppurative in a bulbous-formed middle turbinate. The symptoms, especially the headache and the condition of the mind, were greatly relieved by this operation. The patient was seen daily for a while, and then every other day, the after-treatment consisting in cleaning with an alkaline douche, sometimes by syringing with boric-acid solution and the insufflation of aristol. Although the large crusts were not now so conspicuous, there still could always be seen a small amount of fresh pus to the outer side of the stump of the middle turbinate, having its source apparently about the junction of the middle turbinate and the bulla. Some days the patient would complain that the headache was present again with much of its former severity, and on examining the nose the explanation might be found in the existence of an obstructing plug at the location of the hiatus, for which I believe that the powder insufflated was in a large part responsible. On its removal immediate relief was generally experienced.

As, however, the suppurative in a measure continued, in spite of careful antiseptic treatment of the nose, it was evident that other cells of the ethmoid must be the seat of a suppurative inflammation. With a curette, therefore, an opening was made just outside of the middle turbinate into the middle ethmoidal cells, which were converted into one cavity, and considerable pus made its exit. The interior of the cells seemed to contain more or less granulation excrescences, which were destroyed as thoroughly as possible. The local treatment was carried on as before, with a more cautious use of the powder. In December, six months after the first and four months after the second operation, although on account of the relief of all subjective symptoms the patient regarded herself as cured, nevertheless, a few drops of pus could nearly always be discovered in the middle meatus.

As illumination was positive so far as the antrum was concerned, it seemed unnecessary to make an exploratory incision into the cavity. The frontal sinus could be easily sounded, and by means of canula irrigated. It was thus positively demonstrated that it was not the source of the pus. The pus must be, then, only from the ethmoid. Why did it not cease? The surgical measures had been unusually thorough, so far as opening of the cells was concerned, and there was no reason to suspect any specific tubercular or other cause on the part of the patient. I decided upon a change in the local treatment. The following plan was adopted: The nasal fossa was first cleansed as thoroughly as possible with an alkaline solution. This was followed with a solution of sterile water, which was applied by means of a fountain syringe with a slender nozzle attachment, which could be introduced well up into the wound cavity, accomplishing a very thorough irri-

gation of the cells. After this irrigation, a 40% glycerol-aqueous solution of protargol was applied on fine cotton swabs, which were carried into the depths of the cavity and rubbed with some force in every direction. Generally it was followed with a moderate amount of hemorrhage, accompanied, it could be seen, with small shreds, evidently of granulation.

From the time that this method of treatment was instituted, the secretion of pus noticeably diminished. It was persisted in for a month, the protargol application, sometimes of 20%, sometimes as high as 40%, being made about twice a week. Soon the suppuration had entirely ceased, and the nose, some two or three months after the treatment was discontinued, was found to be normal.

From the foregoing consideration, and our experience in general, we believe that the main points in the after-treatment of operation upon the nasal accessory sinuses may be stated as follows:

(1) Persistence of suppuration after operation is generally to be sought in one or several of the following causes: Syphilis or tuberculosis in the patient; incompleteness of the operation; presence of polyps or other obstructive condition in the nose; an empyema in a neighboring sinus; inadequacy of the local treatment.

(2) The after-treatment requires that not merely the antiseptic applications to the sinus, but that the patient's general state of health, must be investigated, and a careful supervision constantly maintained over the condition of the nasal fossa. The latter must be kept free of secretions, and polyps and other obstructing conditions removed whenever found.

(3) Empyema in a neighboring sinus, whose ostium is in close relation with the sinus operated on, will maintain the suppuration in the latter, unless cured. The frontal is frequently the cause of antrum disease, and the ethmoid the cause or the effect of disease of both the antrum and the frontal sinus.

(4) The cause for the continuance of the suppuration is attributable in many cases to the fact that all diseased tissue was not removed at the time of the operation. The irregularities and anomalies in the form of the sinus are often responsible for the failure to have reached every point where disease was located. In such cases enurettage of the sinuses must be repeated from time to time according to the indications.

(5) The institution of the proper local after-treatment is a matter of extreme importance. The so-called dry treatment is insufficient and unscientific, because it does not provide for the removal of the products of suppuration; only a mass of powder is superadded to a mass of decomposing debris, whereby an unabsorbable accumulation results, which may retard recovery and give rise to unpleasant symptoms.

(6) Frequent and thorough irrigations constitute the most rational method of treatment. Protargol in 2 to 5% solution has given the most

favorable results, especially when alternated with a thorough swabbing of all parts of the inner wall of the sinus with a 20 to 40% solution in water and glycerine.

(7) Immediately after operation the sinus should be packed with iodoform gauze, which remains in place from thirty-six to forty-eight hours. Subsequently the sinus is irrigated daily, and later on every other day. A thorough rubbing of the walls of the sinus is made with the solution mentioned every three, four or five days, according to individual requirements.

DIPHTHERIA AS A COMPLICATION OF MEASLES.

BY DAVID NEWTON BLAKELEY, M.D., BOSTON,

AND

FRED GRANT BURROWS, M.D., SAN FRANCISCO,

*Formerly Assistant Resident Physicians at the South
Department of the Boston City Hospital.*

MOST of the recent textbooks of medicine in the discussion of acute infectious diseases mention diphtheria—especially diphtheria of the larynx—as one of the rarer complications of measles. During our stay at the South Department we had an opportunity of seeing and treating a considerable number of patients who had this complication, and we present here a clinical study of such cases as came under our observation.

No attempt has been made to determine the frequency with which this combination of diseases occurs, as the available statistics are too imperfect to warrant conclusions; but it is by no means uncommon.¹ We wish rather to emphasize the extreme danger to the patient of this unfortunate condition, especially if diphtheria begins early in the course of measles. Neither shall we discuss in detail the course or treatment or complications of diphtheria, for these show no essential difference, whether it occurs alone or in connection with measles.

We are indebted to Dr. McCollom both for constant instruction in the diagnosis and treatment of contagious diseases and for encouragement and assistance in the preparation of this paper.

During a period of two and one-half years, from Feb. 1, 1898, to July 31, 1900, there were treated at the South Department of the Boston City Hospital 157 patients who had measles and diphtheria. Of these, 54, or 34%, died. (The death-rate in our uncomplicated diphtheria patients for practically the same period, was less than 13%.) Of the whole number, 82, or 52%, had laryngeal diphtheria, and of these 36, or 44%, died. In the 82 laryngeal cases there were 47 intubations, with a death-rate of 55%; in the remaining 35 not intubed the death-rate was 29%.

¹In the past few weeks, during the spring epidemic of measles, a large number of patients have been brought to the hospital ill with measles and diphtheria. Many of these have been in a moribund condition on arrival, and the death-rate among them has been extremely high. This condition prevails every year; and although these cases have not yet been tabulated, both the number of patients and the death-rate seem higher than in former years.

Putting these numbers into tabular form and comparing them with corresponding cases of diphtheria alone, the much greater proportion of laryngeal cases and the higher death-rate in each group is shown most strikingly:

TABLE I.—Table showing the number of cases of measles and diphtheria and the number of deaths.

	Deaths.	Death-rate.
Total number of cases.....157	54	34%
Number of laryngeal cases..... 82	36	44%
Number of intubations..... 47	25	53%
Number laryngeal not intubed 25	10	29%

TABLE II.—Table showing the number of cases of diphtheria at the South Department from Aug. 1, 1899, to July 31, 1900.

	Deaths.	Death-rate.
Total number of cases.....1,362	240	12.22%
Number of laryngeal cases..... 337	106	31.49%
Number of intubations..... 213	96	45.09%
Number laryngeal not intubed 124	10	8.00%

The laryngeal cases in our series, as already noted, were 52% of the whole number, while in diphtheria alone they were only 17%.

Diagnosis.—We have included in this series only those patients who had clinical evidence of diphtheria, and who (with a single exception noted later) were given antitoxin. Many other of our measles patients—at least 100—gave one or more positive cultures from nose or throat, but they showed no other symptoms of diphtheria, and did not receive antitoxin. Bacteriological examination confirmed the clinical diagnosis in most of the cases included in this study. From several of the patients who had laryngeal stenosis so marked as to require immediate intubation on arrival at the hospital, no cultures were made. Aside from these there were 10 others who had well-marked stenosis, but who gave no evidence of involvement of nose or pharynx, from whom no positive cultures were obtained. Undoubtedly if repeated examinations had been made, most, if not all, of these would have shown the presence of the bacilli of diphtheria, although in some severe laryngeal cases cultures from the pharynx are negative. In the practical diagnosis of laryngeal diphtheria when the question of treatment is involved, there is no time for bacteriological diagnosis, and in the great majority of instances it must be wholly disregarded.

The very large proportion of laryngeal cases in this series has already been mentioned. In the operative cases intubation relieved the stenosis in every instance. If the high death-rate is to be reduced it must be through earlier diagnosis, and consequently earlier administration of antitoxin.

Time of appearance of diphtheria.—The earlier in the course of measles diphtheria develops, the more serious it is. If we divide the duration of measles somewhat arbitrarily into three periods, we find a marked lowering of the death-rate in the later periods. In 55 of our patients diphtheria began before the eruption of measles reached its height; and of these 25, or 45%, died; in 68 diphtheria began during the disappearance of the eruption, and of these 25, or 37%, died; in the remaining 34 it began just after the eruption had

faded, but while pigmentation of the skin or desquamation was present, so that it was not safe to admit them to the diphtheria wards. Of these 34 only 4, or 12%, died. The cause of death in these 4 cases is worth noting: Toxemia, 1 (patient admitted with diphtheria well advanced; no antitoxin having been given, died on third day); bronchopneumonia, 1; lobar pneumonia, which preceded the diphtheria, 1; gangrenous stomatitis, 1.

Cause of death in 54 fatal cases.—Five were practically moribund at entrance, certainly in an utterly hopeless condition; all had severe laryngeal diphtheria requiring immediate intubation. One died on the operating table five minutes after reaching the hospital, and all 5 died within twenty-four hours of admission. Six others were in a nearly hopeless condition, and showed only temporary and slight relief from intubation and antitoxin, and died in less than forty-eight hours after admission.

TABLE III.—Table showing the cause of death in 54 cases of measles and diphtheria.

Diphtheria, early extension and toxemia.....	21
Diphtheria, late, nerve degeneration.....	10
Bronchopneumonia.....	15
Bronchopneumonia, with chronic tuberculosis of lung and bone and acute pericarditis.....	1
Gangrenous stomatitis.....	2
Uremia.....	2
Streptococcus infection.....	1
Triple infection: scarlatina, measles and diphtheria.....	2
	54

Of the two who had the triple infection, one, a girl of two years, was admitted with the eruption of scarlatina at its height, the eruption of measles just beginning to appear, and well-marked nasal diphtheria. In spite of this condition she lived eleven days after entrance. The other, a boy of four years, came with a fading eruption of measles, a bright eruption of scarlatina, and diphtheria involving nose, pharynx and larynx. He was given 17,000 units of antitoxin, and the diphtheritic membrane disappeared entirely, but he died of toxemia seven days after entrance. He did not come to intubation.

The boy whose death was due to streptococcus infection had a most unusual history. He was three years old. On the tenth day of his illness with measles he was reported to have had a "croupy cough." Four days later he came to the hospital with nasal and laryngeal diphtheria, requiring immediate intubation. The laryngeal tube was removed on the second day on account of its partial obstruction with mucus, but another was needed at once. Five days later the tube was again removed, but again it had to be reinserted. The patient was then allowed to wear the tube until he expelled it by coughing, ten days after its last insertion. A stomatitis began near the end of his second week in the hospital, and continued as long as he lived. Just before the tube was expelled there was evidence of air in the anterior mediastinum, and later of a suppurative necrotic process there. The boy went from bad to worse, and died a week later. The autopsy showed several superficial ulcers in the mouth and larynx,

¹ One had an abscess of the lung in addition.

one of the latter of which, in the upper posterior portion, had perforated. The esophagus, pericardium and pleura were intact, but all the connective tissue of the mediastinum had broken down, the fourth and fifth costal cartilages on both sides of the sternum were eroded, leaving the ends free, smooth and rounded, and there was complete solution of continuity of the sternum at the point of insertion of the fourth cartilages. Microscopic examination of the fluid found in this extensive cavity showed it to consist almost wholly of streptococci and cultures from the heart's blood; the liver and spleen gave abundant growths of the same organism. Culture from a small pustule under the periosteum of the frontal bone gave a growth of both streptococci and the bacilli of diphtheria, and those from the nasal fossae, the antra of Highmore, and the right middle ear showed the bacilli of diphtheria alone. There was also a bronchopneumonia involving a small area of the right lung. This is the only instance of perforation of the larynx at the South Department, and more than 1,000 patients have been intubed. The perforation in this case was undoubtedly due to the ulcerations caused by the streptococci.

That 31 of the 54 deaths were due to the diphtheritic poison alone again calls attention to the importance of an early diagnosis; and an early diagnosis is usually possible. That it is difficult in some cases we are aware, and in very exceptional cases it may be impossible. An obscure case may be mentioned as the only example of the latter class that we have seen. A woman of thirty years came to the hospital with a moderately severe attack of measles and no history of a previous attack. After the first three days she seemed not to improve, but there were no symptoms of localized disease except a paroxysmal cough, which was thought to be due to the measles process. On the seventh day of her stay she went into collapse and died in four hours. The autopsy showed a diphtheritic membrane involving the lower part of the larynx and the upper part of the trachea. Cultures from this membrane gave an abundant growth of the bacilli of diphtheria. No antitoxin had been given, as the presence of diphtheria had not been suspected. There had been no aphonia, no obstruction to breathing, no nasal occlusion, no involvement of the pharynx; in short, nothing upon which to base a diagnosis of diphtheria.

Two adult patients who recovered had interesting histories. A woman twenty-three years old came to the hospital with a severe first attack of measles. Shortly after her arrival her cough changed to a laryngeal type, and became worse rapidly, accompanied by a sharp rise of temperature. Antitoxin was given in 3,000 unit doses four times a day until she had received 36,000 units. Cultures from both nose and throat were positive. Coughing expelled a membranous cast of the larynx and part of the trachea, which showed distinctly the impressions made by four rings of the trachea. Complete aphonia persisted

for about three weeks; and when she went home after another three weeks, her voice, although strong, had not recovered its normal quality. She had a slow and tedious, but uninterrupted, convalescence, and there is not the slightest doubt but that prompt, and for that time bold, use of antitoxin, saved her life.

The other was a woman twenty-seven years old, who came to the hospital with pigmentation and desquamation of measles. The history was that the eruption of measles appeared two weeks before, and for four days previous to entrance there had been sore throat and some difficulty in breathing. The pharynx was congested, but showed no diphtheritic membrane. Two hours after admission she was intubed, with complete relief of stenosis. She wore the tube twenty-eight hours and then expelled it while coughing, but thirty minutes later returning dyspnea required its reinsertion. This time she wore the tube only four hours. Omitting details, we may add that the tube was inserted ten times, and each time afforded complete relief of dyspnea and great satisfaction to the patient. She told the nurse that her one fear was that some time the doctors might not come quickly enough when the tube was needed. The intervals between expulsion of the tube and its reinsertion varied from a half hour to six hours, and it was expelled finally ninety-five hours after its first introduction. This patient received 27,000 units of antitoxin. Cultures from the throat were positive. Her voice recovered its natural tone in three weeks. On the sixteenth and seventeenth days there was more or less arthralgia, and for a few days the heart's action was rapid and slightly irregular. Aside from this her convalescence was uneventful, and she was discharged well thirty-eight days after admission. Probably in private practice tracheotomy would have been necessary, on account of the frequency with which the tube was coughed up.

Suggestions.—The existence of diphtheria or the possibility of its onset should be considered in every case of measles; for the congestion of the mucous membrane of the tonsils and air passages caused by the measles process renders it especially vulnerable and an unusually good field for the growth of the bacilli of diphtheria. Nasal obstruction or laryngeal obstruction arising during an attack of measles almost certainly means diphtheria. If the initial fever of measles disappears, and there is later a sudden rise of temperature, or if the cough of measles becomes "brassy" in quality or paroxysmal in character and is accompanied by an elevated temperature, the possibility of diphtheria must be considered. If the initial fever persists and aphonia develops, diphtheria is probably the cause. Uncomplicated measles in very exceptional cases may produce aphonia, but aphonia with or without a rise of temperature usually means diphtheria, and aphonia with a rise of temperature always means diphtheria. Uncomplicated measles is usually accompanied by a more or less abundant serous nasal discharge; but if this discharge becomes purulent or muco-purulent in

character, or if there is partial or complete nasal obstruction accompanied by a glairy discharge, diphtheria should be suspected and cultures taken. But if the patient's general condition in addition to the above symptoms suggests diphtheria, antitoxin should be given at once without awaiting the results of cultures. In all obscure cases the patient should be given the benefit of the doubt — *and antitoxin*.

If an epidemic of measles occurs in an institution in which large numbers of children are cared for, each child as it develops measles should be given an immunizing dose of antitoxin, and all inmates of the institution should be carefully watched for the earliest symptoms of either disease.

An early diagnosis and prompt treatment of the oncoming diphtheria may lower the present death-rate, but diphtheria arising during an attack of measles adds very much to the gravity of the patient's condition. There is no combination of the acute infectious diseases in which the death-rate reaches so high a point as in that of measles and diphtheria.

ADHESIVE PLASTER STRAPPING IN UMBILICAL HERNIA.

BY J. C. HUBBARD, M.D., BOSTON,

Surgeon to Out Patients, Carney Hospital; Assistant to Out Patients, Infants' Hospital.

Umbilical hernia of varying size is of very common occurrence in infants. The frequency is explained perhaps by the following fact (Minot's "Embryology"): "In the human embryo of 10 mm., the part of the intestine attached to the yolkstalk begins to enter the umbilical cord, and thereafter the length of the intestine, which leaves the body cavity proper and lodges in the colon of the yolkstalk increases until perhaps the tenth week. Thereafter it is gradually withdrawn into the abdomen. The cause of this temporary umbilical hernia is believed to be the strain produced by the yolk-sac." If for any reason this return of the intestine from the cord into the abdominal cavity is delayed, a hernia may be present at birth.

Of the many cases treated during the last few years at the Infants' Hospital I have been able to find fairly satisfactory records of 66 cases. Among these are a few where the hernia was not strictly umbilical, but through a separation of the recti muscles just above or below the navel. As the treatment is the same as for a true umbilical hernia, it seems fair to include them in the series. The treatment in all cases has been by strapping with adhesive plaster, with at times the addition of a pad over the hernia. It is useless to try to compare the result of treatment with pad to that without, for as a case ordinarily extended beyond the service of one surgeon the treatment was not consistent throughout.

Of the 66 cases 28 are specifically stated in the records to have been cured; that is, no bulging, ring closed, healed, etc. The ages of these 28

cured cases varied from 5 weeks to 5 years and 2 months.

2 months or under.....	14
2 to 4 months.....	8
Over 4 months.....	6

The duration of treatment lasted from 3 to 47 weeks. By comparing the length of time necessary for a cure with the age, rather interesting results are shown.

Duration of treatment in cases of

2 months or under.....	3 to 26 weeks; average 13.65
2 to 4 months.....	6 to 47 weeks; average 18.12
Over 4 months.....	6 to 46 weeks; average 25.83

From these figures it follows that the younger the baby the better the prognosis for a speedy cure.

The size of the ring appears to play a minor part. In 21 cases the size of the ring is mentioned. Those compared to the little finger, 13 cases, with an average duration of treatment of 18.6 weeks. Those larger than the little finger, 8 cases, with an average treatment of 17.5 weeks. The character of the ring I believe to be of greater importance than its size. The notes of the cases, however, are not detailed enough on this point to permit one to draw definite conclusions. I believe, however, that a ring which has a sharp, distinct outline, will close more slowly than one where it is indefinite and flabby.

The hernia varied in size from "very small," pea, to an apple. The size of the hernia, except in exceptional cases, seems to have little bearing on the prognosis. In 20 cases I have records of the size. In 10 it was as large, or larger, than a walnut, giving an average of 17.2 weeks for treatment, while in 10 other cases, where it was smaller, the average was 19.3 weeks.

The age of the baby, then, seems to be of the greatest importance in regard to the prognosis.

There were 32 cases which were still under treatment at the last note, and none of them was treated less than three weeks. Of these 32, 8 were stated specifically to be improving, and nothing was noted about the remaining 24 to lead me to suppose that they were not progressing well. Not one of these cases was treated for any greater length of time than the cured cases, the longest being only 31 weeks. It seems to me fair, therefore, to suppose that these cases would have been cured had the treatment been persisted in. This makes a series of 60 cases in which the adhesive plaster strap seems to have been satisfactory.

There are 3 cases of recurrence.

No. 23,382. A baby of 8 months, with a ring admitting the tip of the little finger. After a treatment of 22 weeks there was no bulging and the strap was omitted. Two weeks later the baby returned with a slight bulging. Eleven weeks later the hernia had not disappeared, though it was very small.

No. 24,178. A baby of 7 weeks, with a hernia the size of a cherry, and a ring which admitted the tip of the little finger. Was apparently cured in 10 weeks. One week later the hernia reappeared, and after 23 weeks it was the size of

a crow's egg, and the ring would then admit the tip of the little finger. The child then disappeared from the out-patient department.

No. 22,324. Six weeks old. Hernia the size of a grape; umbilical polyp present. After conscientious treatment of 13 months, during which the hernia was apparently healed only to recur, the ring admitted the tip of the little finger, and the baby was then operated on.

In three cases where the treatment was given up after a few strappings, a subsequent note mentions the condition of the hernia. In 2, after 11 and 27 months respectively, the hernia had decreased in size, while in a third after 3 years it was decidedly larger.

An umbilical polyp, in addition to the hernia, was noted 6 times among the 66 cases.

CONCLUSIONS.

An umbilical hernia is ordinarily cured by adhesive plaster strapping. The younger the child the earlier the cure is to be expected. The fear of recurrence or failure is slight.

Clinical Department.

A CASE OF NASAL DEFORMITY FROM A MEDIAN FURROW, CORRECTED BY SUBCUTANEOUS IMPLANTATION OF A PORTION OF THE SEPTAL CARTILAGE.

BY J. L. GOODALE, M.D., BOSTON.

THE patient, a woman forty-five years of age, came to the throat clinic at the Massachusetts General Hospital in Dr. Clark's service in the summer of 1900, for the relief of a conspicuous nasal deformity, characterized by a median furrow, or depression, on the bridge, extending from the lower border of the nasal bones to the tip of the nose.

Examination showed this furrow to be due to the presence of abnormally well-developed alae, and to the fact that the triangular cartilage failed to extend upward in front to the level of the alae. On pressing the finger along the bridge of the nose it was possible to recognize the inner edge of each ala as a sharply defined, firm border. Between these borders the upper margin of the triangular cartilage was palpable only on deep pressure.

An attempt was made first in August, 1900, to reduce the alae to the level of the triangular cartilage by incisions through each ala, made through its inferior surface upward nearly to the overlying external skin. The elasticity of each ala was thus destroyed, and by lateral pressure directed inward they could be approximated so as to obliterate the median furrow. An external splint was then applied and worn for a month constantly. It became, however, immediately apparent upon removal of the splint that the alae had not been brought permanently into their new position, as they soon separated, with the result of again rendering conspicuous the median furrow.

In May, 1901, the writer made another attempt to correct the deformity by implanting subcutaneously a portion of cartilage below the furrow. The operation was carried out in the following manner: The patient was etherized, and a tenotomy knife was introduced through the skin of the roof of the left nasal vestibule, immediately anterior to the membrano-cutaneous junction, and a sweeping incision carried upward under the skin of the external furrow, in such a manner as to create a chamber, bordered above by the skin of the furrow, below by the upper margin of the triangular cartilage and the adjacent mucous membrane. An oblong piece of septal cartilage was dissected out from the right nasal passage just above the vomer. Care was taken to avoid injuring the mucous membrane of the left side of the septum adjoining the excised cartilage, and no perforation was created. The excised piece of cartilage measured about 2 cm. in length by 7 mm. in breadth. Its edges were carefully and quickly trimmed with scissors, and it was washed for a moment in boiled water. It was then introduced into the subcutaneous chamber which had been prepared for it, and adjusted into position by external manipulation, with the result of lifting the overlying skin, and completely obliterating the furrow. The incision through the roof of the left nasal vestibule was then closed with a silk suture. Moderate swelling and discomfort were present during the next twenty-four hours. In three days the swelling had gone down considerably, and there was no spontaneous pain. Slight tenderness was present on pressing the external skin. The transported piece of cartilage could be felt on external palpation of the nose. There was no evidence of infection at this time, or subsequently.

Three months later examination showed the transported cartilage to be in good position, and firmly united to the overlying skin. There was no return of the median furrow. The region of the septum on the right side from which the cartilage had been removed, was covered with smooth mucous membrane. The line of the incision in the left vestibule was not discoverable on inspection.

Medical Progress.

REPORT ON PROGRESS IN OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

PLACENTA PREVIA.

SMYLY, formerly master of the Rotunda Hospital, in a lecture delivered before the Medical Faculty at Birmingham on "The Lower Uterine Segment and the Contraction Ring," says of placenta previa:

"The lower uterine segment plays a most important part in all cases of placenta previa, for not only is the growth of the placenta in this part of the uterus the essential feature of the condition, but its protection from injury during parturition

is the principal duty of the medical attendant. How the placenta comes to be developed in this part of the uterus is an interesting question, but it is most probably due to a low implantation of the ovum and to the involvement of the decidua vera and reflexa in its formation; and that these conditions result from endometritis is almost certain, since placenta previa most frequently occurs in women who have borne many children in quick succession, who have had abortions, and who have suffered from menorrhagia and leucorrhœa, or in other words, who are suffering from chronic metritis. When the ovum enters the uterus it probably adheres to a part of the mucous membrane prepared for its reception, or slips into a cleft in that membrane; but when the membrane is rendered unsuitable by disease in that part it becomes attached elsewhere, probably lower down, and if this part be not quite healthy the serotina develops an imperfect placenta insufficient for the needs of the fetus. The placental formation, therefore, spreads further afield, involving the reflexa or vera, or both. In this way it may spread not only into the lower segment of the uterus, but even into the cervix; and cases have been reported by von Weiss and Ponfick in which it extended to the os externum.

"The development of the placenta upon the decidua reflexa is especially interesting, and explains a number of facts observed in these cases which would otherwise be unintelligible. For example, the wide area covered and the extreme thinness often observable in these placenta, and the position of the placenta over the os uteri; but they are easily understood when we remember the expansion of the decidua reflexa during the growth of the ovum, and its union with the vera in the lower segment. It also explains some remarkable cases recently published, in which, though the placenta could be distinctly felt within the os, there was no hemorrhage during labor. In some cases of uterine catarrh the reflexa fails to unite with the vera, and if this occurred where the placenta had developed upon the former, there would be no vascular connection with the lower segment, and consequently no hemorrhage.

"In the vast majority of cases, however, the reflexa and vera unite, and the placenta derives its vascular supply from the lower segment; and as it is only a specially modified portion of the fetal envelope when situated at the lower pole of the ovum, it behaves as a part of the membranes; that is to say, it is separated from its attachments as far up as the contraction ring, just as they would be under similar circumstances. The vessels of the placental site are thus torn through, and violent hemorrhage is the result. These hemorrhages usually commence about the seventh or eighth month of pregnancy, slight at first, but recurring with increasing severity. In some cases, however, there is no loss of blood till labor sets in, and these are generally cases of complete placenta previa, and are probably cases in which, owing to the abnormal resistance, no lower segment is formed during pregnancy. Hemorrhage is the

only symptom and the chief danger in placenta previa, and to arrest or control it is the chief duty of the medical attendant; and in order to do so successfully he must carefully consider the conditions which are present.

"I have often been told by practitioners that they were astonished at the dilatability of the os in cases of placenta previa, and the ease with which the fetus could be extracted, but I think it would be more correct to say that it is surprising how easily the cervix and lower segment of the uterus can be lacerated; and we should remember that the extraction of the fetus is only opposed by a thin and easily ruptured portion of the uterus, still further weakened by the placental site, and so highly vascular that its laceration would entail a hemorrhage difficult or impossible to control. It is not easy to understand how hemorrhage from such a placental site is ever controlled by nature. Hofmeir says that the uterine artery gives off no branches directly to the lower segment, and that the vessels going to it pass through the upper part, and are, therefore, constricted when it contracts; but this has been denied by Davidson and Lohs, and if they are correct the vessels can only be closed by the formation of thrombi.

"The high mortality which attends placenta previa is, I believe, due more to a disregard of these important facts and consequent improper treatment than to the inherent dangers of this complication. The chief causes of death have been hemorrhage, septic infection and entrances of air into the veins. Hemorrhage has proved fatal either from prompt assistance not being at hand or from misdirected efforts to control it; and amongst the latter I would include the extraction of the child through an undilated os, and the use of the vaginal plug, which imperfectly controls the hemorrhage, and by prolonging the process materially increases the total loss. Its use also increases the risk of septic infection.

"The method introduced by Dr. Robert Barnes is more scientific and much more successful than either version and extraction or the vaginal plug; but the separation of the placenta, entailing as it does unnecessary fingering of the placental site, is contrary to our modern views of aseptic midwifery. The modern treatment is simple and effective, and eliminates almost all the risks. It consists in rupturing the membranes and bringing a foot down at the earliest possible moment; the body of child pressing on the placenta acts as an efficient and aseptic plug, and the membranes being ruptured no further separation takes place. The great advantages of this method are that it completely arrests the hemorrhage; that it involves but slight manual interference, and that such manipulations as are necessary are conducted within the membranes; that the child is not extracted, but its expulsion is left to nature, so that the cervix is not torn; the uterus remains firmly retracted, and the placental vessels are securely thrombosed.

"In carrying out the procedure the patient should

be placed upon her back, since the lateral position usually adopted in this country favors the entrance of air into the veins. If the lower extremity does not present, the child must of course be turned, and preferably by external manipulation, but failing this, by Braxton Hicks' method of bipolar version. The vagina should be rendered as aseptic as possible before the introduction of the hand, but no poisonous antiseptic, such as corrosive sublimate or carbolic acid should be used, since the close proximity of open vessels renders their use peculiarly dangerous. Very rarely is traction on the foot required, and then only sufficient to control hemorrhage. In no case should the child be extracted.

"The comparative merits of the different methods of treatment which I have mentioned are no longer open to discussion, but are established by ample statistical proofs, and a definite mortality attends the employment of each. In a recent communication Dr. Strassmann says that the mortality in the Charité Hospital, Berlin, in cases of placenta previa treated by version, by abdominal manipulation,—bringing down a foot and leaving the expulsion to nature, was only 1.45%. Where the same method was adopted, but with bipolar version, 8.6%, and where version was followed by extraction, 20%. The results in the Rotunda Hospital, as published in Dr. Lyle's recent paper,¹ showed that out of 76 cases admitted during the last ten years, 1 which was treated by version and extraction died of hemorrhage. Amongst the remaining 75 there were 3 deaths, a mortality of 4%, but not one of these was from hemorrhage; 2 were septic on admission, and 1 died from pulmonary embolism on the tenth day. There are two conditions in which the treatment which I have outlined is not advisable: (1) where the head has passed the os and can be more safely delivered by forceps; and (2) where the os is not sufficiently dilated to admit two fingers. In such cases I should advise the plug; but they must be exceedingly rare, for I have never met with one myself, and Dr. Strassmann says that in the Charité the plug was never required."

THE TOXEMIA OF PREGNANCY.

Marx² says the toxemia of pregnancy is a condition neither generally recognized nor understood; that it is a disturbance of the metabolism in which, simultaneously with chemical changes in the urine, there appear certain well-marked nervous symptoms that, when not actively treated, inevitably give rise to eclamptic convulsions; that the manifest albuminurias of pregnancy do not enter into this category; that is, not those cases dependent upon acute nephritic changes with such characteristic evidences found in the urine as albumin and casts, but it includes those cases in which the symptoms of a true nephritis are absent. Neither albumin nor casts are present; there is nothing but a progressive diminution of the solid constituents, and our standard of measurement is the amount of

urea excreted. In the typical cases of nephritis gravidarum it is not the amount of albumin that should be our index as to when to induce labor, but always the amount of urea excreted. He refrains from active interference so long as there is a good average urea elimination, even with large amounts of albumin in the urine, while on the other hand women apparently well and without the faintest trace of albumin, have been suddenly attacked with fatal eclampsia, in which a timely urea examination might have saved the woman. The regular and methodical examination for urea in all cases he regards as of primary importance to the examination for albumin and casts.

The conclusions he advances are:

(1) Toxemia of pregnancy is a complex condition depending on more than one factor.

(2) Many women go to term with albuminuria, without symptoms referable to a toxemia. When such symptoms arise they are not caused by the albumin present, but by faulty urea secretion.

(3) In the most desperate and malignant cases there is found neither albumin nor casts.

(4) Urea is always found markedly diminished in the so-called toxemias of pregnancy, or urinemias.

(5) Finally, I make a strong plea for a regular and methodical course of urea estimation in all cases of toxemia, or for the relegation to secondary importance of the time-honored examination for albumin.

(6) Progressive diminution of urea excretion, with or without albuminuria, is the sole indication for the induction of premature labor, which is especially indicated when conscientious medical treatment fails.

FALSE PREGNANCY AND MYXEDEMA.

Davis³ under the above title describes several puzzling cases of false pregnancy, one in which criminal assault was charged and one complicated by myxedema. He says that the circumstances under which they arise are calculated to mislead the practitioner, as the patient's positive assertion, her accurate description of symptoms, the abdominal tumor, indefinite mammary changes, and the preparations made for the expected confinement, render an error easy. The task of undecieving a woman strongly desirous of offspring is a thankless one; but the resentment which such a person feels when allowed to go to a supposed labor must be most annoying to the physician and detrimental to his reputation. Accusation alleging criminal assault by innocent persons is not infrequently made by patients who assert that they are pregnant. In diagnosing false pregnancy the physician must not be misled by ectopic gestation. It is possible for a patient to have an ectopic embryo, to manifest many of the signs of pregnancy, and yet, upon vaginal examination, to be pronounced in the non-pregnant state. In such a case examination under ether is of especial value.

Examinations to determine the existence of true pregnancy or false should invariably be made in

¹ British Medical Journal, May 18, 1901, p. 1190.

² Medical Record, April 20, 1901.

³ Philadelphia Medical Journal, March 9, 1901, p. 437.

the presence of a third person, and whenever possible, with the co-operation of a trusted assistant. In cases where an abdominal tumor has been present it is well to demonstrate to the patient's husband or relative the fact that the tumor disappears under ether, and bimanual examination proves the womb to be empty. If the supposed condition of pregnancy has become known, the patient may be greatly mortified to have the true condition announced. The physician can act the part of a friend to these patients by protecting them from gossip, and he should absolutely avoid statements of any kind regarding the case. It is a mistake to allow patients having false pregnancy to go with an examination and without treatment. The source of nervous irritation giving rise to the supposed pregnancy should be removed, the nutrition of the patient stimulated as vigorously as possible, and her general condition brought as nearly to the normal as the circumstances permit. The examination may reveal some pelvic disease, which must be dealt with by operative or other treatment. Rest in bed, massage, electrical treatment and a selected diet are indicated.

(To be continued.)

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

PROCEEDINGS OF THE FIFTY-SECOND ANNUAL MEETING, HELD AT ST. PAUL, MINN., JUNE 4-7, 1901.

SECTION ON PRACTICE OF MEDICINE.

(Concluded from No. 3, p. 74.)

THIRD DAY.

COUGHING A MEANS OF DISSEMINATING TUBERCLE BACILLI; A STUDY OF FIFTY CASES.

DR. L. NAPOLEON BOSTON of Philadelphia read this paper. The conditions which prompted him to investigate as to the degree with which tubercle bacilli were disseminated by coughing were: (1) That from the mouth of an inmate of the Philadelphia Hospital he noticed that fine droplets of sputum were ejected with each act of coughing, and (2) that coughing was often excited by eating. He thought that this was a potent factor in the dissemination of tuberculosis, and possibly explained why patients in the early stages of tuberculosis did badly in this institution, where every possible attention was given to ventilation, light, and the disinfection of sputa. The spray was collected by a mask, the essential features of which were that it was made from German silver wire, one piece of which was moulded to fit the face, resting on the nose, cheeks and chin. To prevent irritation it was covered with rubber tubing. Suspended from this wire was a second oblong portion provided with two lateral grooves, which served to accommodate two microscopic slides. When the mask was in position the slides were held directly in front of the mouth and nose,

at a point three inches distant from the lips. The piece is held in position by an elastic band. The patients were allowed to wear the mask with clean slides from one to one and a half hours, and only during the day, when they coughed less; they were instructed to remove it during a paroxysm of coughing. Of the 50 specimens obtained from 50 patients, 38 were found to contain tubercle bacilli in variable numbers, 4 to 6 being the smallest found in any specimen. Of the 12 negative cases explanations were given. In 3 of these the patients were very weak, and did not talk while wearing the mask. It was shown that the secretions of the mouth and respiratory tract are atomized and given off in the form of spray, in both health and disease, and that this spray contains bacteria and other cellular elements known to be common to such secretions; and therefore it was reasonable to suppose that many other diseases were conveyed by this medium, and that the work accomplished through the study of consumptives is but a step in a direction which bids fair to modify the hygiene of infection. Conditions affecting these organs, and consequently their secretions, must of necessity be spread in this way; especially was this true of diphtheria, tonsillitis, and possibly smallpox, measles, scarlet fever, whooping cough, mumps, etc. Droplets alighting on clothing must serve as a favorable means to convey the disease from house to house; and that men may become infected by the spray projected by horses, cows, etc., and other domestic animals suffering from glanders, tuberculosis, and similar affections, appears to be highly probable.

GENITO-URINARY EXAMINATION BY THE GENERAL PRACTITIONER; WITH DEMONSTRATIONS ON PATIENT.

DR. FERD. C. VALENTINE of New York presented this paper, and made practical demonstrations upon patients before a large and interested audience. It was his desire (1) that all genito-urinary examinations should be painless; (2) the operator should conduct no examinations unless his arms are bared to above the elbows, and his clothing protected by a gown and apron; (3) during every genito-urinary examination the physician should protect his eyes with spectacles (not eye-glasses), even if he has no visual defect; (4) ideal examinations are made in the morning, before the patient has passed his urine; (5) the amount and character of a urethral discharge can be estimated only by correct technique in expressing the urethral contents; (6) the color of the urethral discharge changes when it dries upon the patient's garments; (7) the meatus should be cleaned before passing urine for examination; (8) the manner of urinating is often pathognomonic; (9) the epithelium found in the urine is indicative of the locality of the lesion; (10) examination of the urethral adnexa is a necessary part of the steps for complete diagnosis; (11) no instrumental ingression of the urethra should be attempted without most thorough efforts at rendering it

aseptic; (12) the technique of striving at urethral asepsis is neither complicated nor difficult; (13) the soft bougie-à-boule is the only instrument that can be used for tactile exploration of the urethra; it is a purely diagnostic instrument; the rigid sound is wholly a therapeutic instrument; (14) urethroscopy with a modern instrument is not difficult; (15) the general practitioner is perfectly competent to examine the vast majority of genito-urinary cases; (16) such examinations only exceptionally require extraordinary skill or a large armamentarium; (17) the pathology of genito-urinary diseases in nowise differs from that of other affections.

CLINICAL OBSERVATIONS IN PERICARDITIS.

DR. FRANK BILLINGS of Chicago stated that pericarditis is essentially a secondary process occurring in the course of some general infection. The local manifestations may be so slight as to escape observation, and the general symptoms to which the local disease may give rise may be obscured by the constitutional disturbance of the primary general infections. Therefore it often happens that the diagnosis of pericarditis is more often made at autopsy than clinically. The histories of several cases were given which illustrated pericarditis of several varieties, etiologically considered, which presented clinically, as far as the heart and pericardium were concerned, practically the same signs and symptoms. The cases further illustrated the importance of the three cardinal signs of pericarditis; namely, the pericardial friction rub, the form or outline of the precordial dulness, and the position of the apex beat, especially in relation to the left border of precordial dulness. The pericardial friction rub is doubtless present in every case of pericarditis in some period of its course. It is practically the sole local sign in plastic pericarditis. It may not be recognized in pericarditis with effusion, although it is probably present in every case at an early stage of the disease, and in cases of recovery after the disappearance of the effusion; it may be present, too, during the stage of effusion. The form of this outline of dulness in pericardial effusion is also characteristic. The pear-shaped outline with the base downward; the dulness, even in the early stage of effusion, in the fifth right interspace, close to the sternum, obliterating the resonant angle formed by the lung, heart and liver; the dulness over the sternum extending to or above the second rib, together with the outline of the left border dulness, are easily recognized and are almost pathognomonic. It is also true that a greatly enlarged heart, with all the chambers dilated from myocarditis and a weak diffusible apex beat, may present an outline of dulness which so nearly resembles that of pericarditis with effusion that it may be impossible to differentiate, without puncture, between them.

The location of the apex beat in pericarditis with effusion is characteristic. When it is perceptible it will always be found that the left border

of dulness is relatively far removed from it as in no other cardiac disease. In large effusions it is likely to be obscured, and at other times the right ventricle may strike the chest wall in the region of the nipple, or undulatory waves may be seen as the only evidence of the heart beat against the chest wall. However, it matters not how the apex beat or the impulse of some other part of the heart against the chest wall be ascertained, it will be found that the point of contact of the heart against the chest wall is always relatively far removed from the left border of precordial dulness as compared with the relations of the apex beat to the left border dulness in all other conditions. The relatively rapid respiration and dyspnea, the signs of compression of the left lung evinced by the left subscapular dulness and bronchial breathing, the rapid heart action, the pulsus paradoxus and the asymmetry in size of the pulse of the radials, the irregular type of temperature, the paralysis of the left recurrent laryngeal nerve, the unequal pupils, the disturbed mental state of the patient, and still other phenomena, are signs and symptoms not so characteristic as the three cardinal signs first named, but are important and significant when present. Pericarditis is an easily recognized condition. Frequent careful systematic examination of the precordium should be made in all infectious diseases, and if this is done by the clinician, pericarditis will not escape him.

PATHOLOGY AND PATHOGENESIS OF PERICARDITIS.

DR. JOS. McFARLAND of Philadelphia read this paper. He said that it is more frequent in men than in women, since probably they were more exposed to its causes. Concerning the relative frequency, authors vary. It is customary to divide the cases into those which are primary, or idiopathic, and those which are secondary, or metastatic. Traumatism as a cause of pericarditis is of importance only as it affords an avenue of entrance for micro-organisms, or produces conditions favorable to their colonization in the tissues. Lymphogenous metastasis may occur in many of the local affections in which no actual traumatic lesions existed. In this manner disease of the mediastinum, pleura, etc., may occasion pericarditis. Hematogenous metastasis is seen in nearly all of the infectious diseases, but especially in rheumatism, pyemia, septicemia, pneumonia, chorea, scarlatina, etc. There is no specific micro-organism of pericarditis. Breitung collected 324 cases of pericarditis among the autopsies of the Berlin Charité between the years 1866 and 1876, and found them distributed as follows: Pericarditis serofibrinosa, 108; pericarditis hemorrhagica, 30; pericarditis purulenta, 24; pericarditis tuberculosa denteropathia, 24; pericarditis tuberculosa idiopathica, 2; pericarditis adhesiva partialis, 111; pericarditis adhesiva totalis, 23; pericarditis ossificans, 2. It is an error to think of these names as referring to distinct forms of the disease; they are for the most part stages of the same process. In 39 cases studied by Louis the exudates were

serous, 9; purulent, 7; serosanguinolent, 10; sero-purulent, 13.

The effect of pericarditis upon the heart is of great importance; no considerable disease of the pericardium is possible without involvement of the heart. The superficial layers of muscular fibres usually show cloudy swelling, later hyaline or fatty degeneration. In cases with purulent exudate the pus may also gradually work its way between the muscular bundles. The changes that thus take place during the height of the disease predispose to acute dilation of the heart, and a fatal termination of the disease may thus be brought about. If this does not occur, and if the patient recovers from the pericarditis, the regenerative cicatricial processes that go on lead to fibroid interstitial changes in the wall of the heart.

THE GENERAL ETIOLOGY OF PERICARDITIS.

ROBERT B. PREBLE of Chicago read a paper with this title, from which he made the following conclusions: (1) Cases of acute pericarditis clinically primary occur, but are rare. (2) Diseases to which pericarditis appears as a complication are in order of their frequency: pneumonia, 34%; rheumatism, 23.36%; chronic diffuse nephritis, 11.2%; tuberculosis, 10%; sepsis, 4.7%; aneurism, 2.6%; typhoid, 1.7%. (3) The more extensive a pneumonia, the greater the danger of this complication. (4) The danger is somewhat greater with left than with right side pneumonia. (5) Where only one lobe is involved, the danger is least with a right upper lobed pneumonia and greatest with a right middle or left upper lobed pneumonia. (6) With a unilobar pneumonia the chances of a pericarditis are 1 in 40; with a bilobar or trilobar, 1 in 10; with a quadrilobar, 1 in 5, and with a pneumonia of the entire left lung, 1 in 8. (7) The mortality of pneumonia with pericarditis is 92.4%. (8) Rheumatic pericarditis is complicated by endocarditis in 60% of the cases; that is, three to four times the normal rate of cases of endocarditis. (9) The danger of pericarditis complicating rheumatism is the greater the younger the individual, and is somewhat greater with males than with females. (10) So far as acute pericarditis is concerned, the site and extent of the endocarditis is apparently of no importance. (11) Pericarditis appears as a complication of all forms of nephritis, but particularly the chronic diffuse nephritis with contraction. (12) It is an extremely ominous thing, for 22—that is, 81.6% of the cases—died. (13) It is still uncertain whether the pericarditis is toxic or infectious. (14) Tuberculosis excites only one-tenth of the cases; and when one considers the extreme frequency of tuberculosis, pericarditis must be regarded as a rare complication. (15) Pericarditis may be a part of a generalized acute tuberculosis, but is more often the result of a chronic tuberculosis of the lungs or mediastinal glands. (16) Sepsis and pyemia contribute a very considerable number of cases of pericarditis; the primary focus may be remote or close to the pericardium.

(17) Aneurism of the aorta causes 2.6% of all the cases, a very high figure when one recalls the comparative infrequency of aneurism. (18) Typhoid fever, which is rarely complicated by inflammation of the serous membranes, other than the peritoneum, contributed 4 cases, which is 1.7%. (19) The cases of obliteration of the pericardium are due to the following causes, arranged in order of importance: endocarditis, tuberculosis, chronic nephritis, aneurism. (20) More than one-half of the cases in which the cause was clear were due to endocarditis, or rather to some cause common to both the endo- and the pericarditis, and more than one-half of these cases showed a combined aortic and mitral endocarditis. (21) Relatively six times as many cases of obliteration of the pericardium occur with aortic and mitral endocarditis as with either lesion single. (22) Tuberculosis causes but few cases of obliterative pericarditis. (23) Pericarditis accompanying nephritis is not always fatal, but may apparently end in the formation of adhesions.

ADHERENT PERICARDIUM.

ROBERT H. BABCOCK of Chicago spoke on this subject. He stated that adherent pericardium was encountered in two forms (1) in which adhesions between the two layers of the sac, but not of the pericardium to the surrounding parts, pericarditis interna; and (2) the pericardium adherent to the epicardium, and also to the neighboring structures, pericarditis interna et externa. He then considered the effects on the heart and general circulation, with special consideration of its effect on the liver, leading to the so-called pseudo-atrophic cirrhoses of the liver. Diagnosis in the first form mentioned was usually very difficult and often impossible. He then made a cursory enumeration of signs. If the adhesions are limited to the two layers of the sac, and if they are unassociated with valvular disease, the result may be only hypertrophy of the heart, and the circulation will be carried on adequately, and no subjective symptoms are produced. If pericarditis leads to adhesions while the heart is in dilation from endocarditis, then the heart is prevented from ultimately returning to its previous size, and the symptoms are likely to occur; namely, those due to stasis. In the second form mentioned the diagnosis was often easy, in consequence of the signs resulting from the pulling of the adhesions upon the surrounding soft parts.

TUBERCULOUS PERICARDITIS.

C. F. MCGAHAN of Aiken, S. C., read this paper in which he stated that this disease was much more prevalent than had heretofore been generally accepted. He believed that a great many cases of obscure heart troubles occurring in the endemic when we could find no valvular disease without marked symptoms of pericarditis, but where we have certain masked symptoms of the disease, is due to tubercular pericarditis. The patient commences to lose weight and assumes a cachectic appearance. This condition usually pro-

gresses insidiously, and he believed the tuberculosis was communicated to the pericardium through the lymphatics, arterial and venous systems, and from all sources that tend to cause tubercular troubles in the peritoneum. The symptoms of tubercular pericarditis are those that we would get from enlarged heart and from an adherent heart, together with the general symptoms of malaise and more disturbance of the general system than would be found in a simple pericarditis, or that secondary to rheumatism or one of the exanthematous diseases.

CARDIAC LESIONS AS OBSERVED IN THE NEGRO;
WITH SPECIAL REFERENCE TO PERICARDITIS.

FRANK A. JONES of Memphis, Tenn., read this paper, in which he made the following recapitulation: (1) Aortic regurgitation in the negro was the most frequent and most dangerous of all valvular lesions; (2) the next most frequent — aortic stenosis; (3) the next, mitral regurgitation; (4) mitral stenosis had not been diagnosed in the cases he reported from the physical signs and symptoms; (5) tuberculosis and syphilis acted both as exciting and predisposing causes in the production of muscular and valvular lesions; (6) syphilitic history in mitral regurgitation was more frequently found than that of rheumatic; (7) the murmur of aortic regurgitation was most frequently musical.

SOME POINTS IN THE TREATMENT OF PERICARDITIS.

DR. FRANK PARSONS NORRURY of Jacksonville, Ill., said that it behooved us in treatment of rheumatism, acute infectious fevers and septic processes to keep ever in mind the possibility of pericarditis as an aftermath, and govern ourselves accordingly by insisting upon absolute rest and quiet until this danger is past. Each case must be treated upon its individual merits. There must be enforced rest and quiet surroundings; this is important, because it "curbs the symptoms and places the patient under the most favorable condition for speedy recovery." Milk is the most suitable diet. It should be given in small quantities every two or three hours. It is well to remember that nearly all cases of rheumatic pericarditis get well if we will let them alone; keep them at rest and carefully meet indications as they arise. For the relief of pain a blister over the pericardium will be sufficient, or if it continues, cold applications, cold cloths or an ice-bag, used as needed. When other means fail morphine should be given, guarding it with proper cardiac support. For the restlessness he preferred bromide of soda given usually during the day, commencing about noon; again at four or six in the afternoon and at bedtime. For the sleep he used trional. If combined with sulphonal its effects are prolonged. For the cardiac distress strychnine may be given, or, if necessary, digitalis with strophanthus. To properly care for the effusion is one of the prime essentials of treatment. If moderate, unless septic, it will be absorbed, and even if large, the chances are that with cautious

use of diuretics and purgatives it will disappear. The indications for surgical interference are, according to Osler: "dyspnea, small, rapid pulse, dusky, anxious countenance," and we will add the physical signs of extensive effusion. The aspirator was recommended.

JOINT SESSION, PRACTICE OF MEDICINE—HYGIENE AND SANITARY SCIENCE.

FOURTH DAY.

DR. T. J. HAPPELL of Trenton, Tenn., read a paper entitled

FURTHER REPORT ON PSEUDO, OR MODIFIED, SMALLPOX.

He said that at the Atlantic City meeting of the association last year he reported to the section his experience with 300 cases of pseudo, or modified, smallpox, which was made from a bedside study of the cases in all stages of the disease. This paper dwelt with some of the anomalies met with in 400 cases recently coming under his observation. In many cases the disease was noncommunicable. That many vaccinated persons had contracted the disease, whilst many who had not been vaccinated escaped, was a point made by him. He took up the diagnostic points between the disease, or epidemic, that occurred in Gibson County, Tenn., and the variola vera of the writer's prior to 1895. He asked whether it could be classed as variola vera, or was it a hybrid?

The following differential points were presented: In the modified form there did not appear to be any prevailing types of the disease; they had the same general character, differing in degree only. The incubation was from 14 to 18 days. In smallpox the varieties were varioloid, discrete, hemorrhagic and confluent, and the incubation period was from 14 to 21 days.

Symptoms.—From the first to the third day: In the modified form at the onset the patient complained of cold; felt as though an attack of grippe or tonsillitis was coming on. Temperature 102°–105°; little or no vomiting; pulse full and rapid; little or no prostration; no delirium; no convulsions in the young. In a few cases there may be sleeplessness. In smallpox the onset is sudden, violent chill, persistent vomiting, agonizing pain in back and head, shooting pains in the limbs. Temperature 103°–104°; pulse full, strong and rapid; prostration great from the onset; eyes injected; sleeplessness, delirium and convulsions in the young.

Third day: In modified smallpox no coarse red spots appear. In smallpox coarse red spots appear on the lips and forehead. With appearance of these spots the temperature falls to the normal and the patient is comfortable.

Fourth day: In the modified form an eruption appears, the character of which is generally that of an acne. In some instances the shot-like papules appear, but rarely. Temperature falls to the normal and the patient almost invariably gets up, if he has

gone to bed, and says he is well. The eruption first appears on the face. In men about the forehead, cheek and chin; in women and children irregularly about the face. There is usually a sore throat. In smallpox the small red spots appear on the forehead at the juncture of the hair, followed by their appearance on the extremities. Papules follow the red spots. They have a shot-like feel.

Fifth day: In the modified form the acne-like eruption and papules develop into vesicles which assume an opalescence at once. These vesicles are unicellular and are not umbilicated. The serum which exudes at their apices dries and turns brown, which in some cases gives them the appearance of umbilication. There is no puckering of the vesicle at its border. The temperature is generally normal, unless it rises from abscess formation or other causes. The vesicle may dry up and the disease may be said to have aborted. A rapid recovery follows. In smallpox papules appear on the wrists and forehead,

tular, and each is surrounded with broad, red bands, or efflorescence; the features become distorted, there are severe rigors and fever, the original symptoms appear, stench is beginning, etc. There is great delirium and convulsions in the young. This is a very critical period.

Tenth to twelfth day: In smallpox pus oozes and forms scabs, and the stench is particularly bad.

Seventeenth to twenty-first day: In smallpox the scabs drop off, leaving red, glistening pits, which soon become white. Ulceration is deep, reaching the corium. Ophthalmia is generally present. Pastules pervade the mouth, larynx, pharynx and trachea. Petechiae form on the lower part of the abdomen and inner aspects of the thighs on the first and second days, in some cases.

Papules.—In the modified form papules, when present, are the same size as in smallpox, perhaps a little smaller, but fewer in extent. There may be no papules. Vesicles range in size from the head of

	SMALLPOX.	CHICKENPOX.
Age.....	Any age.	Childhood.
Incubation.....	Two weeks.	Thirteen to seventeen days.
Invasion.....	Marked headache, backache, fever, general malaise, lasting three to four days.	Is none, or at most only slight indisposition.
Surfaces attacked.....	Worse on the exposed parts—extremities. Invariably on the palms.	Worse on the covered portions—thorax. Rarely or never seen on the palms or soles.
Character of the eruption.....	Progressive; papules, vesicles, pustules, crusts.	Papules and crusts.
Histology.....	Lesion includes the lower layers of the derma. Hard to rupture. Multilocular.	Lesion very superficial. Easy to rupture. Unilocular.
Temperature.....	Remains high 102°-103° till eruption appears. Then drops and does not rise again for a week, and not then in the milder discrete forms.	Rises with the severity of the attack.
Contour of the eruption.....	Quite uniform in size. Has a reddened area at base. Frequently umbilicated.	Not uniform. Also inflamed area about the vesicle, but less marked.
Sensation.....	Painful to the touch; may itch.	Not painful to touch.
Duration, including period of invasion and desquamation.....	Two to four weeks.	One week to fourteen days.
Vaccination.....	Protects.	Does not protect.
Pitting.....	When confluent on face; will occasionally mark in the discrete form.	Seldom unless infected.
Complications.....	Generally none.	None.
Mortality.....	High in severe confluent and hemorrhagic types.	Sil.
Resolution.....	By crisis.	By lysis.

Sixth to the ninth day: In the modified form the vesicles become filled with an opaque lymphoid fluid; in some cases with brown nuclei in the centre, which gives them an umbilicated appearance. This vesicle with its opaque fluid, mis-called pus, shrinks to one-half its diameter and becomes a thin brown scab, perfectly circular. There is no stench. The patient is well after the appearance of the eruption, and insists upon getting up and having plenty to eat. If the eruption is copious he looks ill, but he will tell you that he feels well. The eruption in a few cases affects the conjunctiva. There is no secondary fever. From this time on it is simply a matter of scabs dropping off. By the tenth day the patient may be entirely clear. If the eruption spreads over the entire body he may not be clear of scabs until the fourteenth day. In true smallpox the vesicles appear in place of the papules, and the eruption spreads gradually over the entire body. The vesicles are umbilicated and multilocular. On the eighth and ninth days the vesicles become pus-

a pin to the size of a split pea. They are not umbilicated, and when punctured collapse. The vesicle is unilocular. Convalescence begins on the appearance of the eruption. The so-called pustule does not extend into the derma. The epidermis is the only structure of the skin involved; hence there is no pitting. The vaccinated take the disease. In smallpox the papules are about the size of No. 4 shot and have a translucent appearance, encroaching on the entire body, including the palms and soles. They appear first on the face and hands. Vesicles are umbilicated and multilocular; so is the pustule, and neither will collapse *in toto* if pricked with a needle.

SMALLPOX—THE OLD AND THE NEW.

DR. W. L. BEERE of St. Cloud, Minn., read this paper. He stated that he had been identified with two epidemics (twenty years apart), and though they were evidently both species of smallpox they were very dissimilar in many characteristics. He thought that many of the recent

cases had been diagnosticated chickenpox instead of smallpox.

REMARKS COVERING THE SANITARY FEATURES OF SMALLPOX.

DR. LOUIS LEROY of Nashville, Tenn., presented this paper. In the event of an outbreak a competent physician should be placed in charge and given absolute power to act; he should communicate with boards of health; there should be police backing. Daily official reports should be made to newspapers, stating exact condition of affairs. Smallpox treatment in private is really a makeshift. Complete and perfect isolation should be insisted upon. All articles should be disinfected in the usual way. Everything possible should be destroyed by burning after the patients have been discharged.

In Tennessee this year he had introduced on a large scale the hypodermic needle as a means of introducing the vaccine beneath the skin. He had first used this method in Philadelphia in 1895, using then the aqueous solution; he now uses the glycerinated lymph. A solid piston hypodermic needle is used. The skin is cleansed in the usual manner, and the needle inserted into the skin, not through it, and a drop of the lymph is forced between the epithelial cells and diffuses at exactly the locality desired. It has many advantages: in cases of compulsory vaccination it cannot be washed off; there is absolute freedom from infection at the time of vaccination. It is painless, and no immediate dressing is necessary.

THE DIAGNOSIS OF MILD SMALLPOX, AS IN THE PRESENT OUTBREAK OF SMALLPOX IN THIS COUNTRY.

DR. HEMAN SPALDING of Chicago read this paper, in which he stated that on Feb. 15, 1894, smallpox was introduced into Chicago from Cincinnati; in the seventeen months following there had been 72 cases of smallpox, 25 of which were direct importations. For a period of three and a half months they were entirely free from the disease. Then there occurred another outbreak. These two outbreaks gave him an opportunity to study 310 cases in the Chicago Isolation Hospital. There was 1 hemorrhagic case (died), 13 confluent variety (3 deaths), 24 semiconfluent variety (2 deaths), 54 severe discrete cases (no deaths), 179 mild discrete cases (no deaths), 39 modified form (no deaths). He thought the term varioloid should not be used. Many are under the impression that varioloid is not smallpox, and think that if taken to the smallpox hospital while sick with the former that they are liable to contract the disease. The term he considered to be a useless one, for smallpox is smallpox, whether mild or severe. In Chicago they placed all patients with smallpox, whether hemorrhagic, confluent, or so mild that they would go to work unless prevented, in the same wards in the hospital; 271 of these never were vaccinated. None of those afflicted with the mild form of the disease contracted smallpox from the severer typical cases

in the wards, where the exposure had been prolonged and certain. The mild form of the disease gives immunity from smallpox, and yet will transmit typical confluent or hemorrhagic smallpox, of which statement he had abundant proof in Chicago.

THE DISTINGUISHING CHARACTERISTICS BETWEEN MILD DISCRETE SMALLPOX AND CHICKENPOX.

DR. FREDERICK LEAVIT of St. Paul read this paper, in which he made the summary. (See table.)

VARIOLA.

DR. H. M. BRACKEN of St. Paul read this paper. He stated that in the State of Minnesota there had been reported 7,211 cases of variola, with 49 reported deaths during the past two and a half years. He did not think we could be governed in our diagnosis of all cases in this present epidemic by the usual textbook descriptions of variola. Typical prodromal symptoms may be present, but the rash may vary in degree, in form, in type of progress and in final disappearance in a way that is described in but few textbooks. He asked if vaccination protected against the disease. Of 662 cases in 244 houses but 10 patients had been successfully vaccinated at any time prior to their infection, and of these 10, 30 years had elapsed since successful vaccination for 2 of them, over 25 years for 4 of them, 20 years for 1, and 6 years for 1. The Chicago Board of Health made the following statement: "Out of a total 171 cases of smallpox found in Chicago between Nov. 30, 1900, and April 10, 1901, 140 had never been vaccinated. Of the remaining 31 cases 29 were adults showing faint, poor or irregular scars, claimed to be evidence of attempted vaccination in infancy or childhood—the most recent being 23 years old. Only 2 out of the 171 cases exhibited typical scars of successful vaccinations." Since vaccination had been made compulsory in the schools of Chicago smallpox has disappeared from them. The degree of immunity depends upon in part, at least, the intensity of the infection. Marson gives the following death-rate among those who have been vaccinated: One ciatrix 7.73%; 2 ciatrices 4.7%; 3 ciatrices, 1.95%; 4 or more ciatrices, .55%.

Recent Literature.

The International Medical Annual. A Year Book of Treatment and Practitioners' Index. New York: E. B. Treat & Co. 1901.

This is the nineteenth year of this now well-known annual. In size, general appearance and character of contents, it maintains the standard set by previous editions. The illustrations are adequate and sufficiently numerous for a book of this sort, and we are particularly glad to note that x-ray reproductions on thin paper have not again been attempted.

Clinical Lectures on Stricture of the Urethra and Enlargement of the Prostate. By P. J. FREYER, M.A., M.D., M.Ch., Surgeon to St. Peter's Hospital; Lieut.-Colonel, Indian Medical Service (Retd.). New York: William Wood & Co. 1901.

This book of 115 pages and about 40 cuts contains six lectures on stricture of the urethra and prostatic hypertrophy, which were delivered at the Medical Graduate College last year, and which have already been printed in the *Lancet* and *Clinical Journal*. They offer little that is new, but they are of value as a most practical and short résumé of our knowledge of these conditions.

In discussing the treatment of stricture the writer characterizes "divulsion" as an operation which has been banished from modern practice. He advocates the systematic use of the catheter in obstructive prostatic cases rather earlier than is our custom, as follows: Residual urine, 4 ounces or less, catheter at bedtime; 6 ounces, catheter twice daily; 8 to 10 ounces, catheter three or four times daily.

Of the Bottini operation Freyer says: "This procedure has not been at all extensively employed, and at the present time it has few advocates." Of vasectomy he says: "I have now performed this operation in a considerable number of cases without any mortality. In a large proportion of cases there has been decided benefit from the operation, both immediate and remote, similar to those already described as resulting from castration. It is probable that the rest in bed, systematic catheterism and general régime following the operation had considerable influence in ameliorating the condition of the patients." The writer's enormously large personal experience and his reputation as a surgical writer will command instant recognition for this little book, and the painstaking care with which processes and operations are described will make it valuable to and popular with students of surgery.

The Circulation in the Nervous System. By HERMAN GASSER, M.D. Pp. 156. Platteville, Wis.: Journal Publishing Co. 1901.

"The general scheme of the functions of the nervous system is an ingoing movement, a central elaboration and an outgoing movement, in the circuit of which appear the phenomena of consciousness as a function of its circulating energy." From this the author draws "the deduction that a circulation in the nervous system is as great a certainty as is that of the blood." This doctrine he believes materially elucidates all the problems of mental action. We may add that the author fails to make his doctrine as certain as he thinks; that he fails utterly to prove that the normal functional activity of the living nervous elements is an actual circulation, and that his application of his hypothesis has no clear bearing upon the questions of nervous physiology,—the whole work being vague and speculative. The proof-reading is very bad.

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PHYSICAL THERAPEUTICS.

It is significant that two comprehensive books on therapeutic measures other than the use of drugs are simultaneously appearing in Germany and America. To anyone who has observed recent tendencies in therapeutics, it has become apparent that the field of what we may call natural means of cure has expanded remarkably within the past few years, and is destined to take a dignified place among recognized therapeutic methods. This advance in medical opinion has been slow in coming, in spite of, or perhaps we might more properly say, because of, excessive individual enthusiasm in the advocacy of certain methods of treatment. A general acceptance of an entirely rational therapeutics very naturally must wait until the limitations of accepted methods are definitely ascertained, and until the conviction has taken deep root that as physicians our therapeutic endeavors are, in the great majority of cases, merely aids to natural processes. We hear much less nowadays among the well-informed of "remarkable cures," and much more of "skilful treatment," a statement which represents the facts as the other does not. Mr. Dooley, no doubt, speaks from experience when he sums up the situation in the following words: "If the Christyian Scientists had some science, an' th' doctors more Christyanity, it wudden't make anny difference which ye called in — if ye had a good nurse."

Physicians should make clear to themselves their limitations, and should act accordingly. Medical students in particular should be far more impressed with the fact than they usually are, that the natural tendency in the human body is toward health and not toward disease, and that therapeutic measures should often be directed to a support and encouragement of that tendency, rather than to the fancied treatment of a specific symptom or group of symptoms. A course in therapeutics

might well be enlarged to include a consideration of the means of preserving health, as well as of meeting abnormal conditions when they arise in the course of disease. In other words, what we need is a broad point of view and a completer rationalism in the treatment of the sick. This is likely to be attained in the near future, and no better indication of its coming could be found than the appearance of the two treatises to which we have alluded. The first of these, entitled a "Handbuch der Physikalischen Therapie," is under the editorship of Drs. Goldscheider and Jakob of Berlin, assisted by a large number of collaborators. It has as yet appeared only in part, but when completed is designed to be a scientific exposition of means of treatment other than by drugs. The book will receive a more detailed notice in the review columns; we allude to it here merely as an indication of the fact that methods of treatment hitherto more or less empirically used, are receiving at the hands of competent men the systematic discussion and exposition of which they have long stood in need. In America a similar treatise, finally to extend over eleven volumes, of which two have as yet appeared, is being published under the editorship of Dr. Solomon Solis Cohen. The title of the series is "A System of Physiologic Therapeutics," and concerns itself with a practical exposition of the methods other than drug-giving, useful in the treatment of the sick and in the prevention of disease.

Various books, many of them excellent, have from time to time appeared on special subjects treated in these volumes, of which Baruch's Hydrotherapy is an example; but the significance of what we may regard almost as a new therapeutic movement lies in the systematization of a large body of related facts, and their orderly arrangement as a system of rational therapeutics. It is easy to exaggerate the importance of any one method of treatment when enthusiasm is once thoroughly aroused, but we are convinced that a sober, scientific presentation of all details bearing not only upon the relief of disease, but upon its prevention, will do much toward raising the standard of medical treatment.

THE HOUSING OF NURSES.

WE note in another column the fact that at various hospitals throughout the State special buildings are under construction for the accommodation of nurses. It is becoming more and more obvious that the efficiency of a hospital of any sort depends in a great measure upon the services of the nursing staff. It would, we sometimes think, be possible to get on for a time, at least, without

physicians, but to be deprived of nurses would mean the immediate abolition of the modern hospital. The external recognition of this fact lies in the ample provision now everywhere being made for the comfort and health of the nursing staffs of hospitals when not on duty. They are being provided with separate buildings, in which they may live and get what little recreation is possible, with a feeling of relative independence. This is as it should be. Anything which may in a measure tend to relieve the irksome monotony of the life of a nurse should be cultivated, and certainly one of the best methods is to provide a building in which she may feel a certain private ownership. It is always a good sign of the growth and development of an institution when it reaches the stage of providing a nurses' home. We are gratified, therefore, to find so great an activity in this respect going on in a number of institutions, and have not the slightest doubt that, whatever the necessary expenditure may be, the return in more efficient service and more rational means of living will be an ample recompense.

MEDICAL NOMENCLATURE.

IN any rapidly developing science the question of nomenclature is of far greater importance than appears on the surface. The temptation to coin words is apparently inherent, and he is a rare person who can make a discovery and refrain from designating it by some new word of his own choosing. We are not prepared to say that physicians are greater sinners in this regard than other men of science, but they certainly are not exempt from the prevailing weakness. Unquestionably the word-making tendency should be combated at every turn, either by inducing the pioneers of research to adopt as far as possible words already in existence and of recognized meaning, or if this be beyond the power of public opinion to accomplish, to refrain from using such newly coined words. Many a name, no doubt, has quietly sunk into oblivion, because it has not been taken up and perpetuated by workers in the same field. Others have survived and proved useful, and these, with some exceptions, have been really needed.

An almost equally pernicious tendency is the attempt to eradicate words and terms long in use and generally understood by others, perhaps of more logical construction, but wholly new. The attempt to revise the nomenclature of the blood and of the central nervous system are cases in point. This leads to hopeless confusion, and stands directly in the way of the natural evolution of language.

Another habit against which a warning note should from time to time be raised, is the misuse

of scientific terms commonly employed, or the unnecessary use of more than one word, when one should give the full meaning. A very common example of the first error is the use of the word "pathology" when "pathological anatomy" is meant, an error which is to be found in the catalogues of a large proportion of our best medical schools. Pathology is a comprehensive term and pathological anatomy is a limited one,—a fact which few who use these terms recognize. A very recent tautology, brought about partly we suspect by the publishers of books and partly by a desire to render apparent the practical application of scientific methods, is exemplified by such a title as "Clinical Pathology of the Blood." If the pathology of the blood is under consideration, the word "clinical" is entirely superfluous; if the pathological anatomy of the blood is being discussed, the addition of "clinical" is meaningless. "Pathology of the Blood" is quite sufficient to convey the full idea of the subject-matter of such books. Physicians are rather proverbially careless in their use of language and publishers are indifferent, provided only their publications will sell. Between the two many things are printed which it would be well to have suppressed, for the future good of our already involved and inaccurate nomenclature.

MEDICAL NOTES.

AGED 110 YEARS.—Nathan Woodward, a former slave, died recently at Basking Ridge, Somerset County, N. J., at the reputed age of 110 years. He was born at White House, Hunterdon County, N. J., and was owned by Simon Wickoff, who sold him to Matthew Woodward. The sale was made when he was a young boy, and the name Woodward he got from his master. The record of the date of the sale by Wickoff to Woodward is said to have fixed beyond dispute his age. He was made a free man by the passage of the New Jersey law of 1808 concerning slaves. He married a slave named Sarah, who died 18 years ago, aged 90. Sarah was one of the 3 slaves in the State to be freed by President Lincoln's emancipation proclamation, although virtually free for years before that.

ENNO SANDER PRIZE.—The Enno Sander prize has for 1901-1902 been increased by its founder to consist of a gold medal, valued at \$100, and \$100 in cash. The subject for this year is "The Most Practicable Organization for the Medical Department of the U. S. Army in Active Service." Competition is open to all persons eligible to active or associate membership in the Association of Military Surgeons of the United States. For particulars application may

be made to James Evelyn Pitcher, secretary of the Association of Military Surgeons, Carlisle, Penn.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon July 24, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 35, scarlatina 11, measles 74, typhoid fever 8.

IMPROVEMENTS AT INSANE HOSPITALS.—The following buildings are being built at various institutions for the insane in Massachusetts: Nurses' homes at Worcester Hospital, Taunton Hospital, Medfield Asylum, and at the State Farm in Bridgewater. These will accommodate 210 persons, at a cost of \$149,000, furnished and equipped; the buildings being of brick. This is a cost of \$709.52 per capita. At Northampton Hospital an infirmary building is being erected for 60 patients, the upper stories to furnish temporary quarters for 25 nurses. This will cost \$55,000. At Westboro Hospital \$50,000 is being spent in construction and repair of buildings to accommodate a colony of 100 patients. The Danvers farmhouse will cost \$25,000. For this total expense of \$139,000 about 225 additional patients will be accommodated, at an average cost of \$577.77. In all, the additions this year will accommodate 135 additional patients, at a total cost of \$295,000, or \$641.37 per patient.

A CENTENARIAN.—William Earl Cook of Portsmouth, R. I., the oldest person in that State, died at his home July 14, at the age of 104 years. He was born in Portsmouth Jan. 26, 1797. He led an active life and held a number of public offices. He served the town as commissioner of the town asylum for many years, and was town sergeant for a short time. He was also captain of a militia company in Portsmouth, called the Portsmouth Regulars. Mr. Cook's physical health was good for a person of his great age.

ANNUAL REPORT OF THE ADAMS NERVINE ASYLUM.—The recent twenty-fourth annual report of the Adams Nervine Asylum, Jamaica Plain, shows that the number of patients under treatment during the year was 157 (40 men and 117 women). Of these, 13 (10 men and 3 women) were in the asylum May 1, 1900, and 114 (30 men and 84 women) were admitted during the year. There were discharged as recovered, 15; relieved, 72; not relieved, 22. Four patients died; and 44 (11 men and 33 women) were remaining in the asylum April 30, 1901.

CONTAGIOUS DISEASES IN CAMBRIDGE, MASS.—The number of cases of contagious diseases in

Cambridge during the hot period has been thus far somewhat less than for the corresponding period last year. During the last 5 weeks the number of diphtheria cases reported has been 37, as compared with 58 during the same period of 1900. Scarlet fever, however, has been more prevalent, 7 cases having been reported during the last 5 weeks as compared with 4 last year.

HOSPITAL FOR TUBERCULOSIS AT HARTFORD, CONN.—Work has been begun on a new hospital for tuberculosis on Newington Mountain, a high suburban section of Hartford. The State has appropriated \$25,000 for the enterprise, and an amount nearly as large has been contributed by private individuals. The undertaking represents the first effort made in Connecticut for segregation of consumptives and their treatment in an isolated institution. The proposed hospital building will be 276 feet long, and the central section will be two stories high. One wing will be for men and the other for women.

APPOINTMENT OF DR. C. N. BARNEY TO THE REGULAR ARMY.—Dr. Chas. Norton Barney of Boston, formerly house physician at the Massachusetts General and Boston Lying-in hospitals, has recently been appointed first lieutenant and assistant surgeon in the regular army. Dr. Barney has already served nearly three years with the army in this country and in the Philippines as medical officer of Massachusetts volunteers and as contract surgeon.

A CASE OF SMALLPOX AT NASHUA, N. H.—A case of smallpox is reported from Nashua, supposed to have been contracted in handling currency. A house in a remote part of the city has been secured as a temporary hospital.

NEW YORK.

EFFECT OF ASSAULT ON MENTAL CONDITION.—Margaret Williams, a minor who was employed in the family of a summer resident of Tenafly, N. J., as a nurse to his children, brought an action against him in the Supreme Court in New York City, for damages for alleged assault. She alleged that by reason of the assault she was made ill and suffered great mental pain, so that she was nervously prostrated and became insane. In response to a demand for a bill of particulars, it was stated, among other things, that the plaintiff became a victim of maniacal insanity, with hallucinations and delusions, and would never be mentally as strong as before the fright. Upon the trial the Court, after admitting evidence tending to prove the commission of the assault, excluded evidence as to the mental condition of the girl afterward, and dismissed the complaint upon the ground that by the bill of particulars the plain-

tiff had limited herself to injuries resulting from fright, and holding that damages resulting from fright alone, or for mental suffering disconnected from other injuries, could not be recovered. The Appellate Division of the Supreme Court has now reversed that judgment. Justice Hatch, giving the unanimous opinion of the Court, holds that no such rule of proximate damages is applicable to actions to recover damages for wilful tort. "In this case," Justice Hatch added, "the Court admitted, without objection, the evidence of the plaintiff tending to prove the commission of the assault, and that prior to the same the plaintiff had been a person of unusual mental strength, and it was an error to exclude the testimony offered to show the effect of the assault upon her mental condition and of the medical treatment received by her therefor."

A NOVEL METHOD OF SWINDLING.—A novel method of swindling the cheaper grade of drug-stores has lately been brought to light. The plan is described as follows: One of the gang of operators goes to a druggist's and has a prescription of simple remedies put up. In a few hours he returns, apparently in a great rage, and denounces the proprietor, declaring that his wife has been made desperately ill by the medicine, into which a poisonous drug has been put by mistake, and announcing his intention to sue for heavy damages. In support of his statement he produces the bottle containing the medicine, which has in the meanwhile been suitably doctored. After a proper show of indignation the swindler cools down sufficiently to suggest that the case might be settled out of court and without getting into the newspapers if a certain amount of money (said to vary from \$50 to \$200) is paid in hand. In the first-class drug-stores, where the checking system is employed, such a game could not, of course, be carried out.

VITAL STATISTICS OF BOROUGH OF RICHMOND.—The quarterly report of the vital statistics for the Borough of Richmond up to July 1, shows the total number of deaths to have been 277, a decrease of 64 from the preceding quarter. The principal causes of death were: Accidents, 31 (15 of the deaths being due to drowning, 5 to steam cars and 2 to trolley cars); pulmonary tuberculosis, 30; cardiac diseases, 28; Bright's disease, 24, and pneumonia, 20.

MEASLES AT 128.—It is reported that Noah Kaby, the well-known centenarian, who for 30 years has been an inmate of the Piscataway poor-house, near Plainfield, N. J., is suffering from an attack of measles. He boasts of having lived for more than 128 years, and is believed to be the oldest person in the United States.

AN OUTBREAK OF RABIES.—Dr. V. A. Moore of the New York State Veterinary College, is investigating a somewhat formidable outbreak of rabies among animals which for some time past has prevailed at Romulus, a farming locality in the vicinity of Ithaca.

Correspondence.

[From our Special Correspondent.]

SOME MEDICAL ASPECTS OF THE PAN-AMERICAN EXPOSITION.

In my last letter a description was given of the Exposition Emergency Hospital and the "infant incubators" on the Midway. From the latter subject to that of the care of young children accompanying older persons visiting the fair the transition is easy. At present a "crèche," where tired mothers may safely leave their children, is much needed. The Children's Building at the south end of the Midway, originally intended for this purpose, has been converted into headquarters for representatives of the press, for which latter purpose its location and size render it particularly suitable. There has been some talk of establishing nursery tents at each of the main entrances to the grounds, but as yet nothing has been done in this respect, nominally from lack of funds. The matter is one which merits the serious attention of the Exposition authorities, and any additional cost resulting from the operation of these nurseries would probably be more than repaid by an increase in the gate receipts. With the poorer classes the mother frequently cannot take an outing unless accompanied by her children, from lack of anyone who can be relied upon to care for them during her absence. If the Exposition provided places where infants might be safely left, the fair would undoubtedly be patronized to a greater extent by mothers of this class. Sightseeing on a warm day while carrying a baby in arms is not conducive to enjoyment on the part of the tired and overworked mother nor good temper and health on the part of the unfortunate infant exposed to the heat, noise and crowds.

Crossing the Midway the average medical visitor proceeds to the beautiful Court of Fountains, and turns his steps toward the exhibition made by various departments of the government, well called the "backbone of the Exposition." On his way he will very likely visit the Ethnology Building, which contains an ethnological display which, though not large, is of unusually high character. In this building the medical men interested in anthropology will find a certain display on this subject worthy of attention, chiefly among the exhibits in the gallery.

In the exhibit of the Department of Agriculture, located next the Ethnology Building, in the annex on the right of the main Government Building, the display made by the section on foods will prove of much interest to the medical man. This exhibit is in charge of Dr. Stewart of the Bureau of Animal Industry, and occupies one-fourth the floor space of the building, being located immediately west of the main entrance. Much space is devoted to the subject of adulteration of foods, and numerous specimens, tastefully arranged in jars, are used to illustrate the appearance of some of the more common articles of food, both pure and after adulteration by some of the more common methods. The exhibit is particularly rich in its display relative to the adulteration of spices. An interesting series of specimens illustrates the various grades of canned fruits and vegetables, from the highest quality down to the watered and reprocessed article billed by the dishonest tradesman as "first quality." The artificial coloration of various foods is shown; also the crude material from which these pigments are obtained, and the special forms in which they are employed commercially. One test tube shows 10 gr. of copper recovered

from a single 1 lb. can of string beans. The possibility of tin poisoning is illustrated by 5 gr. of stannous oxide recovered from a 1 lb. can of tomato soup.

An excellent series of food preservation is shown in glass containers, each bearing the chemical analysis of the contained article and the actual market cost of the materials, together with the selling price. Such remarks as "formaldehyde solution; retail price \$1.00 per gallon; value of materials less than four cents," point their moral very concisely. One cannot but wish that the Government would follow the example of the German authorities in respect to patent medicines and proprietary nostrums, and publish the formulae and ingredients of all such preparations, together with their cost of preparation at market rates for materials. The fortunes amassed by many of the concerns controlling patent medicines of certain therapeutic efficiency undoubtedly depend upon secrecy of preparation; for the hard-headed citizen can scarcely be expected to spend a dollar for a ready-made article when he can have the same thing put up at the corner drug-store for half the money. The enactment of a law requiring all manufacturers of patent medicines to print the formula upon the label is respectively submitted as worthy of the best efforts of the profession in respect to future legislation.

An interesting exhibit in connection with the artificial preservation of food is seen in a collection of tubes displaying quantities of salicylic acid and other substances recovered from small quantities of food stuffs preserved by their agency. Half a test tubeful of salicylic acid is shown as having been recovered from a single tin of canned soup—and one is moved to marvel that cases of poisoning from preserved food stuffs are not more common than they are. "Preservative,"—a combination of boric acid and salt, colored with cochineal,—made famous in the army beef controversy, is here given a prominent place. One of the exhibits among the jams and preserves is labelled: "Strawberry Jam. Sweetened with glucose, stiffened with starch, colored with an aniline dye, preserved with benzoic acid and artificially flavored." The strawberry part of this detectable compound apparently exists in the imagination alone. It is highly unfortunate that the exhibit does not specify the particular brands and give the manufacturers' names of the articles whose analysis are displayed, so that the observer might not only appreciate the extent to which food adulteration is practiced, but might know what brands to avoid in making future purchases. Those whose greed is such as to render them willing to injure the public health to more quickly fill their purses should be publicly pilloried and made to suffer the financial loss which would follow exposure of their nefarious practices.

An interesting series of "wines," made by fermenting glucose, colored with aniline dyes and preserved with salicylic acid, is also on exhibition. It is stated that these "wines" are sold to the trade at from 25 cents to 35 cents per gallon.

A large case in the centre of the building contains a bomb calorimeter, used for the determination of the force or fuel value of food stuffs. The same case also contains a model of Atwater's respiration calorimeter, as used by him in his investigations on nutrition at Wesleyan University.

In the Bureau of Animal Industry, a feature which attracts the attention of crowds, is the microscopic examination of pork for trichine and other parasites, as carried out by the Department of Agriculture at the large packing houses. A small laboratory is here fitted up, in which three young women make these microscopical examinations in the presence of visitors, and exhibit samples of infected meat. Nearly an interesting series of pathological specimens, both wet and artificial, showing various types and lesions of disease in the animals used as food, will prove interesting to all medical men, and is well worthy of careful study by health officers and those who have to do with food inspection. This exhibit is supplemented by a large series of lantern slides, showing bacteria, pathogenic lesions, etc.

Many artificial preparations illustrate the method of infection and pathologic changes in Texas fever, the investigations into the cause and nature of which by the Agricultural Department formed the entering wedge which opened the way to a wider knowledge of the transmission of disease by insects, the latest triumph of scientific medical research. A small but completely equipped biologic laboratory is also shown in this section; also various protective and curative sera, and illustrations of the steps in their preparation. The municipal health officer will find much to interest him in the nearby display of sanitary dairy cans, bottles and utensils; and the photographs illustrating the sanitary methods now employed in the best class of dairies to minimize the danger of transmitting disease by their products.

Before leaving this exhibit the physician, who naturally has much to do with horses, will find it of advantage to inspect the case illustrating the causes of lameness in horses, proper and improper methods of shoeing, etc. The knowledge to be obtained in a few minutes from this exhibit will be of much practical value, and may save suffering on the part of the animal and money and annoyance to the owner.

Proceeding through the connecting arcade to the main Government Building the professional visitor will find much to interest him in the exhibits made by the medical departments of the Army and Navy and of the Marine Hospital service.

The exhibit of the Medical Department of the Army—the largest single exhibit of any character in the entire Exposition—consists of a model brigade field hospital, lack of suitable floor space in the Government Building having rendered any indoor display commensurate with the importance of the department, quite impossible. While the present exhibit is most admirable so far as it goes, it is to be regretted that the Army Medical Department, with its magnificent museum, Surgeon-General's library and completely equipped laboratories to draw upon for exhibits, did not have the opportunity of demonstrating its resources and the magnitude and value of its work by an indoor display. It is understood that but 400 feet of inside space was placed at the disposal of the department, so that probably the latter did wisely in refusing to make an indoor exhibit which could not be representative.

The brigade field hospital tents are located on the large plot immediately south of the arcade between the Fisheries and main Government buildings, and are much visited, not only by physicians, nurses and military men, but also by a large class who have—or have had—friends or relatives in the regular or volunteer armies, and are interested in the care of the sick soldier in the field. The hospital has a capacity of 100 beds—or a proportion of about 2% from a command of 5,375 maximum war strength—and is completely equipped for field service down to the last authorized drop of medicine and tent peg. The purpose of the exhibit is to leave nothing to the imagination of visitors, but to demonstrate the equipment of the medical department in respect to the brigade hospital unit, in quantity, size and capacity, as well as in variety and quality. The exhibit is peculiarly unique and attractive, since the equipment displayed is largely composed of the medical officers who were engaged for nearly two years on the improvement of the hospital equipment and medical supplies. Nearly all the important articles here shown have been adopted by the medical department within the past twelve months, and the exhibit as a whole undoubtedly represents a much more modern and complete equipment for the care of the sick and wounded in the field than could be shown by any other army in the world. Medical men will be most favorably impressed by this exhibit, with the resources and progressiveness of the Army Medical Department. The hospital tent wards of this exhibit are pitched in the form of a cross, with a central covered space. The medical and surgical tents, office, mess and kitchen tents are located within the arms of the cross, present-

ing an arrangement not only attractive and compact, but so devised as to afford the casual visitor a good idea of army medical service in the field with the minimum expenditure of time and effort.

The dispensary tents contain drugs and medicines in such quantities, varieties and proportions as military experience, since the outbreak of the war with Spain, has shown to be required for a brigade of maximum war strength, under conditions of field service, for a period of ninety days. The new model medicine chest displayed in this tent is a marvel of simplicity and compactness, and should prove of special interest to medical officers of the state troops. Weighing only about 85 lbs., it yet contains an abundance of medicines and medical supplies for a regiment for three months. This chest forms one of the regimental sets of three field chests,—the medical, surgical and sterilizer,—one chest of which can be carried by a single coolie, two can be carried on a litter, and the whole three of which may be carried on a pack mule. The brigade hospital reserve supply of medicines is shown in bulk in the original bottles, but the Hospital Corps man in charge explained a simple method of packing such reserve medicines which would be used in the future; the method depending on the issue of medicines in bottles of standard sizes and shapes, four small bottles making a packet of the same proportions and size as one large bottle, and doing away with the necessity for the use of partitions or packing materials, in the containing chests, to prevent breakage. The ward tents used in the exhibit are of the new model Munson hospital tent pattern, recently adopted by the medical department, as a result of an exhaustive trial in the United States and in the tropics, as being much superior to the old hospital tents formerly employed for the shelter of the sick. The wards are very cool and attractive, the tents are admirably ventilated, and the subdued light and seclusion these tents afford must be very grateful to the sick soldier. One is struck by the remarkable economy of space, transportation and labor possible by the new method of packing the hospital furniture and equipment. A complete outfit of cots, chairs and tables for each tent, allowance of six patients, goes in a single small chest, while all the bedding, pajamas, mosquito bars, etc., pack in a single canvas bag—thus saving the necessity of opening numerous chests and boxes to secure the various articles necessary to outfit the tent on establishing the hospital. In the covered space between the four wards an extremely interesting series of photographs is displayed, illustrating actual field work of the medical department in transportation of wounded, first aid and field surgery, and hospital establishment.

METEOROLOGICAL RECORD

For the week ending July 13, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches
	Daily mean.	Daily maximum.	Daily minimum.	8:00 A.M.	8:00 P.M.	Daily mean.	8:00 A.M.	8:00 P.M.	8:00 A.M.	8:00 P.M.	8:00 A.M.	8:00 P.M.	
July 7	29.81	68	77	67	100	80	90	N E	S W	12	10	G.	.01
July 8	30.00	76	84	69	100	60	60	N W	S W	12	7	C.	.0
July 9	30.14	65	66	63	100	92	96	E	N E	9	7	R.	.0
July 10	30.06	71	81	61	92	82	87	N E	S W	12	15	O.	.35
July 11	29.93	76	86	65	91	87	84	N W	N E	7	17	O.	.34
July 12	30.19	66	71	62	92	69	80	N E	S E	12	6	O.	.34
July 13	30.25	66	75	62	73	75	74	N E	S E	5	6	C.	.0
July 14	30.05	78	82	62	82								.194

* O, cloudy; C, clear; F, fair; G, fog; H, haze; S, smoky; R, rain; T, threatening; N, snow. † Indicates trace of rainfall.
 ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 13, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diphtheria.	Diphtheria and group.	
New York . . .	3,437,292	1,289	490	40.35	3.41	1.94	16.68	1.94	
Chicago . . .	1,698,575	—	—	—	—	—	—	—	
Philadelphia . . .	1,226,697	—	—	—	—	—	—	—	
St. Louis . . .	565,238	—	—	—	—	—	—	—	
Baltimore . . .	349,567	26	115	19.55	4.13	—	27.05	1.50	
Cleveland . . .	351,768	—	—	—	—	—	—	—	
Buffalo . . .	352,387	—	—	—	—	—	—	—	
Cincinnati . . .	325,962	—	—	—	—	—	—	—	
Pittsburg . . .	321,616	146	83	35.57	7.74	—	24.51	.65	
Washington . . .	278,718	—	—	—	—	—	—	—	
Milwaukee . . .	265,315	—	—	—	—	—	—	—	
Providence . . .	175,595	51	15	38.00	4.00	2.00	22.00	2.00	
Boston . . .	569,862	187	50	27.23	5.34	4.27	3.74	2.67	
Worcester . . .	118,421	58	19	44.71	—	—	28.33	—	
Rail River . . .	104,863	40	10	37.50	2.50	—	30.00	—	
Lowell . . .	94,969	31	14	32.26	6.44	—	12.88	—	
Cambridge . . .	91,886	19	9	26.30	15.78	—	—	—	
Lynn . . .	68,513	19	2	15.78	—	—	—	—	
Lawrence . . .	62,559	16	8	37.50	—	—	18.75	—	
New Bedford . . .	62,442	21	12	33.33	—	—	29.15	—	
Springfield . . .	62,059	15	6	13.33	6.67	—	6.67	—	
Somerville . . .	61,643	12	2	25.00	—	—	—	—	
Holyoke . . .	45,712	16	11	25.00	6.25	—	25.00	—	
Brookline . . .	40,993	3	—	—	—	—	—	—	
Haverhill . . .	35,956	8	1	14.50	—	—	—	—	
Salem . . .	35,956	8	1	37.50	—	37.50	—	—	
Chelsea . . .	34,072	9	3	33.33	—	—	—	11.11	
Malden . . .	33,694	4	1	50.00	—	—	25.00	—	
Newton . . .	33,587	6	1	16.67	—	—	—	—	
Fitchburg . . .	31,531	6	2	33.33	—	—	—	16.67	
Taunton . . .	31,036	10	2	10.00	20.00	—	—	—	
Glochester . . .	26,121	—	—	—	—	—	—	—	
Everett . . .	24,336	6	1	33.33	16.67	—	—	—	
North Adams . . .	24,200	5	3	20.00	—	—	—	—	
Quincy . . .	23,899	6	3	66.67	—	—	50.00	—	
Waltham . . .	23,431	5	1	40.00	—	—	—	—	
Framingham . . .	21,756	4	—	—	25.00	—	—	—	
Brookline . . .	19,655	—	—	—	—	—	—	—	
Chicopee . . .	19,167	4	2	25.00	—	—	25.00	—	
Medford . . .	18,241	4	1	25.00	25.00	—	—	—	
Newburyport . . .	14,478	—	—	—	—	—	—	—	
Melrose . . .	12,962	2	—	—	—	—	—	—	

Deaths reported 2,265; under five years of age, 891; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and group, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 816; acute lung diseases 93, consumption 247, scarlet fever 40, erysipelas 3, typhoid fever 19, whooping cough 11, measles 14, cerebrospinal meningitis 11, smallpox 35.

From whooping cough, New York 5, Pittsburg 2, Boston, Lowell, Cambridge and Fitchburg 1 each. From cerebrospinal meningitis, New York 1, Baltimore 2, Boston 25, Worcester 1, Lynn 1. From scarlet fever, New York 25, Providence 1, Boston 8, Salem and Beverly 3 each. From typhoid fever, New York 9, Baltimore 1, Pittsburg 6, Providence 1, Boston 2. From erysipelas, New York 2, Pittsburg 1. From smallpox, New York 33, Boston and New Bedford 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,363,026, for the week ending June 29 the death-rate was 118.15. Deaths reported 3,247; acute diseases of the respiratory organs (London) 111, whooping cough 81, diphtheria 53, measles 111, fever 21, scarlet fever 16.

The death-rate ranged from 8.5 in Cardiff to 21.7 in Preston; Birkenhead 15.5, Birmingham 16.3, Blackburn 15.5, Bolton 17.3, Bradford 15.1, Brighton 16.1, Bristol 10.1, Burnley 13.4, Croydon 9.3, Derby 12.8, Gateshead 14.2, Halifax 11.9, Huddersfield 15.7, Hull 11.5, Leeds 16.7, Leicester 9.8, Liverpool 20.9, London 13.9, Manchester 17.5, Newcastle-on-Tyne 19.1, Norwich 11.6, Nottingham 11.3, Oldham 17.8, Plymouth 13.0, Portsmouth 14.3, Salford 13.6, Sheffield 17.5, Sunderland 15.9, Swansea 16.0, West Ham 15.1, Wolverhampton 11.0.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JULY 13, 1901.

R. T. ATKINSON, assistant surgeon. Ordered to the Washington Navy Yard, July 8.

A. W. BALCH, assistant surgeon. Ordered to the "Wabash," July 8.

J. R. WHITING, assistant surgeon. Detached from the "Dixie," and ordered home to wait orders.

Drs. P. E. McDONNOLD and R. M. YOUNG. Appointed assistant surgeons from July 2, 1901.

M. V. STONE, assistant surgeon. Ordered to Naval Hospital, Mare Island, Cal.

R. T. ORVIS, assistant surgeon. Detached from Naval Hospital, Mare Island, Cal., July 20, and ordered to the "Pensacola."

R. R. RICHARDSON, assistant surgeon. Detached from the Naval Hospital, New York, and to Naval Hospital, Newport, R. I.

A. E. PECK, assistant surgeon. Detached from the "Pensacola," July 20, and ordered to the Asiatic Station as the relief of Assistant Surgeon F. L. Benton.

FOR THE WEEK ENDING JULY 20, 1901.

F. M. BOGAN, assistant surgeon. Detached from the "Scorpion," when put out of commission, and ordered to the "Machias."

C. P. BAGG, passed assistant surgeon. Detached from the "Culgoa" and ordered to the "Yorktown."

C. J. DECKER, surgeon. Detached from the "Newark" when put out of commission, and ordered home to wait orders.

W. H. BECHER, assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the "Dixie," July 22.

P. E. McDONNOLD, assistant surgeon. Ordered to duty at the Naval Museum of Hygiene, Washington, D. C., July 25.

RECENT DEATHS.

ADOLPHUS BIRCH GENTER, M.D., M.M.S.S., died in Charlestown, July 15, 1901, aged 50 years.

JOSEPH THOMAS PERO, M.D., M.M.S.S., died in Indian Orchard, July 19, 1901.

DONALD WILLIAM McDONALD, M.D., M.M.S.S., died in Brookline, July 21, 1901, aged 42 years.

R. N. COOLEY, M.D., of Hannibal County, Oswego County, N. Y., died on July 17, at the age of 70.

BOOKS AND PAMPHLETS RECEIVED.

Appendicitis. By L. P. McCalla, M.D., Boise, Idaho. Reprint, 1899.

Conservatism in Pelvic-Abdominal Surgery. By L. P. McCalla, M.D., Boise, Idaho. Reprint, 1900.

Military Government of Porto Rico from Oct. 18, 1898, to April 30, 1901. Washington: Government Printing Office, 1901.

Treatment of Unavoidable Hemorrhage by Removal of the Uterus. By L. P. McCalla, M.D., Boise, Idaho. Reprint, 1900.

On Sounding and Irrigating the Frontal Sinus Through the Natural Opening. By Walter A. Wells, M.D., Washington, D. C. Illustrated. Reprint, 1901.

Practical Surgery for the General Practitioner. By Nicholas Senn, M.D., Phila., Ill. Illustrated. Philadelphia and London: W. B. Saunders & Co., 1901.

Murder as a Money-Making Art. A Social Study. By John C. McKeown, M.D., Member of the American Social Science Association, Associate Member of the National Institute of Art, Science and Letters. Reprint, 1901.

Viability of the Bacillus Pastis. By M. J. Roseman, Passed Assistant Surgeon, Director Hygienic Laboratory, U. S. Marine Hospital Service, Washington, D. C. Washington: Government Printing Office, 1901.

The Hygiene of Transmissible Diseases, Their Causation, Modes of Dissemination, and Methods of Prevention. By A. C. Abbott, M.D. Second edition, revised and enlarged. Illustrated. Philadelphia and London: W. B. Saunders & Co., 1901.

Saunders' Question Compend, Number Fourteen. Essentials of Refraction and of Diseases of the Eye, with a Consideration of Ocular Injuries and the Ocular Symptoms of General Diseases. By Edward Jackson, A.M., M.D. Third edition, revised and enlarged. Illustrated. Philadelphia and London: W. B. Saunders & Co., 1901.

Addresses.

THE FIGHT AGAINST TUBERCULOSIS IN THE LIGHT OF THE EXPERIENCE GAINED IN THE SUCCESSFUL COMBAT OF OTHER INFECTIOUS DISEASES.¹

BY GEH. MED. RATH PROFESSOR DR. ROBERT KOHN.

Direktor des Instituts für Infektions Krankheiten in Berlin und Mitglied des Kaiserl. Gesundheits. Amtes.

THE task with which this congress will have to busy itself is one of the most difficult, but it is also one in which labor is most sure of its reward.

I need not point again to the innumerable victims tuberculosis annually claims in all countries, nor to the boundless misery it brings on the families it attacks. You all know that there is no disease which inflicts such deep wounds on mankind as this. All the greater, however, would be the general joy and satisfaction if the efforts that are being made to rid mankind of this enemy, which consumes its inmost marrow, were crowned with success.

There are many, indeed, who doubt the possibility of successfully combating this disease, which has existed for thousands of years, and has spread all over the world. This is by no means my opinion. This is a conflict into which we may enter with a surely founded prospect of success, and I will tell you the reasons on which I base this conviction.

TUBERCULOSIS A PREVENTABLE DISEASE.

Only a few decades ago the real nature of tuberculosis was unknown to us; it was regarded as a consequence, as the expression, so to speak, of social misery; and, as this supposed cause could not be got rid of by simple means, people relied on the probable gradual improvement of social conditions, and did nothing. All this is altered now. We know that social misery does indeed go far to foster tuberculosis, but the real cause of the disease is a parasite—that is, a visible and palpable enemy, which we can pursue and annihilate, just as we can pursue and annihilate other parasitic enemies of mankind.

Strictly speaking, the fact that tuberculosis is a preventable disease ought to have become clear as soon as the tubercle bacillus was discovered, and the properties of this parasite and the manner of its transmission became known. I may add that I, for my part, was aware of the full significance of this discovery from the first, and so would everybody have been who had convinced himself of the causal relation between tuberculosis and the tubercle bacillus. But the strength of a small number of medical men was inadequate to the conflict with a disease so deeply rooted in our habits and customs. Such a conflict requires the co-operation of many, if possible of all, medical men, shoulder to shoulder with the State and the whole population. The moment when such co-operation is possible seems now to have come.

I suppose there is hardly any medical man now who denies the parasitic nature of tuberculosis, and among the non-medical public, too, the knowledge of the nature of the disease has been widely propagated.

Another favorable circumstance is that success has recently been achieved in combating several parasitic diseases, for we have learned from these examples how the conflict with pestilences is to be carried on.

SPECIAL PREVENTIVE MEASURES NEEDED FOR VARIOUS DISEASES.

The most important lesson we have learned from this experience is that it is a great blunder to treat pestilences according to a general scheme. This was done in former times; no matter whether the pestilence in question was cholera, plague or leprosy: isolation, quarantine, useless disinfection were always resorted to. But now we know that every disease must be treated according to its own special individuality, and that the measures to be taken against it must be most accurately adapted to its special nature, to its etiology. We are entitled to hope for success in combating tuberculosis only if we keep this lesson constantly in view. As so very much depends just on this point, I shall take the liberty to illustrate it by several examples.

Plague.—The pestilence which is at this moment in the foreground of interest, the bubonic plague, may be instructive to us in several respects.

People used to act upon the conviction that a plague patient was in the highest degree a centre of infection, and that the disease was transmitted only by plague patients and their belongings. Even the most recent international agreements are based on this conviction. Although, as compared with formerly, we now have the great advantage that we can, with the aid of the microscope and of experiments on animals, recognize every case of plague with absolute certainty, and although the prescribed inspection of ships, quarantine, the isolation of patients, the disinfection of infected dwellings and ships, are carried out with the utmost care, the plague has, nevertheless, been transmitted everywhere, and has in not a few places assumed grave dimensions. Why this has happened we know very well, owing to the experience quite recently gained as to the manner in which the plague is transmitted. It has been discovered that only those plague patients that suffer from plague pneumonia—a condition which is fortunately infrequent—are centres of infection, and that the real transmitters of the plague are the rats. There is no longer any doubt that, in by far the majority of cases in which the plague has been transmitted by ocean traffic, the transmission took place by means of plague among the ship rats. It has also been found that wherever the rats were intentionally or unintentionally exterminated the plague rapidly disappeared; whereas at other places, where too little attention had been paid to the rat plague, the

¹ An address delivered before a general meeting of the British Congress on Tuberculosis.—By the courtesy of the British Medical Journal.

pestilence continued. This connection between the human plague and the rat plague was totally unknown before, so that no blame attaches to those who devised the measures now in force against the plague if these measures had proved unavailing. It is high time, however, that this enlarged knowledge of the etiology of plague be utilized in international as well as in other traffic. As human plague is so dependent on rat plague, it is intelligible that protective inoculation and the application of antitoxic serum have had so little effect. A certain number of human beings may have been saved from the disease by that, but the general spread of the pestilence has not been hindered in the least.

Cholera.—With cholera the case is essentially different; it may under certain circumstances be transmitted directly from human beings to other human beings, but its main and most dangerous propagator is water; and therefore in the combating of cholera, water is the first thing to be considered. In Germany, where this principle has been acted on, we have succeeded for four years in regularly exterminating the pestilence (which was introduced again and again from the infected neighboring countries) without any interruption of traffic.

Hydrophobia.—Hydrophobia, too, is not devoid of instruction for us. Against this disease the so-called protective inoculation proper has proved eminently effective as a means of preventing the outbreak of the disease in persons already infected, but of course such a measure can do nothing to prevent infection itself. The only real way of combating this pestilence is by compulsory muzzling. In this matter also we have had the most satisfactory experience in Germany, but have at the same time seen that the total extermination of the pestilence can be achieved only by international measures; because hydrophobia, which can be very easily and rapidly suppressed, is always introduced again year after year from the neighboring countries.

Leprosy.—Permit me to mention only one other disease, because it is etiologically very closely akin to tuberculosis, and we can learn not a little for the furtherance of our aims from its successful combating. I mean leprosy. It is caused by a parasite which greatly resembles the tubercle bacillus. Just like tuberculosis, it does not break out till long after infection, and its course is almost slower. It is transmitted only from person to person, but only when they come into close contact, as in small dwellings and bedrooms. In this disease, accordingly, immediate transmission plays the main part; transmission by animals, water, or the like is out of the question. The combative measures, accordingly, must be directed against this close intercourse between the sick and the healthy. The only way to prevent this intercourse is to isolate the patients. This was most rigorously done in the Middle Ages by means of numerous leper houses, and the consequence was that leprosy, which had spread to an alarming extent, was completely stamped

out in Central Europe. The same method has been adopted quite recently in Norway, where the segregation of lepers has been ordered by a special law. But it is extremely interesting to see how this law is carried out. It has been found that it is not at all necessary to execute it strictly, for the segregation of only the worst cases, and even of only a part of these, sufficed to produce a diminution of leprosy; only so many infectious cases had to be sent to the leper houses that the number of fresh cases kept regularly diminishing from year to year. Consequently the stamping out of the disease had lasted much longer than it would have lasted if every leper had been inexorably consigned to a leper house, as in the Middle Ages; but in this way, too, the same purpose is gained—slowly, indeed, but without any harshness.

SPUTUM THE MAIN SOURCE OF INFECTION IN TUBERCULOSIS.

These examples may suffice to show what I am driving at, which is to point out that, in combating pestilences, we must strike the root of the evil, and must not squander force in subordinate ineffective measures. Now the question is whether what has hitherto been done, and what is about to be done, against tuberculosis, really strikes the root of tuberculosis, so that it must sooner or later die.

In order to answer this question it is necessary first and foremost to inquire how infection takes place in tuberculosis. Of course, I presuppose that we understand by tuberculosis only those morbid conditions which are caused by the tubercle bacillus.

In by far the majority of cases of tuberculosis the disease has its seat in the lungs, and has also begun there. From this fact it is justly concluded that the germs of the disease, that is, the tubercle bacilli, must have got into the lungs by inhalation. As to the question where the inhaled tubercle bacilli have come from, there is also no doubt. On the contrary, we know with certainty that they get into the air with the sputum of consumptive patients. This sputum, especially in advanced stages of the disease, almost always contains tubercle bacilli, sometimes in incredible quantities. By coughing, and even speaking, it is flung into the air in little drops, that is, in a moist condition, and can at once infect persons who happen to be near the coughers. But it may also be pulverized when dried, in the linen or on the floor, for instance, and get into the air in the form of dust.

In this manner a complete circle, a so-called *circulus vitiosus*, has been formed for the process of infection from the diseased lung, which produces phlegm and pus containing tubercle bacilli, to the formation of moist and dry particles (which, in virtue of their smallness, can keep floating a good while in the air), and finally to new infection, if particles penetrate with the air into a healthy lung and originate the disease anew. But the tubercle bacilli may get to other

organs of the body in the same way, and thus originate other forms of tuberculosis. This, however, is considerably rarer. The sputum of consumptive people, then, is to be regarded as the main source of the infection of tuberculosis. On this point, I suppose, all are agreed. The question now arises whether there are not other sources too, copious enough to demand consideration in the combating of tuberculosis.

Great importance used to be attached to the hereditary transmission of tuberculosis. Now, however, it has been demonstrated by thorough investigation that, though hereditary tuberculosis is not absolutely non-existent, it is nevertheless extremely rare, and we are at liberty, in considering our practical measures, to leave this form of origin entirely out of account.

DIFFERENCES BETWEEN HUMAN AND BOVINE TUBERCULOSIS.

But another possibility of tuberculous infection exists, as is generally assumed, in the transmission of the germs of the disease from tuberculous animals to man. This manner of infection is generally regarded nowadays as proved, and as so frequent that it is even looked upon by not a few as the most important, and the most rigorous measures are demanded against it. In this congress also the discussion of the danger with which the tuberculosis of animals threatens man will play an important part. Now, as my investigations have led me to form an opinion deviating from that which is generally accepted, I beg your permission, in consideration of the great importance of this question, to discuss it a little more thoroughly.

Genuine tuberculosis has hitherto been observed in almost all domestic animals, and most frequently in poultry and cattle. The tuberculosis of poultry, however, differs so much from human tuberculosis that we may leave it out of account as a possible source of infection for man. So, strictly speaking, the only kind of tuberculosis remaining to be considered is the tuberculosis of cattle, which, if really transferable to man, would indeed have frequent opportunities of infecting human beings through the drinking of the milk and the eating of the flesh of diseased animals.

Even in my first circumstantial publication on the etiology of tuberculosis I expressed myself regarding the identity of human tuberculosis and bovine tuberculosis with reserve. Proved facts, which would have enabled me sharply to distinguish these two forms of the disease, were not then at my disposal; but sure proofs of their absolute identity were equally undiscoverable, and I therefore had to leave this question undecided. In order to decide it I have repeatedly resumed the investigations relating to it, but so long as I experimented on small animals, such as rabbits and guinea pigs, I failed to arrive at any satisfactory result, though indications which rendered the difference of the two forms of tuberculosis probable were not wanting. Not till the complaisance of the Ministry of Agriculture en-

abled me to experiment on cattle, the only animals really suitable for these investigations, did I arrive at absolutely conclusive results. Of the experiments which I have carried out during the last two years along with Professor Schütz of the Veterinary College in Berlin, I will tell you briefly some of the most important.

A number of young cattle which had stood the tuberculin test, and might therefore be regarded as free from tuberculosis, were infected in various ways with tubercle bacilli taken from cases of human tuberculosis; some of them got the tuberculous sputum of consumptive patients direct. In some cases the tubercle bacilli or the sputum were injected under the skin; in others into the peritoneal cavity; in others into the jugular vein. Six animals were fed with tuberculous sputum almost daily for seven or eight months; four repeatedly inhaled great quantities of bacilli, which were distributed in water, and scattered with it in the form of spray. None of these cattle (there were nineteen of them) showed any symptoms of disease, and they gained considerably in weight. From six to eight months after the beginning of the experiments they were killed. In their internal organs not a trace of tuberculosis was found. Only at the places where the injections had been made small suppurative foci had formed, in which few tubercle bacilli could be found. This is exactly what one finds when one injects dead tubercle bacilli under the skin of animals liable to contagion. So the animals we experimented on were affected by the living bacilli of human tuberculosis exactly as they would have been by dead ones; they were absolutely insusceptible to them.

The result was utterly different, however, when the same experiment was made on cattle free from tuberculosis with tubercle bacilli that came from the lungs of an animal suffering from bovine tuberculosis. After an incubation period of about a week the severest tuberculous disorders of the internal organs broke out in all the infected animals. It was all one whether the infecting matter had been injected only under the skin or into the peritoneal cavity or the vascular system. High fever set in, and the animals became weak and lean; some of them died after a month and a half to two months; others were killed in a miserably sick condition after three months. After death extensive tuberculous infiltrations were found at the place where the injections had been made, and in the neighboring lymphatic glands, and also far advanced alterations of the internal organs, especially the lungs and the spleen. In the cases in which the injection had been made into the peritoneal cavity the tuberculous growths which are so characteristic of bovine tuberculosis were found on the omentum and peritoneum. In short, the cattle proved just as susceptible to infection by the bacillus of bovine tuberculosis as they had proved insusceptible to infection by the bacillus of human tuberculosis. I wish only to add that preparations of the organs of the cattle which were artificially

infected with bovine tuberculosis in these experiments are exhibited in the Museum of Pathology and Bacteriology.

An almost equally striking distinction between human and bovine tuberculosis was brought to light by a feeding experiment with swine. Six young swine were fed daily for three months with the tuberculous sputum of consumptive patients. Six other swine received bacilli of bovine tuberculosis with their food daily for the same period. The animals that were fed with the sputum remained healthy and grew lustily, whereas those that were fed with the bacilli of bovine tuberculosis soon became sickly, were stunted in their growth, and half of them died. After three months and a half the surviving swine were all killed and examined. Among the animals that had been fed with sputum no trace of tuberculosis was found, except here and there little nodules in the lymphatic glands of the neck, and in one case a few gray nodules in the lungs. The animals, on the other hand, which had eaten bacilli of bovine tuberculosis had, without exception (just as in the cattle experiment), severe tuberculous diseases, especially tubercular infiltration of the greatly enlarged lymphatic glands of the neck and of the mesenteric glands, and also extensive tuberculosis of the lungs and the spleen.

The difference between human and bovine tuberculosis appeared not less strikingly in a similar experiment with asses, sheep and goats, into whose vascular systems the two kinds of tubercle bacilli were injected.

Our experiments, I must add, are not the only ones that have led to this result. If one studies the older literature of the subject and collates the reports of the numerous experiments that were made in former times by Chauveau, Günther and Harms, Bollinger and others, who fed calves, swine and goats with tuberculous material, one finds that the animals that were fed with the milk and pieces of the lungs of tuberculous cattle always fell ill of tuberculosis, whereas those that received human material with their food did not. Comparative investigations regarding human and bovine tuberculosis have been made very recently in North America by Smith, Dinwiddie, Frothingham and Kepp, and their result agreed with ours. The unambiguous and absolutely conclusive results of our experiments are due to the fact that we chose methods of infection which exclude all sources of error, and carefully avoided everything connected with the stalling, feeding and tending of the animals that might have a disturbing effect on the experiments.

Considering all these facts, I feel justified in maintaining that human tuberculosis differs from bovine, and cannot be transmitted to cattle. It seems to me very desirable, however, that these experiments should be repeated elsewhere, in order that all doubt as to the correctness of my assertion may be removed.

I wish only to add that, owing to the great importance of this matter, our government has

resolved to appoint a commission to make further inquiries on the subject.

IS MAN SUSCEPTIBLE TO BOVINE TUBERCULOSIS?

But, now, how is it with the susceptibility of man to bovine tuberculosis? This question is far more important to us than that of the susceptibility of cattle to human tuberculosis, highly important as that is, too. It is impossible to give this question a direct answer, because, of course, the experimental investigation of it with human beings is out of the question. Indirectly, however, we can try to approach it. It is well known that the milk and butter consumed in great cities very often contain large quantities of the bacilli of bovine tuberculosis in a living condition, as the numerous infection experiments with such dairy products on animals have proved. Most of the inhabitants of such cities daily consume such living and perfectly virulent bacilli of bovine tuberculosis, and unintentionally carry out the experiment which we are not at liberty to make. If the bacilli of bovine tuberculosis were able to infect human beings, many cases of tuberculosis caused by the consumption of aliments containing tubercle bacilli could not but occur among the inhabitants of great cities, especially the children. And most medical men believe that this is actually the case.

In reality, however, it is not so. That a case of tuberculosis has been caused by aliments can be assumed with certainty only when the intestine suffers first; that is, when a so-called primary tuberculosis of the intestines is found. But such cases are extremely rare. Among many cases of tuberculosis examined after death, I myself remember having seen primary tuberculosis of the intestine only twice. Among the great post-mortem material of the Charité Hospital in Berlin 10 cases of primary tuberculosis of the intestine occurred in 5 years. Among 933 cases of tuberculosis in children at the Emperor Frederick's Hospital for Children, Baginsky never found tuberculosis of the intestine without simultaneous disease of the lungs and the bronchial glands. Among 3,104 post-mortem examinations of tuberculous children, Biedert observed only 16 cases of primary tuberculosis of the intestine. I could cite from the literature of the subject many more statistics of the same kind, all indubitably showing that primary tuberculosis of the intestine, especially among children, is a comparatively rare disease; and of these few cases that have been enumerated, it is by no means certain that they were due to infection by bovine tuberculosis. It is just as likely that they were caused by the widely propagated bacilli of human tuberculosis, which may have got into the digestive canal in some way or other; for instance, by swallowing saliva from the mouth. Hitherto nobody could decide with certainty in such a case whether the tuberculosis of the intestine was of human or of animal origin. Now we can make the diagnosis. All that is necessary is to cultivate in pure culture the tubercle bacilli found in the tuberculous

material, and to ascertain whether they belong to bovine tuberculosis by inoculating cattle with them. For this purpose I recommend subcutaneous injection, which yields quite specially characteristic and convincing results. For half a year past I have occupied myself with such investigations, but, owing to the rareness of the disease in question, the number of the cases I have been able to investigate is but small. What has hitherto resulted from this investigation does not support the assumption that bovine tuberculosis occurs in man.

Though the important question whether man is susceptible to bovine tuberculosis at all, is not yet absolutely decided, and will not admit of absolute decision today or tomorrow, one is nevertheless already at liberty to say that, if such a susceptibility really exists, the infection of human beings is but a very rare occurrence. I should estimate the extent of the infection by the milk and flesh of tuberculous cattle, and the butter made of their milk, as hardly greater than that of hereditary transmission, and I therefore do not deem it advisable to take any measures against it.

HUMAN SPUTUM THE MAIN SOURCE OF HUMAN TUBERCULOSIS.

So the only main source of the infection of tuberculosis is the sputum of consumptive patients, and the measures for the combating of tuberculosis must aim at the prevention of the dangers arising from its diffusion. Well, what is to be done in this direction? Several ways are open. One's first thought might be to consign all persons suffering from tuberculosis of the lungs, whose sputum contains tubercle bacilli, to suitable establishments. This, however, is not only absolutely impracticable, but also unnecessary. For a consumptive who coughs out tubercle bacilli is not necessarily a source of infection on that account, so long as he takes care that his sputum is properly removed and rendered innocuous. This is certainly true of very many patients, especially in the first stages, and also of those who belong to the well-to-do classes, and are able to procure the necessary nursing. But how is it with people of very small means? Every medical man who has often entered the dwellings of the poor, and I can speak on this point from my own experience, knows how sad is the lot of consumptives and their families there. The whole family have to live in one or two small, ill-ventilated rooms. The patient is left without the nursing he needs, because the able-bodied members of the family must go to their work. How can the necessary cleanliness be secured under such circumstances? How is such a helpless patient to remove his sputum, so that it may do no harm? But let us go a step further and picture the condition of a poor consumptive patient's dwelling at night. The whole family sleep crowded together in one small room. However cautious he may be, the sufferer scatters the morbid matter secreted by his diseased lungs every time he coughs, and his relatives close beside him must inhale this poison. Thus whole

families are infected. They die out, and awaken in the minds of those who do not know the infectiousness of tuberculosis the opinion that it is hereditary, whereas its transmission in the cases in question was due solely to the simplest process of infection, which do not strike people so much, because the consequences do not appear at once, but generally only after the lapse of years.

FOCI OF TUBERCULOUS INFECTION.

Often, under such circumstances, the infection is not restricted to a single family, but spreads in densely inhabited tenement houses to the neighbors, and then, as the admirable investigations of Biggs have shown in the case of the densely peopled parts of New York, regular nests of foci of disease are formed. But if one investigates these matters more thoroughly, one finds that it is not poverty *per se* that favors tuberculosis, but the bad domestic conditions under which the poor everywhere, but especially in great cities, have to live. For, as the German statistics show, tuberculosis is less frequent, even among the poor, when the population is not densely packed together, and may attain very great dimensions among a well-to-do population when the domestic conditions, especially as regards the bedrooms, are bad, as is the case, for instance, among the inhabitants of the North Sea coast. So it is the overcrowded dwellings of the poor that we have to regard as the real breeding places of tuberculosis; it is out of them that the disease always crops up anew, and it is to the abolition of these conditions that we must first and foremost direct our attention if we wish to attack the evil at its root, and to wage war against it with effective weapons.

This being so, it is very gratifying to see how efforts are being made in almost all countries to improve the domestic conditions of the poor. I am also convinced that these efforts, which must be promoted in every way, will lead to a considerable diminution of tuberculosis. But a long time must elapse ere essential changes can be effected in this direction, and much may be done meanwhile in order to reach the goal much more rapidly.

THE NEED FOR HOSPITALS FOR CONSUMPTIVES.

If we are not able at present to get rid of the danger which small and overcrowded dwellings involve, all we can do is to remove the patients from them, and in their own interests and that of the people about them, to lodge them better; and this can be done only in suitable hospitals. But the thought of attaining this end by compulsion of any kind is very far from me: what I want is that they may be enabled to obtain the nursing they need better than they can obtain it now. At present a consumptive in an advanced stage of the disease is regarded as incurable and as an unsuitable inmate for a hospital. The consequence is that he is reluctantly admitted and dismissed as soon as possible. The patient, too, when the treatment seems to him to produce no improve-

ment, and the expenses, owing to the long duration of his illness, weigh heavily upon him, is himself animated by the wish to leave the hospital soon. That would be altogether altered if we had special hospitals for consumptives, and if the patients were taken care of there for nothing, or at least at a very moderate rate. To such hospitals they would willingly go; they could be better treated and fed there than is now the case. I know very well that the execution of the project will have great difficulties to contend with, owing to the considerable outlay it entails. But very much would be gained if, at least in the existing hospitals, which have to admit a great number of consumptives at any rate, special wards were established for them in which pecuniary facilities would be offered them. If only a considerable fraction of the whole number of consumptives were suitably lodged in this way, a diminution of infection, and consequently of the sum total of tuberculosis, could not fail to be the result. Permit me to remind you in this connection of what I said about leprosy. In the combating of that disease also great progress has already been made by lodging only a fair number of the patients in hospitals. The only country that possesses a considerable number of special hospitals for tuberculous patients is England, and there can be no doubt that the diminution of tuberculosis in England, which is much greater than in any other country, is greatly due to this circumstance. I should point to the founding of special hospitals for consumptives and the better utilization of the already existing hospitals for the lodging of consumptives as the most important measure in the combating of tuberculosis, and its execution opens a wide field of activity to the State, to municipalities and to private benevolence. There are many people who possess great wealth, and would willingly give of their superfluity for the benefit of their poor and heavily afflicted fellow creatures, but do not know how to do this in a judicious manner. Here is an opportunity for them to render a real and lasting service by founding consumption hospitals or purchasing the right to have a certain number of consumptive patients maintained in special wards of other hospitals free of expense.

As, however, unfortunately, the aid of the State, the municipalities and rich benefactors will probably not be forthcoming for a long time yet, we must for the present resort to other measures that may pave the way for the main measure just referred to, and serve as a supplement and temporary substitute for it.

NOTIFICATION.

Among such measures I regard obligatory notification as specially valuable. In the combating of all infectious diseases it has proved indispensable as a means of obtaining certain knowledge as to their state, especially their dissemination, their increase and decrease. In the conflict with tuberculosis also we cannot dispense with obligatory notification; we need it not only to inform our-

selves as to the dissemination of this disease, but mainly in order to learn where help and instruction can be given, and especially where the disinfection which is so urgently necessary when consumptives die or change their residences has to be effected. Fortunately it is not at all necessary to notify all cases of tuberculosis, nor even all cases of consumption, but only those which, owing to the domestic conditions, are sources of danger to the people about them. Such limited notification has already been introduced in various places in Norway, for instance, by a special law; in Saxony by a ministerial decree; in New York and in several American towns, which have followed its example. In New York, where notification was optional at first and was afterwards made obligatory, it has proved eminently useful. It has thus been proved that the evils which it used to be feared the introduction of notification for tuberculosis would bring about need not occur, and it is devoutly to be wished that the examples I have named may soon excite emulation everywhere.

DISINFECTION.

There is another measure, closely connected with notification — namely, disinfection, which, as already mentioned, must be effected when consumptives die or change their residence, in order that those who next occupy the infected dwelling may be protected against infection. Moreover, not only the dwellings, but also the infected beds and clothes of patients ought to be disinfected.

EDUCATION OF THE PUBLIC.

A further measure, already recognized on all hands as effective, is the instructing of all classes of the people as to the infectiousness of tuberculosis, and the best way of protecting oneself. The fact that tuberculosis has considerably diminished in almost all civilized States of late is attributable solely to the circumstance that knowledge of the contagious character of tuberculosis has been more and more widely disseminated, and that caution in intercourse with consumptives has increased more and more in consequence. If better knowledge of the nature of tuberculosis has alone sufficed to prevent a large number of cases, this must serve us as a significant admonition to make the greatest possible use of this means, and to do more and more to bring it about, that everybody may know the dangers that threaten him in intercourse with consumptives. It is only to be desired that the instructions may be made shorter and more precise than they generally are, and that special emphasis be laid on the avoidance of the worst danger of infection, which is the use of bedrooms and small, ill-ventilated workrooms simultaneously with consumptives. Of course the instructions must include directions as to what consumptives have to do when they cough, and how they are to treat their sputum.

SANATORIA.

Another measure which has come into the foreground of late, and which at this moment plays

to a certain extent a paramount part in all efforts for the combating of tuberculosis, works in quite another direction. I mean the founding of sanatoria for consumptives.

That tuberculosis is curable in its early stages must be regarded as an undisputed fact. The idea of curing as many tuberculous patients as possible in order to reduce the number of those that reach the infectious stage of consumption, and thus to reduce the number of fresh cases, was therefore a very natural one. The only question is whether the number of persons cured in this way will be great enough to exercise an appreciable influence on the retrogression of tuberculosis. I will try to answer this question in the light of the figures at my disposal.

According to the business report of the German Central Committee for the Establishment of Sanatoria for the Cure of Consumptives, about 5,500 beds will be at the disposal of these institutions by the end of 1901, and then, if we assume that the average stay of each patient will be 3 months, it will be possible to treat at least 20,000 patients every year. From the reports hitherto issued as to the results that have been achieved in the establishments, we learn further that about 20% of the patients that have tubercle bacilli in their sputum, lose them by the treatment there. This is the only sure test of success, especially as regards prophylaxis. If we make this the basis of our estimates, we find that 4,000 consumptives will leave these establishments annually as cured. But according to the statistics ascertained by the German Imperial Office of Health, there are 226,000 persons in Germany over 15 years of age who are so far gone in consumption that hospital treatment is necessary for them. Compared with this great number of consumptives, the success of the establishments in question seems so small that a material influence on the retrogression of tuberculosis in general is not yet to be expected of them. But pray do not imagine that I wish, by this calculation of mine, to oppose the movement for the establishment of such sanatoria in any way. I only wish to warn against an overestimation of their importance which has recently been observable in various quarters, based apparently on the opinion that the war against tuberculosis can be waged by means of sanatoria alone, and that other measures are of subordinate value. In reality the contrary is the case. What is to be achieved by the general prophylaxis resulting from recognition of the danger of infection and the consequent greater caution in intercourse with consumptives, is shown by a calculation of Cornet's regarding the decrease of mortality from tuberculosis in Prussia in the years 1889 to 1897. Before 1899 the average was 31.4 per 10,000, whereas in the period named it sank to 21.8, which means that in that short space of time the number of deaths from tuberculosis was 184,000 less than was to be expected from the average of the preceding years. In New York, under the influence of the general sanitary measures directed in a simply exemplary manner by Biggs, the mortality

from tuberculosis has diminished by more than 35% since 1886; and it must be remembered that both in Prussia and New York the progress indicated by these figures is due to the first beginnings of these measures. Considerably greater success is to be expected of their further development. Biggs hopes to have got so far in five years that in the city of New York alone the annual number of deaths from tuberculosis will be 3,000 less than formerly.

Now, I do indeed believe that it will be possible to render the sanatoria considerably more efficient. If strict care be taken that only patients be admitted for whom the treatment of those establishments is well adapted, and if the duration of the treatment be prolonged, it will certainly be possible to cure 50%, and perhaps still more. But even then, and even if the number of the sanatoria be greatly increased, the total effect will always remain but moderate. The sanatoria will never render the other measures I have mentioned superfluous. If their number become great, however, and if they perform their functions properly, they may materially aid the strictly sanitary measures in the conflict with tuberculosis.

CONCLUSION.

If now, in conclusion, we glance back once more to what has been done hitherto for the combating of tuberculosis, and forward to what has still to be done, we are at liberty to declare with a certain satisfaction that very promising beginnings have already been made. Among these I reckon the consumption hospitals of England, the legal regulations regarding notification in Norway and Saxony, the organization created by Biggs in New York—the study and imitation of which I most urgently recommend to all municipal sanitary authorities—the sanatoria, and the instruction of the people. All that is necessary is to go on developing these beginnings, to test, and if possible to increase their influence on the diminution of tuberculosis, and wherever nothing has yet been done, to follow the examples set elsewhere.

If we allow ourselves to be continually guided in this enterprise by the spirit of genuine preventive medical science, if we utilize the experience gained in conflict with other pestilences, and aim with clear recognition of the purpose and resolute avoidance of wrong roads, at striking the evil at its root, then the battle against tuberculosis, which has been so energetically begun, cannot fail to have a victorious issue.

Bins were recently opened for the erection of 3 buildings to be used in connection with the Philadelphia Hospital at the almshouse. The money available for the purpose is \$80,000. The Children's Hospital building will be a three-story brick structure, with 2 wards, each 30 by 36 feet. On the upper floors will be an operating-room, nurses' and physicians' quarters, with a laboratory on the first floor. In the Contagious Skin Disease Hospital there will be separate quarters for men and women.—*American Medicine.*

SCIENTIFIC RESEARCH: THE INDISPENSABLE BASIS OF ALL MEDICAL AND MATERIAL PROGRESS.]

BY GEORGE BAGOT FERGUSON, M.A., M.D., B.CHONON.

Senior Surgeon to the Cheltenham General Hospital and to Cheltenham College.

"Vergebens, dass, ihr ringsum wissenschaftlich schweift,

Ein jeder lernt nur was er lernen kann,

hoch der den Augenblick ergreift,

Das ist der rechte Mann."—GOETHE.

"Man is bound to expend every particle of strength which God Almighty has given him in doing the work he finds he is fit for, to stand up to it to the last breath of life, and to do his best."—CARLIE.

"quemque miserum videris, hominem scias."—SENECA.

INTRODUCTORY.

LADIES AND GENTLEMEN: My first duty is to bid you a hearty welcome to Cheltenham, which has not been visited by the association since 1837, the auspicious year of our late lamented queen's accession to the throne. But 1901 is no less an auspicious year, marking as it does the accession of King Edward VII, formerly an honorary member of our association, but now its patron. Of His Majesty we may confidently affirm that throughout the long line of British monarchs there has reigned none more closely connected with the medical profession, and none a more constant and munificent supporter of its great charities and institutions.

The first visit of the association to Cheltenham was the fifth of its annual meetings, and was held under the presidency of Dr. Boisragon. In 1837 the association comprised 940 members only. Now it is a great and powerful body, numbering nearly 19,000, when we include its 30 branches in the British Colonies and in India. To us who have lived long in Cheltenham—and I have lived here fifty years—there is no more favored spot. The words of Horace:

"Ille terrarum mihi præter omnes
Angulus ridet."

express my feeling and that of most of our old residents; and right glad I am that the leaders of British medicine should come here once again, to spend four days of work and inquiry, of comparison and sifting of facts, in our garden town; for we have nothing to fear, but much to gain from their presence and close scrutiny. The town of Cheltenham, originally a royal manor of great antiquity, is, so far as its present aspect is concerned, comparatively modern, and owes its present position and popularity to two chief causes, its waters and its educational establishments.

You will notice how we lie on a gentle slope of the Cotswolds, with a natural drainage towards the Severn. You will see how sheltered we are on the east, and how open to the north and west; whilst from most directions the air blows on us fresh and pure, either from the open woods of the neighboring hills or from the valleys of Evesham and Gloucester. Our water-supply, mainly from

the hills, is pure and good. It contains lime, but not enough to produce calculous disorders, though sufficient to supply a needful constituent for growth and nutrition, so as to constitute one great factor of the high salubrity of Cheltenham, and of its reputation as a home for youth. Ascend the hills, and you will see that our town is a garden of broad roads, with innumerable trees oxygenating and renovating the atmosphere under the influence of light. The use of its waters dates from about 1716, soon after their discovery by the pigeons, who were wont to pick up the saline particles left by their evaporation, as they flowed to waste unnoticed—a circumstance commemorated by the pigeons on our municipal arms. The original Cheltenham spring is within a short distance of this great hall, which marks the spot where the waters of another well were formerly imbibed by King George III and many thousands of invalids. Tennyson, who composed much of his "In Memoriam" here, was thinking of Cheltenham when he wrote the lines:

There rolls the wave, where grew the tree,
Oh Earth, what changes hast thou seen,
Where the long street now roars, hath been
The stillness of the central sea.

Beneath the town are vast saline deposits, the relics of this "central sea." The springs, becoming charged with brine, percolate afterwards through deposits of iron pyrites, oxidation of which yields the sulphates that so largely characterize the Cheltenham waters. The constitution of most of the springs is nearly the same as those of Carlsbad, with the exception that the last are hot, and contain in addition more carbonate of soda and free carbonic acid,—a deficiency easily supplied by the addition to our local waters of a little hot viehy or vals; and thus we obtain a curative means of still greater efficacy in some cases.

After the pigeons had discovered the waters they gradually increased in popularity, until at last kings, princes, lords and commonly flocked to the healing springs. Of the celebrities of 85 years ago it will be simplest to state that they all came here, and found their advantage in so doing. The use of our waters, like those of Carlsbad, is mainly for affections of the stomach and liver, and their efficacy in the diseases of Anglo-Indians made Cheltenham, soon after its general reputation was established, one of their specially favorite resorts, as it remains to this day. The waters are with us still, and their virtue is unimpaired, but the celebrities come no longer. The poor use them with the greatest benefit, but the rich for the most part go elsewhere—to Carlsbad or Homburg, for instance, where their amusements, at any rate, are much better provided for. The principal wells have now passed into the keeping of the corporation, and the greatest care is taken to ensure the purity and uniformity of their yield. I can assure all gastric and hepatic sufferers that if they will only drink the Montpellier saline or the No. 2 Pittville warm, as they do the similar

1 President's address delivered before the Sixty-ninth Annual Meeting of the British Medical Association.—By the courtesy of the British Medical Journal.

waters of the continent, early in the morning, in repeated small draughts, taking exercise between them, they will find them not one whit less efficacious than the very best of the springs of Germany; and I sincerely hope that most of those here present will make a practical trial of them and recommend them. I will ask further that they should look at the results of Professor Thorpe's recent analyses of our waters, and compare them with those of the best-known German springs; when they will at once perceive how immeasurably superior are the former to most of the latter, to Homburg and Wiesbaden, to Kreuznach and Kissingen, for instance. In the Nos. 1 and 3 Pittville we have an extremely salt water, almost identical with that of Wiesbaden, and some years ago the Spa Medical Committee and a sympathizing body in the corporation projected a sumptuous set of medical baths, in which this salt water, heated, would have been utilized. A vast deal of trouble and expense was gone to, though the scheme, which would have been most advantageous to many invalids and to Cheltenham, was finally wrecked, owing mainly to the opposition of our temporary residents. And thus it is that, to the keen disappointment of many, we cannot show you our new Bains de Luxe, with which we had hoped to restore some of the old therapeutical fame of Cheltenham. These we cannot show you, but we will ask you in their place to inspect our new public baths, which for art, science and luxury are not, I believe, inferior to the best anywhere.

This would seem to be the right place for mentioning some of our medical worthies of the past: Dr. Baron, the biographer of Jenner (of whom more presently); Dr. Henry Wyldbore Rumsey, F.R.S., the pioneer of sanitary science, who filled the chair of public medicine at the Newcastle meeting of 1870; Charles Fowler, one of the founders of the Cheltenham Hospital, who ranked among the first of the provincial practitioners of 50 years ago; Clement Hawkins, the fellow-student and lifelong friend of the late Sir James Paget, a most successful practitioner, blunt and direct, but the soul of kindness and honor, whose name is still gratefully enshrined in the recollection of an extensive circle; Dr. Evans of Gloucester, the first president of our branch, our chief consultant of 30 years ago, a physician equal in kindness and accomplishment, in insight and generosity; Dr. Wright, F.R.S., our first medical officer of health, a student of nature from his youth, a most accomplished geologist, anatomist and surgeon, the most original and interesting man I ever met, whom to know was to admire, with whom to be intimate was an education. Drs. Baron and Rumsey and Mr. Fowler were present at the last Cheltenham meeting; at which I find also mentioned the well-remembered local names of Allardyce, Bernard, Coley, Cooke, Eves and Gibney. I hope that you will report kindly and favorably of our town, of its advantages generally, and of its educational establishments in particular; of its successful college, the first of

the great modern public schools, and of its unparalleled Ladies' College, where we meet tonight, and where all of our sections will be accommodated. Nor must I omit to name our ancient and yet completely modern Grammar School, our great training colleges for teachers, and that splendidly managed young giant, Dean Close School. What we have lost as a spa we have more than regained as a centre for education. It may be that some of our arrangements are not yet quite perfect, but the corporation is wide-awake, and determined always to remember the motto of the town, "*Salubritas et Eruditio*."

THE FOUNDATIONS OF MEDICINE.

"*Homo sum; humani nihil a me alienum puto*," and this sentence of Terence may well be taken as descriptive of the modern practitioner of medicine. Is there nothing revolting in medical and surgical training and practice, in the year of dissection so wisely exacted from every medical student, in the indispensable work of the deadhouse, in the examination of patients, and in many operations of surgery and obstetrics? There is much, no doubt, repulsive to us at first in our professional education, but the cheering thought of doing service to our common humanity removes the feeling of abhorrence that would otherwise overcome us. As we for others, so others willingly for us; for sooner or later the medical man himself must seek the help of his fellows. Age, infirmity, mortal illness must come to him, too, in his turn, and so during his days of activity he must shrink from nothing which is repulsive, and hesitate at nothing which is disagreeable, if only he may know more fully and act more precisely. To me "*Homo sum; humani nihil a me alienum puto*," is the most inspiring and the most comforting of mottoes.

Man's body is our chief care and study: its anatomy, its physiology, its diseases and injuries. Of anatomy we may say that it is the indispensable basis of medicine and surgery, and I can honestly state that I have never known a conspicuously successful practitioner who was not a good anatomist. To the younger members of the profession I would say, never lose your grasp of anatomy; dissect whenever you have the opportunity, and as regards your anatomical manuals "*Nocturnâ versate manu, versate diurnâ*." Physiology teaches us that which is in accordance with nature; and if we would recognize that which is abnormal or diseased, that which is pathological or contrary to nature, it follows that we must ever keep before our eyes the physiological standard, the normal processes, reactions and chemistry of the human body. Then of diseases themselves or variations from the normal we may recognize that many are essentially derangements of function, such as catarrh, anemia, diabetes, gout; whilst others are due to true anatomical changes, such as chronic Bright's disease, atheroma, hemiplegia, valvular disease of the heart, and cirrhosis of the liver. Others, again, like anthrax, phthisis, glanders, typhoid, tetanus and diphtheria are due to parasitic invasion. Indeed, a division of dis-

cases may be made into anatomical, physiological and parasitic; the last including tumors, of which the malignant or infective are especially parasitic. Composed as such tumors are of the natural cells and tissues of the body, and apparently of nothing else, but passing out of their proper location and vocation (and this is the doctrine of Ribbert published in 1895), and arrogating to themselves the license of unlimited multiplication and growth; and remembering that there is no sharp line of demarcation between the animal and vegetable kingdoms, it has always seemed to me that the occurrence of a malignant tumor implied a reversion to a condition of life that is neither animal nor vegetable, but intermediate and parasitic. Degenerating from their high position in the scale of being, some of our connective tissue or endothelial or epithelial cells, as the result of malnutrition (as Sangalli asserts), or of irritation, or under the influence at first of some specific organism (some blastomycete), as Thoma, Schenrlen, Korotneff, Russell, Sanfelice and Roncali have asserted, comport themselves somewhat as the yeast fungus, itself a blastomycete, in a suitable medium would do, growing ever and working never (as Adami suggests), and soon, unless the surgeon interposes quickly and boldly and removes root and branch the malefic colony, the whole body becomes contaminated by the animal fungoid, which soon destroys its life. However numerous the departments of medical science may be,—and we have thirteen represented at this meeting,—anatomy, physiology and pathology being the true foundations of medicine, should always hold a very large share of our attention.

ONE HUNDRED YEARS AGO.

The medical orator of today, standing, as it were, between two centuries, must naturally, whilst regarding the present, glance also backwards and forwards. Now what was the condition of medicine a hundred years ago? Well, thanks to the work mainly of Haller, of Göttingen and of Morgagni of Padua, the old mysticism had to a large extent been dissipated, and a physiological foundation was laid by the first and a pathological one by the second, for that vast superstructure of facts on which are based the medicine and surgery not only of 100 years ago, but of today. Haller and Morgagni were true disciples—though at a considerable interval—of Vesalius, who, following Mondino de Luzzi, first broke completely through the deadening influence of the Galenic tradition, and founded human anatomy on direct observation alone. Then it was that the paralyzing effect of the Roman edict of the first century was effectively removed, that for 1,200 years had arrested the progress of anatomy, and with it all medical and surgical progress, by forbidding post-mortem examinations—just as many good people now would tie our hands in other directions, and keep us stagnant till the world grew wiser.

It was that great mediæval ruler, the Emperor Frederick II, of the illustrious house of Hohen-

staufen, who once more, after its long neglect, revived the study of practical anatomy in the thirteenth century, by forbidding the practice of surgery to any but well-instructed anatomists, an injunction which led to the establishment of a school of practical anatomy at Salerno, in lower Italy, and soon afterwards of another at Bologna.

The schools of Salerno and Bologna, with those of Milan, Montpellier and Padua, were, however, still too reverent of antiquity, and it was not before the advent of that greatest of anatomists, Andrew Wittings—commonly known as Vesalius (from Wesel on the Rhine, the original home of his family), who taught at Padua, Pavia, Bologna, and Pisa between 1539 and 1564, the reappointed, though never the actual successor of his own pupil Fallopius at Padua—that modern anatomy really began. I say reappointed, for he had been professor before at Padua, when he was only 23 years old; and after long wanderings, occasioned by accusations of impiety, had been honorably recalled, when, owing to a shipwreck, he lost his life—of such priceless value to science—at the too early age of 49. I must not attempt to describe the discoveries of Vesalius, though I may mention that, apart from his well-known corrections of the osteology of Galen, it is to him that we owe our first exacter knowledge of the inferior vena cava, the vena azygos, the ductus venosus, the cerebral ventricles, the peritoneum and the internal ear. One hundred and fifty years later arose one of Boerhaave's scholars, Albrecht Von Haller of Göttingen—himself a great anatomist—who, animated by the teachings of Vesalius, by his love of truth and nature, and by an aptitude for physiological research, which was all his own, stands forth as the father of modern physiology.

In 1791 Morgagni of Padua (a pupil of Val-salva, whom he constantly quotes) published what Matthew Baillie styled his "stupendous work" on the "Seats and Causes of Disease, Investigated by Anatomy," thereby at once earning the title of the Father of Pathology.

Vesalius, Haller and Morgagni were the true founders of modern medicine, and we cannot even now peruse their writings without instruction and surprise. It was Glisson—Harvey's successor in the anatomical and surgical chair of the College of Physicians (not Royal in those days)—who first declared that the great characteristic of living matter is that it moves, the ground of motion being irritability; but it was Haller who first distinguished between muscular irritability and nervous sensibility (the vital properties of Bichat), and explaining the great facts of physiology as largely dependent on the both, removed at once the *Deus ex machina*, the extraneous spirit, so fondly imagined by the old physicians. The *Pneuma* of Hoffmann, the *Nervous L liquor* of Mead, the *Anima* of Stahl, the *Archæus* of Van Helmont, being no longer hypothetically needed, were gradually discarded. So it was that Haller and Morgagni, the great physiologist and the great morbid anatomist of the eighteenth century, led up to the

improved practice of 1801 and later. This was to some extent due to John Brown of Edinburgh, the representative in modern times of the so-called "Methodists" of the first century. Brown it was who first divided diseases into sthenic and asthenic, who first gave beef tea in debility and who first fed fevers. The Brownian or Brunonian system, or the plan of stimulating or lowering, as required, obtained a large vogue at the beginning of the nineteenth century, and still largely influences the practice of today. It must be freely conceded, however, that the highly philosophical doctrines of Brown were by no means judiciously or consistently carried out by himself and his immediate successors.

One hundred years ago Laennec was prosecuting those studies the result of which were to constitute him soon afterwards the medical guiding star of France, and later of the whole world; and after him ranked Bichat, the anatomist, and Broussais, the physician. It is doubtful if anyone ever accomplished so much for medicine during a short life of 31 years as Bichat did. Our own Hewson, who died at the age of 34, comes nearest to him. In one winter alone Bichat dissected 700 bodies. I cannot stop to enumerate the discoveries of this "Napoleon of medicine," as he was then called, though I may mention that it is to him that we owe the discrimination of pneumonia, pleurisy and bronchitis.

According to Broussais, irritation or inflammation accounted for most diseases, and bleeding was the most general and most trustworthy treatment. For leeches (first used in European medicine at Rome in the first century) he was the greatest enthusiast the world has ever known, having used 100,000 in his own practice in a single year. The importation of leeches into France in his time amounted to over 41,000,000 a year! There can be no doubt that treatment by bleeding was formerly sadly overdone; but the pendulum has now swung too far in the opposite direction, and I cannot doubt that lives are now lost for the want of it. I have myself seen desperate cases of pulmonary obstruction in which I have advised it, but friends objected, and not one of these cases was saved by its omission. On the other hand, at a meeting not long ago of our local branch at Gloucester, some remarkable cases were brought forward of the recovery of epilepsy, puerperal convulsions, and of apparently hopeless pneumonia after free bleeding.

Among the other great names of France a hundred years ago I should mention Bayle, Bretonneau of Tours, and Alibert, and the surgeons Boyer, Larrey, Roux and Dupuytren, a galaxy unmatchable then in any other part of the world. Small wonder that the earnest students of all nations flocked in those days to Paris, and still more so a few years later, when we should need to add to our enumeration the names of Corvisart, Cloquet, Louis, Cruveilhier, Andral and Bouillaud; just as they are now flocking to Germany, and will soon, I believe, betake themselves to America, and hereafter to London, if only its

newly reconstituted teaching university turns out as successful as we all hope it may be. I sincerely trust that this new departure may make full amends for the university that we were promised ten years ago, which was to have been named after that most enlightened member of our royal family, the late prince consort, to whom more than to anyone else we owe the establishment of scientific teaching in England. A hundred years ago we had in London Heberden, Willan and Baillie. The first has left us his "Commentaries," which are a mine of mute and accurate observation. I would refer especially to his chapters on jaundice, dropsy and paralysis. He it was who first described varicella and angina pectoris. The second is the father of modern dermatology, and the third is universally acknowledged to have been one of the greatest pathological teachers at the close of the eighteenth century. Other English names of the same period are those of Sir Charles Scudamore, Sir George Baker, Sir Henry Hallford, Dr. Thomas Young (so imperishably connected with the theories of light and color), Dr. Lettsom and Mr. Cline.

In Edinburgh the chief medical authorities a hundred years ago were Benjamin and John Bell (the younger), John Cheyne (afterwards of Dublin) and John Thomson, and in Dublin Sir Philip Crampton and the surgeon Abraham Colles. In 1801 William Blizard, Abernethy, Charles Bell and Astley Cooper had climbed, or were climbing, the ladder of their fame, the latter with no rival in surgery save the great name of Dupuytren. In Germany the most noted names in surgery were those of C. J. M. Langenbeck, Wutzer, Hesselbach, Richter and Von Dextor; and in Italy, Antonio Scarpa of Pavia. In America I would mention the physicians Rush (the Sydenham of America), Waterhouse, Dexter and Romayne; and the surgeons Physick, Warren, Nathan Smith and McDowell. A hundred years ago Edward Jenner was practicing in Cheltenham, and here the *genius loci* reminds me that I must not dismiss our greatest medical celebrity with a single line. To me the most interesting point about Jenner is that he was educated by John Hunter, which is to say that he became and remained a naturalist. He was not, however, neglectful of medicine—indeed he manufactured an improved tartar emetic—but he was at first more interested in fossils, hedgehogs and cuckoos. His celebrated paper on the cuckoo, describing for the first time the inconsiderate conduct of the young cuckoo to his fellow nestlings, need not be referred to here further than to state that for a long while he reckoned a personal visit to all the young cuckoos in his neighborhood as the first of his or his nephew's duties in May and June. It was this kind of training in natural observation which led at last to such productive fruit as his celebrated *Inquiry into the Causes and Effects of the Variolæ Vaccinæ*, published in 1798. Wishing to test a tradition of Berkeley, where he was born and practiced at first, as to the smallpox immunity conferred by cow and swinepox, and fulfilling Hunter's injunction, "Don't

think, but try," he made his first experimental inoculation from swinepox on his eldest son, aged 1½ years, in November, 1789. It was nearly 8 years afterwards before the next step was made, for it was on May 14, 1796 (2 years before the publication of his book), that lymph was taken from the hand of Sarah Nelmes of Berkeley, who had been infected by her master's cows, and was inoculated into the arms of James Phipps, a healthy boy 8 years of age. A typical vesicle and areola were produced, and two subsequent attempts to inoculate James Phipps with smallpox proved perfectly futile. Jenner next sent lymph to London to Mr. Cline, whose patient also resisted all attempts to inoculate him with smallpox. Jenner was thereupon invited to London, and wrote from Cheltenham in reply on Sept. 29, 1798, his oft-quoted letter, in which he expresses his preference for the "lowly and sequestered paths of life, the valley and not the mountain," declaring his contentment and contempt of fame and fortune, "fame being only a gilded butt, forever pierced by the arrows of malignancy." He took up his regular abode in Cheltenham in July, 1800, living at first in the High street, and afterwards at 8 St. George's place. Though often absent, he spent much of his time here for many years, as letters of his dating from 1802 to 1813 testify, vaccinating gratuitously at Alpha House, Bayshill, the residence of the present mayor of Cheltenham, all the poor who made application to him.

Well, ladies and gentlemen, you know the rest: the rapid extension of the practice the world over, the parliamentary grants to him of £30,000, his medals and diplomas and honors from every nation, and the tardy and unwilling acceptance of his teaching by his own. Later came detraction, obloquy and neglect, followed at last by 443 smallpox deaths in 1896 in his own county, in the neighboring city of Gloucester; and finally the perilous experiment of leaving the decision as to whether vaccination should be done or not to the discretion or indiscrimination of each head of a family. I am bound, however, to state that the perilous experiment is turning out much better than could have been expected. Truly you will mourn with me over those 443 preventable deaths in Gloucester, 1 of them of a vaccinated and 237 of them of unvaccinated children under 10 years of age, when you reflect that during the same year and the next one there were, in well-vaccinated and revaccinated Germany, only 15 deaths from smallpox throughout a population of 53,000,000. Does anyone want more proofs? If so, they have them in the records of our own profession, which suffers from a general zymotic mortality far beyond, but from a smallpox mortality far below, the average; and this though we of necessity are much more than the general public exposed to the infection of smallpox. We, ladies and gentlemen, know the truth and how to act up to it, and most earnestly do I wish success to Dr. Bond and to the Jenner Society in their truly philanthropic enterprise of combating error and disseminating

truth. I will say no more of Jenner and his work, though in this town, the former centre of his activity, I could not well say less. I must, however, add that the sad experience of Gloucester has not been fruitless, and that Jenner's county is now perhaps the best protected against smallpox of any in England.

In 1801 Auenbrugger, the inventor of modern percussion, was still living in retirement at Graz at the age of 81, and Wichmann, the discoverer of the part played by the itch insect in scabies, was practicing at Hanover. But the great medical awakening of Germany had not begun, though its two chief agents were then living, but young; namely, Romberg, the founder of modern neurology, and Schönlein of Berlin (originally of Würzburg), who gave the first impulse to scientific medicine in Germany, and who is well known to most of us as the discoverer of the fungus of favus. If I have omitted a few noted names of the epoch, it is because their bearers had expired (like John Hunter) a few years before 1801, or because, like Abercrombie, Addison and Bright, Brodie, Earle, Guthrie and Lawrence, Dieffenbach and von Chelius, they were youths only when the nineteenth century began. If I have mentioned discoverers rather than discoveries, it is because the time at my disposal would not suffice to narrate even a tenth of the latter. Modern surgery had not begun in 1801 — the advent of a Lister was necessary for that — though Hunter had taught us in 1785 how to cure popliteal aneurism, and Petit and Brasseur, Chopart and Desault, Cheselden, Gimbernat and Pott had not lived and worked in vain during the eighteenth century, nor failed to hand on great facts and principles to their successors. Many admirable, mostly ancient drugs, were in vogue in 1801. To mention a few of them: Aconite and colchicum, mercury, arsenic, iron, antimony, bismuth, bark, belladonna, digitalis, ipecacuanha, the vegetable aperients and bitters, the common acids, alkalies and salines, and of course, opium. In fact, a very fair selection of "the blessed infusions that dwell in vegetables, in metals, stones," to quote Lord Cerimon in *Pericles*. And these drugs were well and ably wielded, and with boldness and success. "We want no more drugs," said an old doctor to me some years ago, "but to use better those we have." There is much truth in this, for it is impossible to note without alarm the yearly increasing invasion of new, chiefly synthetical remedies, many of them by no means harmless. Fortunately the law of the survival of the fittest soon comes into operation, and the useless ones are quickly relegated to that obscurity from which they had never emerged without the well-intentioned but too hasty laudations of overzealous men of business. The old doctor did not give a quotation, though a line in Homer's fourth *Odyssey* expresses something of his feeling:

Φάρμακα, πολλὰ μὲν ἐσθλὰ μὲν γινέσθαι, δι' ἧταρ.

which I may thus paraphrase: "Some drugs are most excellent and others quite the reverse." 1

wonder what that admirable writer, the author of "Ecclesiasticus," would have said had he lived in these days? He who, referring to his own times, wrote that "of the works of the apothecary there is no end, and from him there is peace all over the earth"? I think "Ecclesiasticus" might be oftener read than it is; and so it would be, said Addison, if "such shining tracts of morality had appeared under the name of Confucius or of any celebrated Grecian philosopher." How admirable is the following and how excellent its precept! — "The Lord hath made medicines out of the earth: he that is wise will not abhor them." Also this: "He that sinneth let him fall into the hands of the physician." I strongly recommend a medical reading of "Ecclesiasticus." It may not be quite so instructive as "Don Quixote," recommended by Sydenham to Sir Richard Blackmore as the best medical treatise of his time, but it will certainly prove interesting and very soothing to the *amour propre* of our profession.

We must not, however, discourage pharmacological research and effort altogether, for the practitioner of 1801 had neither iodides nor bromides; no chloroform, pepsine, carbolic acid, cocaine, nor quinine; no salicylates; no chloral; no morphine; nor strychnine, nor atropine; and how could we practice without these and many others now?

Seeing how large is our modern armamentarium, and how undoubtedly effective many portions of it are, one would be inclined to pity the practitioner of 1801, were it not equally certain that the practitioner of 2001 will pity us.

As regards the practice of today, that middle point of the centuries to which I referred, it is not too much to say that the whole realm of nature — animal, vegetable and mineral — has been ransacked to find remedies against disease. Not only so, but every available physical force — heat, light and electricity — have been pressed into the same service.

It is in the use of antitoxins and animal extracts, however, that the most remarkable advances have been made; and I would ask once more how could we get on today without diphtheria antitoxin and without thyroid extract?

"If they do these things in a green tree what shall be done in the dry?" I must leave it to others to predict the therapeutical standpoint of 100 years hence. This much, however, may be safely affirmed: that as the general public of today expects to be cured with all expedition, the public of the future will expect even more in proportion from the practitioner of 2001.

(To be continued.)

According to the *Philadelphia Medical Journal*, a German society for the study of medicine and the natural sciences has recently been formed. The committee of organization consists of Prof. G. W. A. Kahlbaum of Basel, Prof. J. Pagel of Berlin, and Dr. Sudhoff of Hochdahl. The society will hold its first annual meeting after the close of the meeting of the Association of German Scientists and Medical Practitioners.

Original Articles.

PRACTICAL BLOOD EXAMINATION.¹

BY HENRY F. HEWES, M.D., BOSTON.

Among the special methods of the study of disease which have been developed in this recent era of laboratory methods, one of the most important and practical in the aid which it lends us in the understanding and diagnosis of our cases is that of the examination of the blood.

The usefulness of this method as a clinical procedure rests first upon the value of the knowledge obtained by its application in connection with the diagnosis of many of the diseased conditions commonly encountered in general practice; and second, upon the simplicity as regards technique of the methods involved in this application, a simplicity which fits the examination perfectly for routine use in clinical work. Experience of 10 to 20 years in blood examination has established for us very definitely the scope of this method in the diagnosis of disease, and has given us a set of very practical methods for its accomplishment.

The scope of practical blood examination established by use at the present time is, stated briefly, as follows:

(1) The determination of the existence or non-existence of the condition of anemia, and if such a condition is present, of its severity and type, including in the latter determination the diagnosis of pernicious anemia.

(2) The determination of the existence or non-existence of the condition of leucocytosis, and, if such a condition exists, of its extent and type, this including the diagnosis of the conditions of myelogenous and lymphatic leukemia.

(3) The determination of the presence or absence of blood parasites, this including the diagnosis of the condition of malaria, that of *filaria sanguinis hominis* and that of relapsing fever.

(4) The determination of the existence of definite serum reactions in the blood, as, for example, the Widal test for typhoid.

(5) The determination of presence in the blood of bacterial organisms; that is, of septicemia.

The accomplishment of these determinations is the scheme of practical blood examination. Barring the tests for bacterial infection, the determinations of septicemia and the serum reactions, which, involving as they do some practical knowledge of bacteriology and of culture methods, form a special branch of blood examination, this whole scheme of practical blood examination giving the diagnosis of anemia, of leucocytosis, and of the presence of blood parasites, and comprising today nine-tenths of all clinical blood work, may be accomplished by the employment of two very simple methods of examination. These methods are (1) the estimation of the hemoglobin, and (2) the examination of a stained specimen of blood. Other methods, as the examination of fresh specimens or the enumeration of the corpuscles by special

¹ Read before The Massachusetts Medical Society, June 12, 1901.

counting methods, may confirm and add to our knowledge as to the condition of the blood; but the simple procedure mentioned, consisting of the performance of these two methods, will give us our aid to diagnosis, where such aid is obtainable from blood examination, without the use of further methods.

The procedure of these two methods is as follows:

For the estimation of the hemoglobin we have a very simple method known as the Tallqvist method. For its employment we need as apparatus simply a needle to draw the blood and one of these specially prepared books known as the Tallqvist hemoglobin books.

This book contains specially prepared porous paper, which will soak up the blood, and a color table. This color table contains ten color plates, the top one representing the color obtained by soaking the special porous paper of the book in a blood containing the normal amount or 100% of hemoglobin. The next plate is a facsimile of the color obtained by the use of a blood containing 90% of the normal hemoglobin. Each succeeding plate represents the color effect of a blood of 10% less color richness than the one above it, until the last plate represents a blood of 10% hemoglobin.

To perform the test it is necessary to prick the ear or finger so that the blood flows without pressure, and draw off a drop or two in the porous paper, allow the blood to dry, and then compare the specimen at the moment of dryness (not earlier or later) with the color table. If the color corresponds to that of the 100% plate, then the hemoglobin content of the blood is normal; if to the fifth plate, it is 60%, and so on.

This test tells us at once and without further testing whether or not a condition of anemia is present.

For the preparation of a stained specimen there are necessary a half dozen thin glass cover slips (7 square slips are the best), a needle, an alcohol lamp or gas burner, or some chemical fixing material, as absolute alcohol, for fixing the blood, a staining mixture for the staining, and a microscope with an immersion lens for the examination.

Thin spreads are made upon the cover slips by dropping one containing a drop of blood upon a clean slip and sliding them apart after the blood has spread. These spreads are dried in the air and then fixed. A simple method of fixing is to hold the cover slip in nippers for two minutes above a flame, at a point just too hot to hold the hand for any length of time. By practice the correct point with an alcohol lamp or gas burner can be determined. For heating a number of specimens a copper plate kept at a constant temperature over a flame, or a constant temperature oven may be used. The heat required in the oven or on the plate is 110° to 120° C. for five minutes' time. The fixed blood is then stained by an appropriate stain.

The object of staining blood in clinical work is to enable us first to differentiate the varieties of

leucocyte present, second to discover the malarial parasite if present, and third to distinguish any nucleated red corpuscles present. The leucocytes of blood have been found to be of three varieties, according to their staining reactions or affinities. One form takes by preference an acid stain in its protoplasm, another a neutral stain, and the third form a basic stain. So to differentiate our leucocytes we must subject blood to all three kinds of stain, or to a staining mixture containing all three stains. This is what is meant by an appropriate stain. Such a staining mixture we possess in the commercial stain known as the Ehrlich triple stain or three-color mixture. This mixture, composed of two acid stains, acid fuchsine and orange G, and one basic stain, methyl green, contains at the same time an active acid, neutral and basic element, staining the protoplasm of the acid leucocytes, the acidophiles or oxyphiles (eosinophiles), red or golden red, that of the neutral leucocytes or neutrophiles, lilac, and that of the basic leucocytes or basophiles, blue. The elements of the protoplasm taking these special stains are fine granules scattered through the basal substance, which remains unstained. The nuclei of all the leucocytes stain blue with the basic elements of this stain. The red corpuscles take a golden color with this stain; the nuclei of any nucleated red corpuscles, if such are present, take the blue basic stain. In order to get constant and definite results with this Ehrlich method of staining it is found necessary frequently to modify it somewhat by the application of a second purely basic stain to the blood subsequent to the regular Ehrlich mixture. This modification brings out much more definitely than the simple Ehrlich mixture, the basophilic granules in the protoplasm of the basophiles, and makes the differentiation of the three types of leucocyte a much simpler process than in the original method. It also makes the differentiation between nucleated red corpuscles and the round nuclear leucocytes—the lymphocytes and other basophiles much more definite, and finally stains the malarial parasite, a result which the simple Ehrlich method often fails to accomplish.

This modified Ehrlich method of staining therefore attains all the objects of blood staining as above enumerated.

The process of staining is as follows:

The blood properly fixed is stained for two minutes in an Ehrlich three-color mixture. A useful formula for making up this mixture is the following:

Ehrlich-Blond-Heidenhain; three-color mixture . . .	1.5 gr.
Acid fuchsine	0.4 gr.
Absolute alcohol	2 cc.
Water (distilled)	15 cc.

The specimen is then washed and stained for one-half second to two seconds in Loewler's alkaline solution of methylene blue.

The specimen is then washed, dried and mounted in balsam. By the use of this method of blood examination, a process necessitating, save for the microscope, the simplest forms of apparatus, and taking for its application in simple cases fifteen minutes, in complex ones perhaps an hour, we can

determine in a given case the existence or non-existence of a leucoctyosis and its type, the presence or absence of blood parasites, and if anemia be present, as proven by the hemoglobin test, its type.

The diagnosis of the type of anemia by this examination of a stained specimen is a simple matter. We have in the various diseases which have anemia as an associate, from the point of view of the blood finding, a considerable variety of anemias. Among these, however, no variety is characteristic of any one special clinical condition as distinguished from other conditions having anemia associated, save one; namely, that variety associated with the symptom complex or diseased condition known as pernicious anemia. So for practical work it is essential to determine but two types of anemia in the blood characteristics, the pernicious type and the nonpernicious. In the condition known as pernicious or idiopathic anemia we have a type of blood finding peculiar to this condition, not found, with certain definite exceptions to be mentioned, in the anemias of any other known condition.

The recognition of this type is therefore of much importance, first for diagnosis of the condition, and second because, since prognosis is always, with a single exception to be mentioned, bad where such a finding is present, it gives us a definite line for prognosis in our case. This diagnosis is made as stated by the examination of a stained specimen of blood.

In a specimen of normal blood stained by the modified Ehrlich method, the red corpuscles appear as circular biconcave discs of a diameter averaging 7.5μ and a yellow color marked in the perimeter and faint or absent in the central area.

Their characteristic in normal blood is that of uniformity. The shape is, save where an artefact of spreading, round or slightly oval; the size practically uniform to the eye, though actual variations in diameter from 6 to 9μ are present, the color yellow, and the whitish central areas of the same regular size in all, save where the corpuscles are crushed in spreading, when no white centre appears.

In the blood of a case where the hemoglobin test shows anemia we may find in the stained specimen great variation from this uniform normal picture. We may find that the corpuscles are much paler than in the normal, the white centres of the corpuscles occupying a much greater proportion of the corpuscle. This condition is known as achromia. In some anemias, as that associated with the condition known as chlorosis, this is often the only abnormal characteristic present in the stained specimen. We may find variation in the shape or size of the corpuscles from the normal character. Thus we may see balloon or triangular forms, forms much larger or smaller than normal. The picture becomes one of diversity rather than uniformity. This condition of distortion in size and shape is spoken of as poikilocytosis.

Also in severe anemia we may find present red

corpuscles containing nuclei—forms known as blasts. These blasts may be of the size of normal red corpuscles, when they are called normoblasts, or they may be larger than normal when they are called megaloblasts. They stain like the red corpuscles in their protoplasm. The nuclei are as a rule single, very compact in structure, and stain blue or bluish black by the Ehrlich method. The presence of these blasts means a severe anemia. The megaloblasts are of more serious significance than the normoblasts.

All these changes and abnormal forms mentioned may occur in both the pernicious and the non-pernicious anemias. Each and every abnormal form, poikilocytes, macrocytes (large corpuscles), blasts, both normoblasts and megaloblasts, which is found in pernicious anemias, may be present in the very severe anemias following cancer or hemorrhage. The more severe these conditions are the more the blood approaches the pernicious type of anemia. The combination of the abnormal characteristics is, however, always different in the two types, giving a special picture to pernicious blood not found elsewhere.

This special feature of the blood of pernicious anemia is the presence of an excess of large nucleated red corpuscles, or megaloblasts. To diagnose the condition, therefore, we search our stained specimen for blasts, counting separately all normoblasts and megaloblasts. If more megaloblasts than normoblasts are present the condition is pernicious anemia. If the normoblasts are in excess, or if no blasts whatsoever are found in a sufficient search, we diagnose the anemia as of the nonpernicious type.

In addition to this essential characteristic, the blood of a typical case of pernicious anemia has other features which are more or less peculiar to this condition, and hence of some importance in the study of the case.

The first is the existence of a general tendency to increase in the size of the red corpuscles the so-called high-volume index. The existence of this condition is observed in the stained specimen. Large red corpuscles do occur in severe anemias of all types. A marked average increase, however, such a condition that the space necessary to hold a given number of corpuscles is distinctly larger than it would be with normal blood, is rare outside of pernicious anemia. The condition is not, however, present in all cases of pernicious anemia. The existence of this high-volume index may be demonstrated also by the centrifugal method of blood examination.

The second peculiar feature of pernicious blood is the high-color index. This characteristic is determined by the comparison of the estimation of hemoglobin and that of the number of red corpuscles. It is a common but not constant feature of pernicious anemia.

A diminution in the number of red corpuscles, usually a reduction to less than 2,000,000 per cmm., is also a common characteristic of this condition. It is not constant, however, and may occur in other forms of anemia.

The establishment of these additional characteristics is of use in aiding in the complete understanding of our case. The diagnosis is made, however, simply by the examination of the stained specimen, where we can determine the excess of megaloblasts; and also, where present, the existence of a high-volume index.

I have said that this peculiar blood finding of pernicious anemia was limited to this disease with certain definite exceptions.

A similar blood picture is presented by cases of infection by intestinal parasites, as ancylostoma duodenale and bothriocephalus latus. In these conditions the anemia disappears and the case recovers upon removal of the cause. This fact must be borne in mind in deciding upon diagnosis and prognosis in a case with such a blood finding.

In some cases pernicious anemia bloods have been reported as associated with atrophy of the stomach; also a few cases have occurred in association with nephritis and other chronic conditions. These facts simply tend to enforce the opinion which is that generally accepted in regard to pernicious anemia, that it is but a particular form of secondary anemia due to special causes and conditions for the most part unknown, and for the most part in the light of our present knowledge unremovable.

Ancylostoma is one cause of this severe type of anemia which is known and is curable. This opinion is further encouraged by the fact that severe anemias, with cancer or hemorrhage or other causes, as they become more advanced, tend to approach more and more nearly to the pernicious type. The volume index becomes greater, though not as a rule over the normal, the color index nearer 1, and megaloblasts appear, though not in excess of the other blasts.

The diagnosis of a leucocytosis is made by a study of the stained specimen of blood, prepared as above described.

The study of blood has shown that there are present in normal blood from 4,000 to 10,000 leucocytes per cmm. of blood; that is, a proportion of 1-500 to 1-1,000 red corpuscles. The leucocytes making up this total are of three kinds, which are differentiated on the basis of their staining reactions with a triple stain. These three forms are basophiles, cells taking a blue stain in their protoplasm; neutrophiles, cells taking a lilac stain in their protoplasm; and oxyphiles, cells taking a golden red stain in the protoplasm.

These three forms of leucocyte are present, each in definite proportions, in normal blood. Thus in any given blood, of 100 leucocytes 20 to 35 are basophiles, 60 to 75 neutrophiles, and $\frac{1}{2}$ to 5 oxyphiles. So that in 1 cmm. of blood we may have, according as our number of leucocytes is high or low (4,000 to 10,000), from 800 to 3,500 basophiles, 2,100 to 7,500 neutrophiles and 10 to 500 oxyphiles.

A leucocytosis is an actual increase in the number of one or more forms of leucocyte — basophile, neutrophile, oxyphile — over the maxi-

mum normal limits; that is, if we have more than 3,500 basophiles or 7,500 neutrophiles in 1 cmm. of blood, we have a leucocytosis. This leucocytosis is named after the kind of cell increased. Thus, if it is the basophiles which are increased actually, we call it a basophile leucocytosis; if neutrophiles, a neutrophile leucocytosis; if oxyphiles, an oxyphile leucocytosis. If more than one form is increased over normal, for convenience we name the leucocytosis after the form which is most increased proportionally to its normal standard, though such a condition is in reality mixed leucocytosis.

To make a diagnosis of a leucocytosis, then, we must determine whether or not the actual number of any form of leucocyte is increased over the normal maximum for this cell. The simplest method of the determination of such an increase, if it exists, is the determination of the presence of an increase in the total number of leucocytes present. If such an increase exists we know that there must be actual increase in the number of at least one special form of leucocyte; that is, that we have a leucocytosis.

For most cases in clinical work this determination may be made by the examination of a stained specimen. Some practice in the study of stained specimens of normal blood and of the blood with various degrees of leucocytosis will enable one to determine with fair accuracy in a given case whether the number of white corpuscles present is within the normal limits or distinctly increased. Where the number is high-normal or slightly increased, this method may leave one in doubt. In such cases, if necessary, the point can be determined by a count of white corpuscles by the Thoma-Zeiss method.

As a rule, where a leucocytosis of sufficient importance to have a distinct bearing on the diagnosis of the cases is present, it is of sufficient degree to be determined by this quick method of estimation of a stained specimen. The determination may frequently be made at a glance. In other cases it is necessary to count the contents of a given number of microscopic fields and compare the results with normal results. It is perfectly true that a leucocytosis may exist without an actual increase in the total number of leucocytes. One form of leucocyte may be actually increased and the other forms decreased. Such a condition can be diagnosed only by a white count, plus a differential count and actual computation of the number of each kind of leucocyte per cmm. The necessity for such a procedure is suggested by the character of the case and the appearance of the blood in a stained specimen. In a great majority of our cases we can and do estimate definitely, for purposes of clinical work, whether or not we have a leucocytosis by the examination of the stained specimens alone. This point determined, we determine its type by a differential count of the leucocytes, naming the leucocytosis for that form of leucocyte most increased proportionally.

The existence of a leucocytosis may also be de-

terminated by examining a fresh specimen of blood. This method, however, like the white count, tells us nothing of the type. The importance of the determination of the type of leucocytosis must not be underestimated. The common form of leucocytosis is the neutrophile leucocytosis. It is this form of leucocytosis which accompanies suppuration; many of the infectious diseases, as pneumonia, scarlatina and diphtheria, and many inflammatory conditions. The oxyphile leucocytosis is characteristic of trichinosis, of some skin affections. Its presence often suggests the diagnosis of one of these conditions. The basophile leucocytosis is characteristic of lymphatic leupemia. It is found in children in pertussis and rachitis. The myelocyte leucocytosis is, as stated, characteristic of myelogenous leupemia. And for this determination, both of the existence of a leucocytosis and of its type, we use the method of the stained specimen.

In addition to the forms of leucocytosis mentioned, we have in certain diseased conditions another form known as a myelocyte leucocytosis. This is a condition in which we have an afflux of large numbers of an abnormal form of leucocyte known as myelocytes into the blood. These myelocytes are neutrophilic or oxyphilic cells, resembling in morphological character normal leucocytes, but differing from the normal neutrophils and oxyphiles in the fact that they are non-ameboid and have as a consequence round instead of the many shaped nuclei of the normal cells.

They are differentiated from the normal cells in a stained specimen by their staining characteristics and this morphology of their nuclei.

These cells are never present in normal blood. They may occur in a variety of diseased conditions. When few in number and unassociated with increase in the number of leucocytes their appearance has no special known significance. When they appear in connection with a great increase in the number of leucocytes, in such numbers that it is evident that the leucocytosis is, in considerable part, due to their presence, we speak of the condition as that of a myelocyte leucocytosis. It is this condition which characterizes the blood of myelogenous leupemia. A recognition of this leucocytosis is therefore important in connection with the diagnosis of this disease.

The parasites which we may find in the blood in disease are the malarial parasite, the filaria sanguinis hominis and the spirillum of relapsing fever. The appearance of these parasites in the stained specimen of blood is as follows:

In a specimen stained by the modified Ehrlich method the malarial parasite appears as a blue body lying within a red corpuscle. The appearance of the organism is dependent upon its age and type. If fully formed, dark pigment will appear scattered through its substance. If in an early stage of development it may appear in the form of a blue signet ring or as a simple sphere without pigment.

Where we suspect the presence of the malarial plasmodium we ordinarily look at a fresh speci-

men of blood, since the organism is more satisfactorily determined while alive and moving in the blood. Where it is impossible to get to the bedside of the patient at the proper time, the examination of stained specimens will, however, suffice for diagnosis. As stated, we may use the modified Ehrlich staining method for staining malarial organisms. A more satisfactory method for this special purpose is, however, the Jena method.

The Jena staining mixture consists of a mixture of eosin and methylene blue put up in the following manner:

1%	Aqueous Solution of Eosin	100 cc.
1%	" " Methylene Blue	100 cc.

Allow to stand 24 hours. Filter. Dissolve the precipitate in methyl alcohol to saturation.

This method gives very excellent stains of the malarial parasite. The method of fixing by alcohol preserves the histological structure of the various bodies to be stained more perfectly than the fixing by heat.

This staining method may also be used in place of the Ehrlich method for regular blood staining after one has studied the characteristics of blood by the Ehrlich method. It has the advantage over the Ehrlich method of fixing the blood at the same time that it stains it, giving a constant method of fixing in many ways superior to the fixing by heat. The objection to the method for general work lies in the fact that it contains no neutral staining agent and thus differentiates but two forms of leucocyte—the oxyphile and basophile. It does, however, stain the cell, which would be a neutrophile by the other method, a much fainter red than the oxyphile. So that, possessed of a knowledge of the distinction between these cells, gained from the use of the Ehrlich method, the student has no difficulty in working with this method.

In addition to these methods of practical blood examination, established by experience as useful, there are some recently developed methods of equal practicability for application, but lacking the testimony of extended experience in regard to their usefulness.

Among these, the most important and promising is the test for iodophilia. Recent investigations have shown that if pus, due to the action of the common pyogenic bacteria, be subjected to a special iodine solution, consisting of iodine, 1; iodide of potassium, 3; water, 100; gum arabic q. s. to make syrupy in consistency, certain of the pus corpuscles will show granules in their protoplasm, taking a brownish red stain with the iodine. If blood from a patient suffering from such suppuration be stained with this same mixture, it is found that certain of the neutrophilic leucocytes take this same iodine stain—perhaps 10 in 100 of all leucocytes.

This phenomenon is called iodophilia. It is said to occur in conditions of suppuration, except those due to tuberculosis, and in croupous pneumonia. It is also present in severe anemias and in the leukemias.

As stated, the usefulness of this method is still sub judice. If future experience shall show that it does occur in the stated condition exclusively and constantly, it will offer us an unequalled means of determining the existence of suppurative in a given case, or of distinguishing pneumonia from other infectious conditions.

Other blood phenomena, of recent discovery, which can be determined by simple methods of observation, are the granular degeneration of the erythrocytes in lead poisoning and the peculiar staining characteristics of the blood of diabetes mellitus. As the diagnosis of these conditions can, however, be made more definitely by simpler methods of observation, these tests are not to be considered as necessary parts of practical blood examination.

This, then, with the addition of the serum reaction tests, is the present scope of the blood examination, practical for the regular practitioner in his routine work.

The special application of the knowledge gained by the use of these methods to diagnosis is part of the study of clinical medicine, and must be taken up in connection with the study of particular cases. Its general application can readily be understood from the above review.

Exact knowledge in regard to the presence or absence of anemia in a given case is always to be desired, and where it can be obtained by so simple a procedure as that described in our method should always be secured.

The presence of a leucocytosis is one more fact to help us in deciding what a febrile attack may have as a cause, in diagnosing pneumonia or suppurative or in ruling out typhoid or malaria.

The determination of its type may make our diagnosis of leukemia, or lead us to the diagnosis of trichinosis.

The finding of parasites is of course of absolute diagnostic value.

My object in this paper has been simply to demonstrate to you the method of procedure necessary for the accomplishment of these diagnoses and to impress upon you the extreme simplicity of the work, in the hope that this examination may be more commonly used in general practice.

RACHITIC DEFORMITIES OF THE SPINE.

BY J. S. STONE, M.D., BOSTON.

The usual spinal deformity in rickets is a general kyphosis, extending from the lower cervical region downward, and most marked in the lumbar region. It occurs usually pretty early in the course of the disease, and is much more apt to occur in those cases of rickets coming on very early in life than in those coming relatively late. With this kyphosis there is usually associated round shoulders. There are usually no sharp angles, although in the lumbar region the curve is often very marked. Lateral deviation of the

spine is much more rare, although it does occur, and if so is of considerable clinical importance. Sometimes in rickets there is a rotation of the spine without much lateral deviation.

In older rachitic children there is at times a greatly increased lumbar lordosis. This condition is particularly apt to occur in fat, heavy children.

In the causation of these deformities muscular weakness is the essential factor. Changes in the ribs and changes in the pelvis and in the legs are factors to be considered. Of course the weight of the large head of rickets is an element in bringing about any bending of the spine. Bony softening is usually of less importance in the spine than in the long bones, the bodies of the vertebrae being largely cartilaginous. Muscular weakness is of much more importance in deformities of the spine than in deformities of the long bones. Deformity of the spine is usually not at all proportionate to the deformities of the long bones, because it occurs usually to the greatest extent in those children who have never walked, but have been propped up in chairs or in bed long before they have attempted to stand, or before their muscles have become strong enough to allow them to support their weight in sitting.

In those weak children who have never stood up the normal lumbar curve has never been formed. There is thus a perpetuation and exaggeration of what is the normal shape of the spine in infancy. In stronger, fatter children the increased lumbar lordosis is necessary for maintaining the erect position when the muscles are too weak to hold the spine with only the normal curves.

Lateral deviation is usually due to some postural cause, often the habit of the mother of holding the child always upon one arm, or may be due to a tilting of the pelvis resulting from deformity of the legs.

The diagnosis of rachitic deformity of the spine is usually easy. It does not occur as a rule except in the more marked grade of rickets. The differentiation from Pott's disease may be extremely difficult, because the lumbar rachitic kyphosis due to rickets oftentimes does not disappear on recumbency, and there may be marked rigidity on attempted extension of the spine. The presence of psoas abscess or marked psoas contraction, or the presence of symptoms of pressure on the cord, would occur in Pott's disease, but not in simple rickets. In some cases time alone will determine the diagnosis, but fortunately the treatment of the two conditions is identical.

It should consist in recumbency upon some firm, even surface, usually most conveniently a properly padded gas-pipe frame. If due to rickets alone the kyphosis will disappear with reasonable promptness. If due to Pott's disease the deformity will persist.

In a few very mild cases in which recumbency is not essential, or in convalescent cases, a light spring brace may be useful, although as a rule

¹ Read before the Boston Society for Medical Improvement, Jan. 7, 1901.

recumbency is much the more satisfactory treatment until the strength is such as to enable the child to support its weight without assistance. Of course in addition to recumbency there should be general tonic treatment, with rubbing and massage. Outdoor air and sunshine and a diet rich in proteids and fats are necessary. Usually it is found that the starches are in excess in the child's diet.

When the deformity is lateral, recumbency is even more necessary than when there is a simple kyphosis. In older children with lateral deformity due to tilting of the pelvis, the correction of this latter condition is the first essential in treatment, and it may be necessary to correct by operation deformity of the legs sooner than would otherwise be necessary.

If properly treated, recovery from rachitic deformity of the spine is usually complete. If neglected, rickets may lead to very marked deformities which are very difficult of correction, and which in later life will be extremely troublesome.

MEASUREMENTS OF GIRLS IN PRIVATE SCHOOLS AND OF UNIVERSITY STUDENTS.

BY ARTHUR MACDONALD, WASHINGTON, D. C.,
Author of "Experimental Study of Children."

It is an anomalous fact that children have been studied less than plants and animals. It is only of late that the study of children has increased in importance and interest; it is therefore in an embryonic stage, methods are new, and naturally much criticism has arisen. Some have thought that the children might be injured by using instruments upon them, or that their rights might be infringed upon, but such fears are due either to ignorance or a vivid imagination.

It is comparatively recent that scientific method has been applied to the mental side of man. That mind and feeling could be measured quantitatively was once generally doubted or ridiculed; but such opposition has ceased almost entirely. Opinion and speculation are often entitled to as much respect as facts, but when they go so far as to oppose or ignore facts, they create a suspicion of their own weakness. The value of opinion varies according to first-hand knowledge.

There is a somewhat prevalent idea that investigation of mind tends to weaken the basis of morality; but there is very little evidence of this. Morality is more a matter of habit and early training. Some of the worst criminals are theoretically sound in their doctrines, but they have not formed good habits, and so are in contradiction with themselves.

Children in some respects are better for investigation than adults, for they are nearer to nature, and have been less influenced by the conditions of the world. The study of children has also a more practical bearing, for there is more probability of remedying defects than in the case of adults.

We give herewith some recent measurements of young women in private schools and of university

students. The numbers of individuals are not as large as one could desire, but we trust that others will take up the work, increasing the number, so that finally the results of such studies may come to possess a high degree of certainty.

MEASUREMENTS OF GIRLS IN PRIVATE SCHOOLS.

Comparing girls in private schools with Washington and Chattanooga schoolgirls, we find them heavier, taller, much stronger, and much more sensitive to pain than girls in public schools (Tables I, II and III). It would appear that the comforts, refinements and perhaps luxuries of modern civilization, while beneficial to physical development, tend to increase sensitiveness to pain. This accords with our previous measurements of Washington school children, where it was shown that children of the nonlaboring classes (mercantile and professional) were superior in circumference of head, in height, sitting height and weight, but more sensitive to heat and locality on the skin than children of the laboring classes; that is, a superior physical development usually seems to be accompanied with greater acuteness of the sensibilities.

TABLE I.—WASHINGTON SCHOOLGIRLS.

Number of pupils.	Nearest age.	Average height in inches.	Average weight in pounds.
754	8	47	49
883	9	49	54
939	10	51	58
931	11	53	64
876	12	56	73
966	13	58	82
833	14	60	93
655	15	62	100
450	16	62	105
323	17	63	110
151	18	63	111

TABLE II.—CHATTANOOGA SCHOOLGIRLS.

No. of pupils.	Nearest age.	Average height in inches.	Average weight in pounds.	Strength of (kilograms)		Sensitivity to pain. (Grams.)	
				Right hand.	Left hand.	Right temporal muscle.	Left temporal muscle.
10	8	47		11	9		
21	9	50		13	11		
30	10	52		14	13	(5) 2,540 (14)	(5) 2,830 (14)
30	11	54	(11) ¹ 70 (30)	14	13	2,315 (31)	2,415 (31)
49	12	54	77 (23)	18	16	2,520 (25)	2,590 (26)
43	13	58	92	20	18	2,550	2,445
44	14	61	100	21	19	2,687	2,642
35	15	62	101	23	21	2,460	2,463
13	16	62	101	23	20	2,553	2,561

¹ Figures in parentheses designate number from which average is made.

TABLE III.—GIRLS IN PRIVATE SCHOOLS.¹

No. of pupils.	Nearest age.	Average weight in pounds.	Average height in inches.	Strength of (kilograms)		Cephalic index.		Sensitivity to pain. (Grams.)	
				Right hand.	Left hand.	Dolicho.	Meso.	Brachy.	
3	10	61		14	12	1	2		625 565
6	11	71		17	16		5	1	708 578
4	12	77	57	23	21			1	525 487
11	13	94	62	31	27	1	9	1	730 716
6	14	106	63	37	34	1	1	4	808 833
19	15	115	64	38	34	5	7	7	773 753
23	16	117	64	45	41	2	12	8	934 1,004
14	17	114	65	45	43	3	8	3	1,017 1,353
9	18	113	65	54	46	1	2	6	1,250 1,905
3	19	121	64	61	58		2	1	906 900

¹ These measurements were kindly made for the writer by Misses A. B. Jones and A. E. Palmer, teachers in the schools.

Girls in private schools are less sensitive to locality on the skin, but more sensitive to pain before puberty than after puberty (Table IV). It is difficult to say why this sense of locality is less before puberty, as the difference is well marked. There seems to be a distinct difference here between the pain sensitivity and the locality sensibility.

Compared with girls in Washington schools, girls in private schools are, contrary to expectation, much less sensitive, both before and after puberty, to locality on the skin (Table IV).

TABLE IV.—SENSIBILITIES OF GIRLS IN PRIVATE AND PUBLIC SCHOOLS.

	No. of pupils.	Sensitivity to locality: in millimeters.		Sensitivity to pain: in grams.	
		Left wrist.	Right wrist.	Left temporal.	Right temporal.
Girls private schools before puberty	11	18.7	19.2	664	503
" " after " "	80	17.0	16.6	971	994
Girls Washington before puberty	186	14.5	13.8		
" " after " "	362	15.0	13.8		
" " all ages	518	11.9	13.9		
Girls Chattanooga before puberty	50			2,180	2,584
" " after " "	117			2,580	2,543

UNIVERSITY WOMEN, EASTERN STATE (TABLE V).

Those with poor nutrition, when compared with anomalies, are inferior in weight, sitting height, strength; in distance between orbits, corners of eyes and from crown to chin, and in distance between zygomatic arches; in short, they are physically inferior in general.

Comparing the blondes with the brunettes, the blondes are inferior in all measurements except in the distance of crown to chin and distance between zygomatic arches. The blondes are less sensitive to pain. This is in accord with the investigation of this particular point by Miss Carman, in her study of the schools in Saginaw, Mich.¹ In general, the blondes are inferior physically to the brunettes.

TABLE V.—UNIVERSITY WOMEN.¹

Nutrition, good	No. of students.	Average age.	Average weight.	Average lung capacity.	Average height.	Sitting height.	Right height.	Left hand.	Exorbital distance between corners of eyes.	Crown to chin.	Left ear.	Right ear.	Length of thumb.	Width of mouth.	Thickness of lips.	Least sensibility to pain.	Distance between zygomatic arches.
fair	10	21	125	143	161	89	17	61	99	254	57	57	62	49	14	2,289	129
poor	5	23	114	137	104	89	79	64	100	225	56	56	64	47	16	1,945	138
Complexion, blonde	8	20	116	153	158	88	66	57	97	230	56	56	63	47	14	2,670	125
" medium	18	22	128	145	162	89	75	62	101	236	57	57	63	48	14	2,576	126
" brunette	8	21	129	156	163	89	79	64	99	233	57	57	63	48	15	1,931	126

¹ Measurements made by Frances A. Kelor and Emily Dunning.

These comparisons from Table V have been given somewhat in detail; but of course the number of persons examined is too small to give weight to the conclusions.

We hear a great deal at present about the supposed significance of physical characteristics, anomalies and the like, in the face, head, mouth and hands; and not a few earnest people seem to attach much importance to many such signs; but the world of science has as yet shown little con-

¹ Experimental Study of Children, p. 1114.

fidence in these interpretations of the signs. One, however, should hold himself open to all possible truth. But it is evident that if any of those physical signs are to be proved significant, it must be done by patient observations on a large number of people, faithfully recorded. People must not be selected for such purpose, and all exceptions must be carefully noted and studied. Until this is done few serious investigators can be expected to place much weight on conclusions as to personality drawn from physical characteristics.

UNIVERSITY STUDENTS, WESTERN STATE (TABLE VI).

TABLE VI.—UNIVERSITY (WESTERN STATE).¹

No. of Students.	MEN.	Sensitivity to pain: grams.	
		Right temporal.	Left temporal.
13	Blonde	1,317	1,306
23	Brunette	1,397	1,311
22	Medium	1,160	1,150
19	First born	1,311	1,246
13	Second born	1,427	1,471
21	Later born	1,291	1,083
14	Dolichocephalic	1,512	1,489
34	Mesocephalic	1,183	1,190
10	Brachycephalic	1,340	1,202
58	All	1,280	1,258
WOMEN.			
8	Blonde	926	823
8	Brunette	885	848
22	Medium	786	851
8	First born	825	734
12	Second born	863	991
16	Later born	890	766
7	Dolichocephalic	820	948
15	Mesocephalic	926	894
16	Brachycephalic	817	804
38	All	836	845

¹These measurements were kindly furnished the writer by Prof. B. J. Hawthorne.

As a great majority of students have reached adult age, we will compare the students in general as to sensibility to pain.

The first born (men and women) are more sensitive to pain than the second born. This accords with the investigation by Miss Carman, who found that in general, sensitiveness to pain decreases in order of birth.

The second born (men and women) are less sensitive to pain than the later born. This is not

in accord with the results of the investigation just mentioned. But in new lines of inquiry with small numbers, tentative contradictions are what might be expected. It only shows the necessity of investigation of large numbers if more than preliminary results are to be obtained. Yet even with small numbers, the probable truth has often been indicated.

The dolichocephalic (women and men) are less sensitive to pain than the brachycephalic. University women are much more sensitive to pain than university men; this accords with our previous studies,² in which women were found to be more sensitive to pain than men. In the investigation of the Washington school children, girls were found to be more sensitive to locality on the skin than boys.³ It would seem, then, probable that in the female sex there is greater acuteness in sensibilities than in the male sex; but this must not be confounded with the power of endurance in woman.

Below is a description⁴ of the temporal algometer⁵ used in the present experiments. It was designed by the author and consists of a brass cylinder



TEMPORAL ALGOMETER.

BE, with a steel rod *C* running through one of the ends of the cylinder. This rod is attached to a spring, with a marker *E* on the scale *A*; this scale is graded from 0 to 4,000 gm. The brass disc *D* is 15 mm. in diameter; a piece of flannel is glued to its surface, so as to exclude the feeling of the metal when pressed against the skin, thus giving a pure pressure sensation. The whole instrument is 30 cm. in length.

In using this algometer it is held in the right hand at *B* by the experimenter, who stands back of the subject and presses the disc *D* against the right temporal muscle, and then he moves in front of the subject, where he can conveniently press the disc against the left temporal muscle.

As soon as the subject feels the pressure to be in the least disagreeable, the amount of pressure is read by observing the marker *E* on the scale *A*. The subject sometimes hesitates to say just when the pressure becomes in the least disagreeable, but this is part of the experiment. The purpose is to approximate as near as possible to the threshold of pain.⁶

ANTHRAX PREVALENT IN NEW YORK STATE.—

According to the *Medical News*, anthrax has made its appearance among several herds of cattle in the west of New York State, at Oneida.

² Psychological Review, March, 1899.

³ Experimental Study of Children, p. 1005.

⁴ L'Intermédiaire des Biologistes, 5 Avril et 5 Mai, 1898; the Psychological Review, July, 1898.

⁵ Made by the Chicago Laboratory Supply and Scale Co.

⁶ Further details will be found in "Experimental Study of Children," etc., (by the author), published by U. S. Bureau of Education, Washington, D. C.

Medical Progress.

REPORT ON PROGRESS IN OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

(Concluded from No. 4, p. 96.)

PHLEGMASIA ALBA DOLENS.

A FATAL case of phlegmasia alba dolens, reported by Dr. Grimsdale,¹ is of special interest because of the fact that the streptococcus was found in the blood of the patient while living and after death at the autopsy. The case was treated at the Liverpool Royal Infirmary; labor was normal, but there was some rise of temperature during the early part of the puerperium, for which the uterus had been washed out. The right thigh and leg began to swell, and the symptoms were acute on the tenth day, when the patient was admitted to the infirmary,—frequent rigors and irregular high temperature and enormous enlargement of the right thigh and leg. The left thigh and leg were normal to all appearance. No vaginal discharge, uterus movable, not much enlarged nor tender. For a time improvement took place in general condition and in that of leg. The blood was examined, and the streptococcus found present. Antistreptococcus serum was used once or twice daily and produced temporary improvement, but the patient eventually died one month after admission, seven weeks after the confinement. At the necropsy the heart was soft, flabby and dilated with questionable patches on the tricuspid valve and pale thrombi attached; infarct at base of right lung; liver enlarged, cloudy swelling; spleen large, diffident, with infarct; blood gave practically pure culture of streptococcus, no staphylococci; kidneys soft, calices enlarged; uterine veins thrombosed with pus in perivascular connective tissue. The left femoral vein and external iliac were full of pus extending to vena cava, and right femoral vein was thrombosed. During life there were no local signs of suppurative phlebitis in the left leg, the pain and swelling being on the right side.

With respect to the treatment of phlegmasia dolens, Keim² says there has been no decrease in the number of cases under antiseptic practice. The fact that the blood of puerperal women contains more fibrin and therefore is more likely to coagulate, he considers of importance. It has been shown that peptone, especially that of the liver, tends to prevent the blood from coagulating; and the action of the liver being weakened in pregnancy and the puerperium gives another cause for the tendency of the blood to coagulate in the puerperium. In the treatment of phlegmasia dolens to counteract this condition of the blood, Keim advises administration of peptonized calf's liver, and has given it in two cases, causing lowering of temperature and reduction of swelling and pain. The rectum being first washed out

with warm water, 100 gm. of calf's liver chopped fine and mixed with 5 to 10 gm. of pure peptone and 250 gm. of water, forming an emulsion, were given in two injections. In both cases the uterus had previously been curetted, although Keim believes this may have been detrimental to the condition.

Herzfeld³ reports a case, the first, he believes, of phlegmasia dolens treated by unguentum Cr  d  . The patient, a primipara twenty-seven years old, was delivered by an easy low forceps operation after twelve hours of labor. She arose on the twelfth day and resumed her household duties, but on the twentieth day she had a severe chill and a temperature of 103.5  . The left leg became swollen to twice its normal size, with intense pain. Injections of bichloride solution, with quinine internally and lead and opium wash, were used without improvement for three weeks, the temperature remaining high, with frequent chills. Unguentum Cr  d   was then used, by rubbing on the affected leg 15 gm. daily until 180 gm. in all were used. There was rapid improvement, and in two weeks only slight swelling remained at the knee and ankle. He considers the large amount used necessary for effective results.

With a view to the prevention of phlegmasia alba dolens, Hegapoff⁴ has been in the habit of raising the feet of all women during the puerperium by a cushion for at least ten days after the fourth day. If there is fever, the legs are wrapped in flannel and elevated still more for at least fifteen days. If any varicosities exist, friction with alcohol is also employed.

SURVIVAL OF A PREMATURE CHILD WEIGHING TWO POUNDS.

Jardine⁵ reports the birth of a female child at the Glasgow Maternity Hospital, at six and a half months, weighing 2 pounds and measuring 13 inches in length. The child was lively, but could not nurse, because its mouth was not large enough to grasp the mother's nipple. It could take only a drachm of nourishment at a time from a spoon. At the end of two weeks its weight had fallen to 13 pounds, which it held for two weeks more before beginning to gain. Jardine says that, in the event of the child's permanent survival, it will be interesting to note whether or not she is a midget.

DANGERS OF BREECH PRESENTATION, AND ITS TREATMENT BY EXTERNAL VERSION TOWARDS THE END OF PREGNANCY.

Spencer⁶ considers the high mortality rate in children in breech cases, and enumerates the accidents which result to the fetus. One of the causes of death is the low position of the cord relative to the cervix, causing prolapse or pressure during birth, leading to a condition of asphyxia, and sometimes to attempts at respiration, during

¹ Grimsdale, *British Medical Journal*, April 13, 1901, p. 893.

² Keim, *L'Obst  trique*, Nov. 15, 1900, p. 616.

³ Herzfeld, *New York Medical Journal*, Dec. 1, 1900, p. 933.

⁴ Hegapoff, *American Journal of Obstetrics*, January, 1901, p. 133.

⁵ *British Medical Journal*, March 30, 1901, p. 757.

⁶ *British Medical Journal*, May 18, 1901, p. 1192.

which liquor amnii and vernix caseosa may be sucked into the lungs with fatal effects. Premature respiration is also aroused by the external air stimulating the part of the body already born. But more important factors are the injuries to which the child's body is subjected by the fact that the small, soft buttock takes the brunt of the labor, instead of the larger and harder head. As a consequence, the abdominal and thoracic viscera are unduly pressed upon, and hemorrhages into and even ruptures of important organs may take place; injuries so severe that they not infrequently cause death to the child, or if it survives, leave behind them lifelong ill effects. Cerebral hemorrhage is more frequent in breech babies than in those born naturally by head presentations. The thoracic and abdominal organs most frequently injured are the lungs, liver, suprarenal body and testes. Injuries to the lungs frequently cause death of the child from pneumonia after a few days. A large hematoma of the liver, $1\frac{1}{4}$ inches in thickness, was seen by the author in a breech case, the injury apparently being due to the crushing of the organ by the pressure of the parturient canal transmitted through the thigh, which lay over the injured organ. The testis is especially liable to injury during birth by the breech, both by pressure on the spermatic veins and by pressure of the fingers or hand of the medical attendant. Hematocele may be formed upon the tunica vaginalis, the processus vaginalis or the cord. In 26 necropsies on breech babies, in 8 hemorrhage had taken place into the body of the testis, compressing and disorganizing the tubules so that it seemed impossible for the organ to have recovered its normal structure if the children had survived. He believes this may be a cause of sterility in the male. Hemorrhage into the mucous membrane of the uterus sometimes occurs, and explains the occurrence of some cases of so-called menstruation in young infants. Hemorrhages occur into the muscles of the legs, the buttocks, the erector spinæ and the pectorales, and the superficial and deep muscles of the neck, giving rise to the common "sterno-mastoid tumor." The brachial plexus injury, causing obstetrical paralysis, is quite common. Very serious and sometimes fatal accidents occur to the bones and joints, as rupture of the ligaments of the knee and hip joints; and fracture of the bones of the extremities and the pelvis are among the more common.

The author then describes the methods employed in making the diagnosis of breech presentation by external examination, and also the method of correcting the malposition by external version towards the end of pregnancy, preferably between seven and a half and eight and a half months of the pregnancy. There is a tendency for the malposition to recur after correction, in patients with a pendulous abdomen; but generally an abdominal belt, or rest for a few days in the recumbent position, will prevent this; but some sort of an abdominal belt should always be worn after the operation, unless the head sinks

well into the pelvis. Contra-indications to external version in breech cases are given: as twins, considerably flattened pelvis, a dead fetus, a malformed uterus and placenta previa.

Reports of Societies.

THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

FIFTEENTH ANNUAL MEETING HELD AT THE HOTEL CHAMBERLIN, OLD POINT COMFORT, VA., APRIL 30, MAY 1 AND 2, 1901.

THE president, DR. SAMUEL ALEXANDER of New York, after calling the attention of the association to the death of Dr. Fessenden F. Otis, a former president of the association, delivered an address on

THE TREATMENT OF INTRAPERITONEAL TRAUMATIC RUPTURE OF THE BLADDER BY LAPAROTOMY AND SUTURE.

Including his own experience this report consisted of 45 cases, with 23 deaths and 22 recoveries. The first part of his paper was chiefly historical, and then followed a critical examination into the causes of death. He then considered the etiology of intraperitoneal rupture. The following questions were then considered:

(1) How can we prevent delay in operating upon these cases? He believed that valuable time was lost, due to the routine methods usually employed in order to insure positive diagnosis. Much time is lost in differentiating between an intra- and extra-peritoneal rupture. The injection test and the inflation test he believed to be decidedly harmful. He did not see the necessity of making a positive differential diagnosis between these two conditions, for both required operation. The operation should be begun by exploring the prevesical space; if this is found to be healthy, the incision may be extended upwards and the abdominal cavity opened.

(2) How shall we treat the peritoneal cavity to obtain the most thorough asepsis? He thought the best results could be obtained by most thorough irrigation of the cavity with hot normal saline solution, not only at the beginning of and immediately after opening the abdominal cavity, but should be repeated after the rent in the bladder has been sutured.

(3) How can we most effectually close the bladder wound? The question is not so much the material of which the suture is made as the manner in which the suturing is done. In the case he reported the material used was silk, and the rent was first closed by a layer of interrupted Lembert sutures, and these were reinforced by a second layer of mattress sutures.

DR. J. P. BRYSON of St. Louis in intraperitoneal rupture began the operation by slitting the mucous membrane and dissecting away a small part of the muscular coat, so that when the sutures

are introduced and drawn taut it will throw the mucous membrane into ridges, and make really a valve.

DR. JAMES BELL of Montreal said that infecting lesions in the lower part of the abdomen spread upwards relatively slow, and he thought there was some risk of disseminating general infection by general irrigation. Swabbing offered certain advantages.

DR. CABOT of Boston was apprehensive as to the use of certain ligatures on account of liability to stone formation. In bad cases of rupture he would be inclined to use silk ligatures, because it held; but in extensive ruptures he would use catgut, but outside the catgut he would use silk, in order that the strain might be taken off.

DR. CHISHOLM of San Francisco reported an instance of a patient who had been operated upon for inguinal hernia some five years before he saw him. He came under his care for stone in the bladder. He removed the stone and then found two silk ligatures. He then learned that the surgeon who had operated upon his hernia had made a mistake and excised a portion of the bladder and sewed the incision up with silk ligatures. The man recovered and the silk ligatures were removed.

REPORT OF A CASE OF NEPHRECTOMY FOR ADENOCARCINOMA; WITH REMARKS ON COMBINED CYSTOSCOPY AND SEGREGATION AS A GUIDE TO THE EARLIER SURGICAL INTERVENTION.

DR. JNO. P. BRYSON of St. Louis made a report of such a case. Looking to the history and the physical examination up to the point of cystoscopy, there was only the absence of a vesical symptomatology to justify exclusion of the bladder as a source of the hemorrhage, and this was far from exclusive. A vesical papilloma situated behind and above the trigonema have produced the same kind of manifestation. Urethral and prostatic hemorrhage were easily excluded, and the vesical symptoms accompanying the entire hemorrhage were referable to the clotting of blood in the bladder. There was entire absence of a history of renal symptoms during the entire attack. The first satisfactory step in the location of the source of mischief was in cystoscopy. This revealed a normal bladder and two normally situated ureteral orifices. While it was true that the injection of the left orifice and the gradual clouding of that part of the cystoscopic field as the observations progressed raised strong suspicion of the source of the bleeding; and while it was equally true that subsequent and more extended observation might have given more conclusive evidence in the way of a blood spurt when the bleeding was more active, the real and practical value of the cystoscopy was in excluding that viscous as the source of the bleeding; and preparing the way for a segregation. Segregation with the Harris instrument was easily and almost painlessly done, and gave evidence of the highest value in determining the justification, not to say the necessity, for doing an exploratory operation. In

looking at the tables presented he thought that one could easily conclude that (1) the two specimens came from the same kidney; (2) the right kidney was functioning normally; (3) the left kidney was the source of the hemorrhage, and (4) the left kidney was in such a state of irritation as to determine a unilateral polyuria, albuminuria, mild bacteriuria and pyuria. The lower specific gravity, the greater quantity and the amount of albumin out of proportion to the amount of pus and blood, tended strongly to eliminate the ureter and pelvis as the seat of the mischief, and thus to carry it quite into the renal parenchyma. It will be noted that no tests were made to determine this epithelial adequacy, and the renal permeability are omissions which might today be open to criticism.

Of cryoscopy he had not yet had much experience, but he instituted a phloridzine test with a lively appreciation of its practical value. In at least three cases it had been of excellent service, and was impressed upon him that it is, in connection with the separation of the urines (F. Tilden Brown), capable of greatly enlarging our field of direct observations of renal capability. In the effort to determine the relative adequacy and permeability we have been accustomed to give the greater weight the quantity and specific gravity of the separated urines. The ascertaining of the relative functional capabilities of the two kidneys does not give us all the information required in regard to the kidney which is to remain and do the whole work of excreting. The matter of the relative excretion of urea may have been too much overlooked, but we cannot exactly tell how well a kidney may be doing until we know what the blood brings to it, and the antecedents of urea in the blood are, so far as we know, influenced by so many and varying conditions that it is difficult to bring it within a working formula. Cryoscopy may be of service in this matter, but the phloridzine test appears to have the greater value. If relative urea excretions vary so greatly as to effect the value of the observation which covers but $\frac{1}{2}$ of the time of daily kidney function, the permeability is quite as much affected by varying conditions of the other viscera. The heart, arteries and lungs, the brain and nervous system, and organs concerned in digestion, all have to do with the permeability of the kidney. It would be but a one-sided pathology and too narrow specialism which should fail to take into account the relationship of the condition and functional activity of other important organs as their changes affect the kidney and its work.

THE VALUE OF THE X-RAY IN THE DIAGNOSIS OF RENAL STONE: REPORT OF FOUR CASES.

DR. PAUL THORNDIKE of Boston made a brief report of these four cases, not in order to show beautiful x-ray plates of kidneys containing calculi, but because the cases were studied by the same people under the same conditions, and show results, partly negative in character, which the writer deemed of enough interest to justify their

presentation. It seemed to be true that stones which contained mineral salts are much more readily photographed than others, and yet in two of these cases the stones were layers of uric acid, and in both, distinct shadows were evident, while in one of them the stones were shown with considerable clearness, probably due to the admixture of urates in the former, and of calcic phosphate in the latter case. It would seem that there was something to expect from x-ray photography in connection with the diagnosis of renal stone, for in those cases, even when there is every clinical reason for thinking that a stone, if present, is composed of uric acid, it evidently needs only a small amount of urates or some other mineral salt to give a shadow which, although it does not show for much on the plate, is still capable of being recognized with some degree of precision by properly experienced observers.

In conclusion he referred to the various methods of exploring a kidney. Some time ago he was present at a lecture and heard reference made to the lifting the kidney onto the loin, and then splitting it along its convex border in such a way as to expose its whole interior to easy examination. The lecturer said he had never been able to do this, and had tried many times. His experience with renal cases was not large (probably fifteen cases would cover all the strictly exploratory operations he had ever done, not of course including among them the operation for drainage of pus), but he had been able to carry out this exploratory technique in six instances, and had never had the least trouble from hemorrhage or otherwise, either during or at any time subsequent to the operation. In some stout people it is a practical impossibility to carry out this method of investigation, and efforts to do so should not be persisted in, but in many patients of average weight the procedure was not difficult, and could be accomplished with no undue tension upon the renal vessels. It was the writer's belief that in cases where it can be done, it is far less likely to permanently injure the renal tissues than the less certain and far less satisfactory method of exploring the kidney with the finger through an opening made in the kidney substance or in the convex border. It was the writer's practice to endeavor so to expose the kidney in every exploratory operation he performs, and it was satisfactory to realize how often it is easily possible to do.

RUPTURE OF THE URETHRA: A REPORT OF CASES.

DR. JAMES R. HAYDEN of New York read a paper in which he reported 3 cases, as follows:

CASE I. Patient, 36 years of age, about 30 hours before admission to Bellevue Hospital, and while in an intoxicated condition, was kicked in the perineum. When he awoke the following morning he noticed blood on his shirt, and a slight bloody discharge from the meatus. On attempting to urinate he had an intense burning pain in the glans, and a feeling as if the urine were "leaking" into the perineum and penis. The stream was small, forked and dribbling, and patient had

to strain for some time before starting it. Urination caused such severe pain that he broke out into a profuse sweat and fainted. He finally became so weak and exhausted that he entered the hospital for relief.

Examination on admission.—The perineum was greatly swollen, tender, fluctuating, bluish-black, and abraded in places. Prostate and adjacent parts normal by rectal touch. Slight bloody discharge from the meatus. The urine was tinged with blood and contained bloody shreds, otherwise normal. No stricture was present. The bulbous portion of the canal was tender, bled freely, and felt roughened and lacerated when the bougie à boule was introduced. There was some compressor spasm, readily overcome by pressure.

Diagnosis and treatment.—A diagnosis of rupture of bulbous urethra with beginning extravasation of urine was made, the patient was etherized, and an external urethrotomy was made in the usual manner. The perineal tissues were found extensively infiltrated with blood clots, and a thin bloody fluid having a distinctly urinous odor. The bulb of the corpus spongiosum was crushed into a bleeding and oozing mass of tissue, the bulbous urethra having ruptured longitudinally in many places on its floor, while its roof remained uninjured. The clots were turned out and all bleeding points ligated. A full-sized sound was passed and the bladder irrigated and drained by a large perineal tube, which was removed permanently on the fifth day, and full-sized sounds passed every day until the perineal wound was closed. The patient left the hospital on the twentieth day, the urine then passing normally by the meatus. No attempt at suturing the urethra was made, on account of the contused condition of the tissues and the multiplicity and nature of the wounds.

CASE II. Patient, 37 years of age; 24 hours before admission to the hospital, while at work carrying a 50-lb. weight on his shoulder, fell 10 feet, landing astride a 2-inch gas-pipe. On standing up he felt wet about the genitals, and on inspection found that he was bleeding freely from the meatus, but he had but little pain. He went home in a street-car and called in a physician, who failed to enter the bladder after a prolonged and painful instrumentation; then, in order to stop the hemorrhage, he tied a bandage around the penis.

Examination on admission.—Patient weak and anemic, but not in much pain, except that due to urinary retention. The prostate and neighboring tissues were normal by rectal feel. The anterior abdominal wall was very tense and rigid, and the bladder greatly distended. The penis was so tightly bandaged that it caused marked swelling of the glans, which looked almost gangrenous. When the bandage was removed, a surprisingly large amount of blood spurted forcibly from the meatus, but even then he was unable to urinate voluntarily. The scrotum and perineum were greatly ecchymosed, the latter being distended, tense and fluctuating.

Diagnosis and treatment.—A diagnosis of rupture of the urethra with urinary extravasation was made, and the patient prepared for operation. Soft rubber and silk catheters passed as far as the bulbous urethra, when they apparently left the canal and entered the perineal tissues. A No. 20 F. silver catheter passed into the bladder by keeping its tips close in contact with the roof of the canal, which was apparently intact. Forty-two ounces of bloody urine and many clots were evacuated, and the bladder irrigated with hot saline solution, several ounces of which were left in. Hemorrhage from the meatus was quite free during the manipulations.

An external urethrotomy was then done, using the silver catheter as a guide. The perineal tissues were filled with bloody urine and clots, and oozing freely. When the bleeding was stopped and the parts dried, a longitudinal rupture about two inches in length could be seen in the floor of the bulb of the urethra, whose edges when retracted exposed the silver catheter, which was then removed. A full-sized sound was passed to the bladder, which was irrigated and drained by a large perineal tube, as in external urethrotomy. The perineal wound was left open and lightly packed with gauze. On the fourth day the perineal tube was removed permanently, a No. 30 F. sound passed to the bladder. On the twelfth day the wound in the urethra was cicatrized, all the urine passing by the meatus after that day. The perineal wound was closed at the end of the third week, the patient remaining in the hospital for several weeks for irrigations, sounds and observation. The walls of the urethra looked so swollen and boggy that no attempt at closing the rent on the canal was made. At present, a little over a year since the operation, urination is normal, the patient taking a full-sized sound with ease.

CASE III. Patient, 30 years of age, about 12 hours before admission to the hospital, and while intoxicated, landed astride a narrow board. Six hours later he found his underclothes stained with blood, and the meatus sealed with a dry clot, on removal of which urination was free, but painful, and followed by bleeding, which so frightened him that he entered the hospital for relief.

Examination on admission.—There was a slight and constant oozing of blood from the meatus. The urine was tinged with blood, and contained a few light, bloody threads and flakes, but was normal in other respects. Urination was free, but painful. The perineum was ecchymosed and slightly swollen and tender, but there were no local points of tumefaction or fluctuation. Prostate and surrounding structures normal by rectal feel. A large rubber catheter entered the bladder with ease, and drew clear urine. The urethra felt normal, although the bulb was sensitive.

Diagnosis and treatment.—A diagnosis of rupture of the bulbous urethra without extravasation was made and the patient placed in bed, and given boric acid and hyocyamus internally. He was catheterized at regular intervals with a soft

rubber instrument, and the urethra very gently and sparingly irrigated at these times with a warm sterile alum solution. The perineum was covered with a cold bichloride dressing, and regular temperatures were taken to keep informed as to the necessity for external urethrotomy and vesical drainage. All bleeding stopped on the fourth day, the urine was clear, and the perineal swelling had disappeared. The temperature remained normal since admission. On the fifth day the patient was up and about, and passing a clear urine in a normal manner. On the tenth day he left the hospital at his own request, as he felt well and was anxious to resume his occupation.

(To be continued.)

Recent Literature.

Atlas of the Nervous System. By DR. CHRISTFRIED JAKOB. Authorized translation from the second revised German edition. Edited by EDWARD D. FISHER, M.D. Small 8vo. Pp. 218, with 84 plates and 29 illustrations. Philadelphia and London: W. B. Saunders & Co. 1901.

When the first edition of this atlas was published five years ago we welcomed it as a useful guide for the student. The present edition is greatly improved. Many new plates have been added, and many of the old plates have been changed; the delineation is much clearer, the crudeness of the coloring has been modified, and some of the representations are remarkably life-like. The outline diagram opposite the plates of the various sections is a valuable addition. The present volume gives to the student in compact form and at a low price a very large number of really admirable colored plates, which show with accuracy all the essential features of the anatomy and pathology of the central nervous system, combined with a very concise explanatory text. It is heartily to be recommended.

Induction Coils: How to Make, Use and Repair Them. By H. S. NORRIS (NORMAN H. SCHNEIDER). Second edition, revised and much enlarged. Pp. xvi, 269, with 79 illustrations. New York: Spon & Chamberlain. 1901.

This little book is a clear and useful guide, especially for the construction of induction coils and for their adaptation to the various forms of apparatus with which they are now so often used. It will be of service to the physician who may wish to construct his own electrical apparatus, instead of depending upon the instrument-maker.

Hypnotism. By L. W. DELAURENCE. Pp. 256, with 18 illustrations. Chicago: The Hennebry Company. 1901.

The present volume is illustrated by 18 pictures of the author, in full evening dress and in dramatic attitudes, hypnotizing various subjects singly and in groups. Aside from these illustrations the work has no claim upon our consideration.

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HUMAN AND BOVINE TUBERCULOSIS.

IF it is desirable to arouse public interest in the question of tuberculosis, no better method could be adopted than that which we have just seen exemplified in England. The proceedings of a widely announced congress on a special subject of such great personal and public interest, under the patronage of the King, could not fail to excite interest, both in England and abroad, alike among physicians and laymen. That such has very distinctly been the case in this instance is evident from the eagerness with which the daily papers have reported the doings of the congress, and the like eagerness with which they have apparently been read.

So far as we are able to judge, every effort was made to provide for the comfort and entertainment of those coming from a distance, and the papers offered for discussion were chosen to cover what has now become a broad field of medical research. Following certain statistics regarding tuberculosis, its geographical distribution, age and sex distribution, etc., the following general subjects were discussed: Notification of tuberculosis, prevention during childhood, the influence of housing and aggregation, the control of meat supplies, international aspects of tuberculosis, control of milk supplies, and the rôle of hospitals and sanatoria. Much time was also given to climatology, pathological anatomy, and tuberculosis in animals other than man. With this wide range of subjects presented by special workers in the various fields, it is safe to say that the great questions at issue were thoroughly and intelligently discussed up to the extent of our present knowledge.

It was natural that among the various communications Professor Koch's utterances should have been awaited with particular interest. His pioneer work on tuberculosis, and his close association through many years with the problems which

the disease offers, demand for what he may say a respectful hearing, if not an unqualified assent. His address, published in another part of this number of the JOURNAL, contains little that is original; it is a concise rehearsal of the now generally accepted views of the contagiousness of the disease, the extreme importance of sputum as a means of infection, the secondary importance of hereditary influences, the significance of sanatoria, and other general phases of the question. That part of the address to which Koch apparently attaches particular importance, and which has attracted the most widespread attention, is the discussion of the relation of human and bovine tuberculosis. Experiments are narrated in which the evidence goes to show that the lower animals are not susceptible to infection from the bacilli of human sputum, and the confirmatory work of other investigators along this line is alluded to. Summing up the matter he says: "Considering all these facts, I feel justified in maintaining that human tuberculosis differs from bovine, and cannot be transmitted to cattle. It seems to me very desirable, however, that these experiments should be repeated elsewhere, in order that all doubt as to the correctness of my assertion may be removed."

The much more difficult question of the determination of man's susceptibility to bovine tuberculosis, although clearly incapable of convincing experimental demonstration, is stated with a considerable degree of dogmatism in the following words:

"Though the important question whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, and will not admit of absolute decision today or tomorrow, one is nevertheless already at liberty to say that, if such a susceptibility really exists, the infection of human beings is but a very rare occurrence. I should estimate the extent of the infection by the milk and flesh of tuberculous cattle, and the butter made of their milk, as hardly greater than that of hereditary transmission, and I therefore do not deem it advisable to take any measures against it."

With the exception of the last sentence one need not criticise too severely the trend of the foregoing remarks, but clearly the bridge has been crossed and burned when it is stated that it is inadvisable to take measures against the possible transmission of the disease from animals to man. Here a great majority of investigators take issue with Koch, and maintain, as he himself tacitly admits, that he has brought no adequate scientific evidence for his position. The burden of proof now lies with him, and until such proof is forthcoming it would seem the height of folly to relax in any considerable degree our vigilance.

It is further to be observed, and this fact Koch seems in great measure to have overlooked, that as long ago as 1896 Prof. Theobald Smith of Boston presented at the meeting of the Association of American Physicians a paper which concerned itself with a comparative study of a bovine bacillus and a presumably human bacillus, which had passed from a tuberculous subject to an animal. Two years later the abstract of a paper entitled "A Comparative Study of Bovine Tubercle Bacilli and of Human Bacilli from Sputum" appeared in the *Journal of the Boston Society of Medical Sciences* (1898, vol. ii, p. 187), and later in the year the full paper under the same title was published in the *Journal of Experimental Medicine* (1898, vol. iii, p. 451). In this work Smith discusses in much detail the question which Koch has again brought to the surface, and arrived at essentially the same result, though much less dogmatically stated. He also found, as has Koch, that certain animals were unaffected by the injection of sputum bacilli, but unlike Koch, refused to be dogmatic about the effect of bovine bacilli on man. He sums up his results tentatively as follows: "The differences between bovine and sputum bacilli will probably enable us to determine more definitely the agency of cow's milk in the tuberculosis of infancy and childhood." This is a conservative, scientific statement of probabilities, and nothing more. The question which is now agitating men of science is whether Koch's researches permit him to go further. Mere opinions cannot be taken as evidence in such a matter, and the world at large will no doubt prefer to await a more carefully demonstrated judgment.

If Koch is wrong in his dictum, the possibilities of harm are manifest, through the relaxation of care in combating the disease at every point; if he is right, the fact remains to be proved, as he himself admits. In the meantime the value of such dogmatic assertions from a man of eminence lies in the renewed stimulus it gives to research bearing in any way on the question at issue. That such research will be forthcoming with redoubled vigor there can be no doubt, especially in this matter, in which widely diversified interests of such far-reaching importance are at stake.

THE VERMONT SCHOOL FOR HEALTH OFFICERS.

In a chart which was prepared for the Paris Exposition of 1900 it was shown that the per capita expenditure of the State of Vermont for sanitary purposes was with one exception the highest in the United States. It is only three years since its appropriation for the work of the State Board of Health was increased fivefold in a

single year. The board has wisely appropriated a portion of this amount to the establishment of a State laboratory at Burlington, and once in each year it conducts a summer school for the training of the health officers of the State in the various lines of work which form the science of public hygiene.

The third session of this school was held under the direction of the board at Burlington during the second week in July. In its published notice of the meeting the board expressed its desire "to make this school of great interest to all persons interested in public sanitation and of profit to the people of the State, that the local health officers may return to their respective towns better equipped in every way for the discharge of the important duties entrusted to them." By the provisions of a State law of last year local health officers are encouraged to attend this school by the payment of expenses for the purpose.

At the opening of the school this year Dr. C. S. Caverly, president of the State Board of Health, in his introductory address, quoting from the figures in the possession of the board, showed that the mortality from scarlet fever, diphtheria, consumption, whooping cough and typhoid fever had diminished very greatly in Vermont, comparing two five-year periods before and after the awakening which had taken place in that State relative to the importance of sanitary work.

After the usual addresses of welcome by the governor and by the mayor of Burlington, Dr. Caverly read a sketch of the "Life of Dr. J. H. Linsley," a student of Dr. Koch. It was largely due to the enthusiasm of Dr. Linsley that the State laboratory and the summer school for health officers was established. "In spite of his failing health he continued to devote himself to the interests of the State laboratory. His most enduring monument is his work."

On the second day papers were read by J. C. Baker of Rutland on the "Laws Relating to Public Health," by H. L. Stillson on the "Duties of Health Officers," and by Dr. W. N. Platt on "Sanitary Legislation." The paper by Dr. Grout on the "Relation of Animal Diseases to Public Health" was instructive, and the subject was fully presented, the question of tuberculosis being its chief feature. This was followed by papers upon "Milk Supplies," by Edgar B. Moore, Esq., and on "Smallpox versus Chickenpox," by Dr. E. S. Darling.

In the evening Dr. J. H. McCollom of Boston presented the subject of "Smallpox Eruptions in Their Different Stages." The topic was fully illustrated by means of stereopticon slides, showing the progress of the disease from the beginning to the end in a typical case. He called

attention to the liability to error in diagnosis in the early stages of the disease. He stated his opinion that the country was on the eve of a serious epidemic of smallpox, the conditions being similar to those which preceded the great epidemic of 1872.

On the following day the time was occupied in the morning with papers by Mr. W. P. Gerhard of New York City upon "Plumbing." This well-known expert stated that the danger from sewer gas had been greatly exaggerated, and that it cannot be definitely said that diphtheria and other specific diseases originate from defective plumbing; but, nevertheless, foul air renders the system less able to throw off the germs of infectious disease which are received from other sources. Dr. C. L. Wilbur, superintendent of vital statistics of Michigan, presented a paper in which he showed the value of vital statistics in guiding sanitary legislation and in aiding health officers by giving warning of the approach of epidemic and infectious diseases. Vermont was one of the first states to adopt a plan of registration, having had a system of collection of vital statistics for nearly a half century. Dr. B. H. Stone of Burlington followed with a paper on the "Value of Blood Examinations," and Dr. Wiltse presented the subject of the "Usefulness of the State Laboratory to the People."

Prof. W. T. Sedgwick of Boston presented the subject of "The Relation of Drinking Water to Disease," giving special prominence to the subject of "Lead Poisoning from Drinking Water," and showing that certain waters are liable to cause this serious trouble while others do not. He also spoke upon the important subject of sewage disposal, and said that such disposal could be so conducted as to produce no annoyance or harm to the people of regions adjacent to the fields used for its disposal, as at Berlin and at Paris. Dr. Hoisington of Wethersfield presented the topic of "Schoolhouse Sanitation," which closed the exercises of the week.

The discussions which followed the reading of the different papers showed a lively interest on the part of all who were in attendance, and demonstrated the usefulness of the school not only to the health officers of the State but also to the people in general whom they represented. A prominent feature of the sessions was the presence of a considerable number of laymen, who presented papers and took part in the discussions. A similar result is secured in other states by the different state sanitary associations which meet at stated intervals for similar purposes, and in Massachusetts by the association of boards of health, which meets quarterly at different points in the State.

MEDICAL NOTES.

COEDUCATION AT RUSH MEDICAL COLLEGE.—An important change in the policy of Rush Medical College, Chicago, which is now a department of the University of Chicago, is reported as announced by President Harper. Women will be admitted hereafter to the first and second classes on an equal footing with men. This action takes effect at once. When new buildings and new facilities are provided, women will be admitted also to the last two years of the course.

GERMAN LOSSES IN CHINA.—The total losses of the German Expeditionary Force in China up to the present, as stated in the *British Medical Journal*, amounts to 1 officer killed, 12 wounded, 5 dead from disease or accident; 32 non-commissioned officers and men killed, 110 wounded, and 133 dead from disease or accident; to these have to be added 7 missing. The total casualties amount to 300.

A REPUTED YELLOW-FEVER SERUM.—It is reported that Dr. Felipe Caldas, a Brazilian bacteriologist who claims the discovery of a yellow-fever serum, has gone to Cuba to conduct experiments. He will first visit Santiago, where the fever is now prevalent.

SMALLPOX AT JACKSON FALLS, N. B.—Cases of smallpox are reported in three families at Jackson Falls, N. B., near the Maine border. The cases have been reported to the proper authorities.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon July 31, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 34, scarlatina 24, measles 39, typhoid fever 9.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending July 27 was 208, as against 227 the corresponding week last year, showing a decrease of 19 deaths, and making the death-rate for the week 18.92. The deaths from consumption were 18; pneumonia 5; whooping cough 2; heart disease 21; bronchitis 2; marasmus 6. The number of children who died under 1 year was 55; under 5 years, 73; persons more than 60 years, 39; deaths in public institutions, 77.

NEW YORK.

INVESTIGATION OF PARK AVENUE TUNNEL.—Dr. Cyrus Edson, formerly a commissioner of the Board of Health, at the request of the District Attorney has been making, with the assistance of a number of health department officials and other physicians, an investigation of the conditions existing in the Park avenue tunnel, through which

the trains of three great railroads come into the Grand Central depot. The report made by him, which has been transmitted by the District Attorney's office to the Grand Jury, states that in his opinion the tunnel is the cause of a very serious public nuisance, affecting the health and comfort of a very large number of persons. This is mainly due to gases of combustion and other deleterious gases and to the lack of proper ventilation of the tunnel and the cars in transit. The means provided for ventilation, however efficient they may have been when the tunnel was originally constructed and when traffic was lighter, are now utterly inadequate to secure proper ventilation or to remove the gases given off by the five or six hundred engines which daily traverse the structure. In addition, the temperature rises to an excessive extent in the cars and is attended with a high percentage of humidity. The gases of combustion, plainly apparent to the senses while the cars are passing through the tunnel, are mainly sulphur dioxide and carbon monoxide and dioxide. In short, a comparison, based on the air space for each passenger and other circumstances, shows that the conditions met with in the cars in passing through the tunnel are worse for the period of passage than those which obtained in the famous Black Hole of Calcutta for a corresponding period. From the injurious effects observed upon passengers the conclusion is arrived at that the continued effect of two trips daily through the tunnel will debilitate and weaken all but the most vigorous persons.

A CASE OF BUBONIC PLAGUE.—A case of bubonic plague was discovered on the German steamship *Hohenfels*, which arrived in port from Calcutta on July 22. On the arrival of the vessel one of the crew, a native of India, was found to have an enlarged and inflamed gland, which could not be satisfactorily accounted for. He was at once removed to the hospital on Swinburne Island, and when specimens taken from the affected gland were examined at the quarantine laboratory a micro-organism believed to be the plague bacillus was found. Upon this discovery Health Officer of the Port Doty sent the bacteriologist of the department to Washington with specimens from the case, and after an examination had been made by Drs. Goddings and Rosenau, of the U. S. Marine Hospital Service, Surgeon-General Wyman reported that the result of the examination confirmed the diagnosis made in the quarantine laboratory. The crew were then removed to Swinburne Island for observation, and the vessel and cargo were carefully disinfected. While he gives little credence to the theory of the transmission of plague infection by means of rats, Dr. Doty said every precaution would be taken to respect official opin-

ions in this regard. The case was a very mild one, the patient having been found at work on the ship, and according to the latest reports was still progressing favorably.

STATE ANTITOXIN LABORATORY.—Dr. Daniel Lewis, State commissioner of health, has secured a building in Albany for the establishment of a State Antitoxin Laboratory, and Dr. H. D. Pease of the Sheffield Scientific School, Yale University, has been appointed director of the laboratory. Dr. Lewis purposes to supply state institutions with diphtheria and other antitoxins and serums, free of charge, and also to furnish these remedies to municipalities not provided with laboratory facilities for patients who are unable to pay for them. This new department, he states, is intended to supply to all health officers throughout the state the same facilities for the investigation, diagnosis and treatment of infectious diseases as are now provided by the local health department in New York City.

PROHIBITION OF "LOOP-THE-LOOP."—The authorities have very properly put a stop to what is known as the "loop-the-loop" at Coney Island, an "amusement" attraction in which a car dashes down a steep incline with such terrific speed as to cause it to pass upside down around a loop of track in the air. It has been frequently noted that women broke their corset strings in leaning forward in order to catch their breath as they swept down the incline, and it is now reported that a young man of Brooklyn has died from the bursting of a blood vessel in the liver caused by a ride in a "loop-the-loop" car.

BEQUESTS TO HOSPITALS.—By the will of Jacob Cullman, who died abroad on July 4, \$15,000 is left to the Mt. Sinai Hospital, \$10,000 to the Montefiore Hospital for Chronic Diseases, and \$5,000 to the German Hospital and Dispensary. Among the charitable bequests left by the late Mrs. Harriet Bacon Smith of Brooklyn are \$10,000 to the endowment fund of the Brooklyn Eye and Ear Hospital and \$3,000 to the Brooklyn Diet Dispensary.

A DEATH FROM ETHER.—A child three years old recently died from the effects of ether while undergoing an operation for strabismus at the Manhattan Eye and Ear Hospital. A similar operation had been successfully performed on her about six weeks previously at the same institution.

SMALLPOX AT WESTCHESTER COUNTY ALMSHOUSE.—Four cases of smallpox (one of the patients being the matron of the institution) are reported at the Westchester County Almshouse at East View, near White Plains, which has about 300 inmates.

Obituary.

FRANKLIN KITTREDGE PADDOCK, M.D.

DR. FRANKLIN K. PADDOCK died at Pittsfield, Mass., July 26. He was one of the best known physicians and surgeons in western Massachusetts, and among the last of the generation of medical men who graduated from the college in Pittsfield, which was famous in its time as one of the leading institutions of the kind in the country.

Dr. Paddock was born in Hamilton, N. Y., Dec. 19, 1841. The rheumatism and affection of the heart from which he finally died began at the age of 16. He went to Pittsfield in 1862, studied medicine with Dr. W. W. Green, and graduated at the Berkshire Medical College in 1864. He afterward took a post-graduate course in New York under the special instruction of Dr. Austin Flint. Upon returning to Pittsfield he entered into partnership with Dr. Green. He was dean of the Berkshire Medical College, in which he held a professorship until the college was closed in 1867.

Dr. Paddock was for years the chief medical examiner of the Berkshire Life Insurance Company, and also was local examiner for some other companies. On the abolition of the old coroner system, Dr. Paddock was appointed medical examiner of the central Berkshire district, a place he held at the time of his death. He was president of the Massachusetts Medical Society in the years 1894 and 1895, medical director of the Berkshire Life Insurance Company since 1868, president of the Berkshire Loan and Trust Company for two years, member of the Massachusetts Medico-Legal Society for 20 years. In 1873 he was given a degree of master of arts by Williams College. He had always been the chief surgeon of the Pittsfield House of Mercy, an institution which he had been instrumental in founding. Dr. Paddock leaves a wife and three children. In his death the profession loses a type of physician which is becoming rarer as the years go by—a man of wide general knowledge and cultivation, who never ceased to serve the people as a "general practitioner."

WILLIAM ARGYLE WATSON, M.D.

DR. WILLIAM ARGYLE WATSON of New York died at his country residence at Newport, R. I., on July 27, of chronic Bright's disease. He was 74 years old, and was born at South Kingston, R. I. He was the son of Dr. Daniel Watson, in whose office he began the study of medicine, and was graduated from the Medical Department of the University of Pennsylvania in 1850. Throughout the Civil War he served with distinction as assistant surgeon and surgeon in the United States Navy. At the close of the war he resigned, and until two years ago, when he retired on account of failing health, practiced in New York, and in Newport during the summer. Dr. Watson was highly esteemed as a practitioner, and was a gentleman of great refinement and culture. He was especially prominent as a student and interpreter of Shakespeare.

Correspondence.

[From our Special Correspondent.]

SOME MEDICAL ASPECTS OF THE PAN-AMERICAN EXPOSITION.

In our last letter we alluded to the Army Medical Department. The mess tent of the hospital contains a complete mess outfit for 100 men, together with numerous small cooking utensils, all carried in a single chest about the size of a small trunk. This chest is

but little larger, and only twice as heavy, as the old style mess chest containing an outfit for six men—as used during the war with Spain—thus saving the transportation of 16 bulky chests, and cutting off more than one ton of the weight which was formerly carried in mess outfits alone.

The adjoining kitchen tent contains a compact portable table range of the latest pattern, so light as to be carried by three men, which has a cooking capacity—and has packed within itself the necessary cooking utensils—for the preparation of abundance of food for 100 patients at the same time. A portable water sterilizer, which weighs when boxed but 80 lbs., supplies germ-free and cooled water at the rate of 35 gallons hourly. A field water filter is also shown in operation in this tent. The adjacent food tent contains 200 field rations and two food chests packed with malted milk, beef extract, arrowroot and other articles of light diet in concentrated form.

The surgical tent contains a complete outfit for operations in the field, as contained in the field surgical and sterilizer chests. There is also an abundance of sterilized dressings, ligatures, etc., in hermetically sealed packets, which are opened as required. Admirable light for operative work in the field is furnished by a small acetylene generator, the size of an ordinary horse bucket, which operates four 25-candle power lights for eight hours without recharging; the distributing tubes, burners, etc., all packed in the generator for transportation. Such apparatus would seem to be of particular value. A small chest in the office tent serves as a desk, and contains a full assortment of stationery, blanks, books of record, and a small library of reference.

The allowance of transportation for this 100 bed hospital,—tentage, bedding, furniture, kitchen and mess equipment,—etc., is but six four-horse wagons. That such a complete equipment for the care of so many men can be carried in such limited transportation reflects the greatest credit upon the ingenuity of army medical officers in their efforts to meet the conditions of field service.

Besides the complete equipment of the hospital proper, the exhibit includes an enlisted personnel of three non-commissioned officers and twenty privates of the hospital corps, who act as attendants to the exhibition. These men give practical demonstrations of first aid work, litter drill, transportation of wounded, etc., twice daily, and these drills add much to the attractiveness of the exhibit of the medical department as a whole. The enlisted men present a fine appearance from a military standpoint, while their intelligence and technical ability excite much commendation. The army exhibit, which is here only roughly outlined, will well repay careful study on the part of medical men, who will be most favorably impressed with the up-to-date completeness of its equipment, its utility under actual conditions of field service and the efficiency of its administration. The exhibit is in charge of Capt. E. L. Munson, assistant surgeon, U. S. Army, the author of a recent textbook on military hygiene which has been most favorably received in our own and foreign armies.

The exhibit of the Medical Department of the Navy, forming part of the general naval display in the main Government Building, is located immediately to the left of the arcade entrance leading from the Fisheries Building. It is in charge of Surg. S. H. Griffiths, one of the authorities on hygiene in the Navy, and represents a naval sick bay, with accompanying lavatory and dispensary, on a modern battleship. The space occupied by this exhibit is but about 8 x 25 feet, and the exhibit not at all representative of the resources and equipment of the Medical Department of the Navy. As usual, in the Navy the Medical Department has been apparently the last to be considered by those in authority, and seems to have been given the remaining space after every facility had been afforded other departments to make their display. It is understood that the medical department had originally planned a larger exhibit, but was forced to modify its original

intentions. Personally, your correspondent is inclined to the belief that the present meagre display will create a false impression in the popular mind with regard to the resources and importance of the Medical Department of the Navy. With its admirable Museum of Hygiene at Washington to draw upon, there is no reason why that department should not have made a selective display on the subject of hygiene which would have been of great value to medical men as well as interesting and instructive to visitors in general. Much good work is done by medical officers of the Navy, and it would be greatly to the interest of their department if the results of such work were properly presented to the general public. Advantage of present opportunities to advertise the department has not been taken—a fact which should be a cause of regret not only to naval surgeons but also to the medical profession at large.

In the sick bay four-cots are shown and a folding operating table is set up, but without any display being made of surgical instruments, dressings or surgical accessories. An oak desk, on which are some photographs of the Naval Museum of Hygiene, a wooden chest of drawers and iron washstand complete the display. One is rather surprised to find any articles of furniture in a modern hospital ward not made of glass or enamelled metal. In the bath-room a bath-tub, shower bath and water-closet are displayed. In the dispensary a cupboard, rack of empty bottles, washstand and litter, for transporting wounded on shipboard, complete the equipment of the room and the display as a whole.

* * * *

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 20, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and croup.
New York . . .	3,437,202	1,324	602	38.58	3.85	1.58	23.48	1.35
Chicago . . .	1,088,575	—	—	—	—	—	—	—
Philadelphia . .	1,293,097	443	171	34.65	4.50	.67	15.20	1.12
St. Louis . . .	575,238	—	—	—	—	—	—	—
Baltimore . . .	508,057	201	102	35.50	4.00	—	22.00	—
Cleveland . . .	381,758	—	—	—	—	—	—	—
Buffalo . . .	332,087	—	—	—	—	—	—	—
Cincinnati . . .	325,002	—	—	—	—	—	—	—
Pittsburg . . .	321,636	154	65	35.69	4.54	1.40	20.12	.65
Washington . . .	278,718	—	—	—	—	—	—	—
Milwaukee . . .	285,015	—	—	—	—	—	—	—
Providence . . .	175,597	69	19	23.00	—	—	20.00	—
Boston . . .	569,892	193	66	26.42	6.21	3.10	8.81	2.59
Worcester . . .	118,421	43	13	18.56	2.32	—	—	—
Fall River . . .	104,853	40	54	48.26	2.94	—	14.00	—
Lowell . . .	94,969	40	12	30.00	—	—	12.50	7.50
Cambridge . . .	91,886	57	5	25.90	7.10	—	7.40	3.70
Lynn . . .	68,513	10	2	30.00	—	—	—	20.00
Lawrence . . .	62,659	21	13	33.24	4.16	—	—	—
New Bedford . .	62,442	23	15	65.25	8.70	—	39.15	—
Springfield . . .	62,059	15	6	33.33	—	—	13.32	—
Somerville . . .	61,643	18	3	16.67	5.55	—	11.11	—
Holyoke . . .	45,712	20	11	40.00	—	—	40.00	5.00
Brookton . . .	40,063	12	1	25.00	8.33	—	—	8.33
Haverhill . . .	37,175	3	—	33.33	—	—	—	—
Salem . . .	35,656	9	3	11.11	—	—	—	—
Chelsea . . .	34,972	13	7	—	—	—	—	—
Malden . . .	33,064	7	3	28.60	14.30	—	14.30	—
Newton . . .	33,087	5	3	—	—	—	—	—
Fitchburg . . .	31,621	7	2	14.30	28.60	—	—	—
Laconia . . .	31,636	—	—	—	—	—	—	—
Gloster . . .	28,121	—	—	—	—	—	—	—
Everett . . .	24,536	—	—	—	—	—	—	—
North Adams . .	24,200	6	1	16.67	—	—	—	—
Waltham . . .	23,959	—	—	—	—	—	—	—
Pittsfield . . .	21,766	3	—	33.33	—	—	—	—
Brookline . . .	19,935	—	—	—	—	—	—	—
Holbrook . . .	19,067	7	4	11.11	—	—	14.30	—
Medford . . .	18,214	5	2	10.00	—	—	40.00	—
Newburyport . .	14,178	4	—	75.00	—	—	25.00	—
Melrose . . .	12,982	2	—	—	—	—	—	—

Deaths reported 2,770; under five years of age, 1,180; principal infectious diseases (smallpox, measles, scarlet fever,

diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 982, acute lung diseases 112, consumption 270, scarlet fever 32, erysipelas 1, typhoid fever 33, whooping cough 15, measles 12, cerebro-spinal meningitis 10, smallpox 14.

From whooping cough, New York 3, Philadelphia 6, Baltimore 2, Pittsburg 1, Boston 1, Holyoke 1, Malden 1. From cerebro-spinal meningitis, New York 2, Baltimore 1, Boston 4, Lowell 1, Lynn 1, Somerville 1. From scarlet fever, New York 21, Philadelphia 3, Pittsburg 2, Boston 6. From typhoid fever, New York 10, Philadelphia 10, Baltimore 2, Pittsburg 8, Boston 2, Fall River 1. From erysipelas, New York 1. From smallpox, New York 12, Philadelphia 1, Fall River 1.

In the three greater towns of England and Wales, with an estimated population of 11,433,026, for the week ending July 6 the death-rate was 15.1. Deaths reported 3,325; acute diseases of the respiratory organs (London) 65, whooping cough 62, diphtheria 63, measles 95, fever 17, scarlet fever 37.

The death-rate ranged from 9.3 in Leicester to 21.9 in Liverpool; Birkenhead 20.2, Birmingham 13.4, Blackburn 19.6, Bolton 15.1, Bradford 14.9, Brighton 16.4, Bristol 12.6, Burnley 10.7, Cardiff 12.3, Croydon 12.8, Derby 11.3, Gateshead 19.3, Halifax 12.9, Huddersfield 12.6, Hull 16.7, Leeds 18.4, London 14.3, Manchester 15.1, Newcastle-on-Tyne 18.9, Norwich 11.6, Nottingham 13.4, Oldham 17.8, Plymouth 13.0, Portsmouth 15.4, Preston 14.3, Salford 16.9, Sheffield 14.3, Sunderland 19.1, Swansea 11.0, West Ham 13.6, Wolverhampton 17.1.

METEOROLOGICAL RECORD

For the week ending July 20, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.	Relative humidity.	Direction of wind.	Velocity of wind.	Wet bulb.	Rainfall in inches.
	Daily mean.	Daily maximum.	Minimum.	Daily mean.	8.00 A.M.	8.00 P.M.	
S...14 39.14	77	89	65	74	75	74	—
M...15 39.95	82	91	73	75	76	76	—
T...16 39.28	80	93	74	78	80	79	—
W...17 39.76	79	85	73	83	83	80	—
T...18 39.81	80	91	69	91	86	85	—
F...19 39.87	72	78	67	82	82	82	—
S...20 39.97	73	82	64	81	82	80	—
Mean for week.	77	86	74	78	80	79	.23

* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threatening; N, snow. † indicates trace of rainfall. ‡ Mean for week.

SOCIETY NOTICE.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—The American Electro-Therapeutic Association will hold its Eleventh Annual Convention in Buffalo, on Sept. 24, 25 and 26, 1901.

RECENT DEATHS.

LAWRENCE SUMNER SMITH, M.D., M.M.S.S., died in Haverhill July 2, 1901, aged 19 years.

FRANKLIN KITTEPGE PAIDOCK, M.D., M.M.S.S., died in Pittsfield July 26, 1901, aged 39 years.

BOOKS AND PAMPHLETS RECEIVED.

Forty-third Annual Report of the Washingtonian Home, for the year ending April, 1901. Boston: T. W. Ripley, 1901.

University of Oregon Medical Department. Fifteenth Annual Announcement. Session 1901-1902. Illustrated. Portland, Ore.: The Anderson Printing and Lithograph Co., 1901.

A Manual of Surgical Treatment. By W. Watson Chesney, F.R.S., M.B., F.R.C.S., and F. F. Burghard, M.D., and M.S. (London), F.R.C.S., in seven volumes; vol. v. Illustrated. Philadelphia and New York: Lea Brothers & Co., 1901.

Address.

SCIENTIFIC RESEARCH: THE INDISPENSABLE BASIS OF ALL MEDICAL AND MATERIAL PROGRESS.¹

BY GEORGE BAGOT FERGUSON, M.A., M.D., B.CH.OXON.,

Senior Surgeon to the Cheltenham General Hospital and to Cheltenham College.

(Concluded from No. 5, p. 121.)

THE MEDICAL STANDPOINT OF TODAY THE RESULT OF SCIENTIFIC RESEARCH.

Pondering over medicine as it stands today, the main fact that strikes me about it is, how much more it owes to the biologists and to the men of pure science than to the so-called practical men. The practical man is indispensable, but he is not like the great biologists, a high priest of the arcana of nature. The cell theory, for example, lies at the very foundation of modern medicine, and this theory certainly originated entirely with the biologists. The term cell was first used in reference to plants in the seventeenth century (1665) by Hooke, who, with his contemporaries, Grew and Malpighi, distinctly foreshadowed the cell theory of modern times. The cell nucleus was actually seen and drawn by F. Bauer so long ago as 1802, though it was not before 1831 that it received that name from Robert Brown, the botanist. Little notice, however, was taken of the subject before the publication of Schleiden's paper on "Phytogenesis" in *Müller's Archives* for 1838, in which he asserted that "every plant is an aggregate of individualized, independent, separate beings; namely, cells." Theodor Schwann, also in the next year, made a similar assertion regarding animals in his *Microscopical Researches*, of which, and of Schleiden's paper also, the Sydenham Society published a translation in 1847.

Schwann was first impelled to his conclusion by noticing the extraordinary resemblance between the microscopic structure of the chorda dorsalis of the tadpole and that of the onion and of certain pollen matrices. Schwann, however, fell into error in asserting that cells arose spontaneously, and here he was set right by Barry in 1838 and later by Goodsir, who established the direct descent of every cell from a pre-existing one. This is Virchow's "continuity of life," his *omnis cellula e cellula*, the aphorism which he offers us in the place of Harvey's "*Omne vivum ex ovo*." That *punctum saliens*, the nucleolus, was first noticed by Schleiden, though it was Schwann who gave it that name. Next came Hugo von Mohl in 1846, who recognized what we now call protoplasm in the cells of plants; the identity of which with a similar substance in the cells of animals was soon afterwards proved by Cohn and Remak. To Schwann a cell without a wall and a nucleus was no true cell, but Leydig in 1856 adduced pus and mucous corpuscles as

instances of wall-less cells, and so step by step the ground was cleared for the now historical "Cellular Pathology" of Virchow, which influenced so profoundly the medical thought and practice of forty-three years ago. To Virchow as to Schwann a cell wall was a necessity, though this idea was soon afterwards dispelled by Lionel Beale and independently by Max Schultze in 1861. To Max Schultze we owe not only the extension of the term protoplasm (the bioplasm or living matter of Beale) to the contents of animal cells also, but the best description of an animal cell, namely, that it is a protoplasmic mass containing a nucleus, though even this last we may add, is non-essential. All this work on the cell theory gave the original inspiration to Pasteur, and Pasteur leads up to Lister, of whom I will forbear to speak, for he needs no speech, though he might well say of himself, *Quæ regit in terris nostri non plena laboris?* I may mention this significant fact, however, that visiting the Polyklinik in Vienna two years ago, I noticed that the only name of a contemporary Briton inscribed on its façade was that of Lister. The cell theory further leads up to bacteriology, the most imposing and the most impressive department of medical biology.

Now bacteriology, which originated with the labors of Cohn and De Bary, rests on cultivation and staining; and if year by year more and more of the germs of disease are recognized, it is because improved methods are constantly being perfected for coloring and making visible these formerly invisible entities. The modern practice of staining, so essential to the physician and surgeon of the day, began with the botanists Göppert and Cohn, who used carmine in 1849; and here again the pure scientists showed the way to the practical investigators of medicine, such as Gerlach of Erlangen, who first applied the method to anatomy. In 1871 and later Weigert succeeded in demonstrating nuclei by ammoniated carmine, and cocci by methyl violet. In 1872 Eberth and Wagner began the use of that admirable stain, hematoxylin. Looking through some old preparations of mine not long ago, I found that most of those stained with aniline dyes were faded, but those stained with hematoxylin were still bright and good. In 1879 Ehrlich enunciated his remarkable generalization that the basic coal tar colors (like fuchsin, methylene blue and methyl green and violet) stain nuclei; whilst the acid ones (like orange-green) stain plasma, and the neutral ones (like rosaniline-picric) stain special cell contents. Weigert, later, found that acid fuchsin was specially useful in the study of the nervous system, and Strasburger, the botanist, used the basic methyl green to demonstrate those mitotic figures which are of such importance in embryological work, and have afforded a basis for the wide generalizations of the biologist Weismann. Nor need I pursue the matter much further than to state that in 1882 Koch, who had previously devised the method of cultivation of bacteria, first stained with methylene blue and

¹ President's address delivered before the Sixty-ninth Annual Meeting of the British Medical Association.—By the courtesy of the British Medical Journal.

thus discovered the bacillus tuberculosis, the consequences and far-reaching results of which discovery are well known to all of you. That I have said so much on this point is to strengthen my contention that the true basis of modern medicine is essentially scientific. As an admirable instance of the kind of debt that modern medicine owes to bacteriology, of its power and promise, as also of the extreme difficulty and complexity of the subject in its recent developments, I cannot do better than to advise the perusal of Dr. Horton-Smith's Goulstonian Lectures on Typhoid Fever.

In surgery the discovery of the Röntgen rays has been of priceless benefit, and the Cheltenham hospital was, I believe, among the first of provincial hospitals to make use of them; but most certainly Röntgen was thinking of nothing less than of surgery when in the modest Physical Institute of Würzburg he undertook his epoch-making research on the cathodic rays of Sir William Crookes. I have been to that modest but celebrated laboratory at Würzburg, and heard there the true story of the discovery, which I must not here stop to relate, though I may remark that I have never seen it correctly reported in English.

I spoke of the antitoxins as among the most valued resources of remedial art, and it is to strictly scientific investigators, to such men as Loether and Roux, Behring and Kitasato, Haffkine and Yersin, that we owe these great discoveries.

Soon, I believe, we shall possess antitoxins for most of the febrile and infective diseases, as undoubtedly effective as is that one now so successfully employed against diphtheria. Personally, I place much faith in the antityphoid inoculations of Professor Wright of Netley, and in the antitetanus serum; and I feel sure that many more equally effective and similar means will soon be in our hands against other diseases. But it is not the practical physician and surgeon who will discover them, but the intellectual devotees of pure science, steadily pursuing, through good and evil report, their self-appointed task of universal beneficence.

The animal extracts stand on a different basis; the basis of secretions destined not for excretion but for internal and bodily use, as first divined by Claude Bernard, and so indispensable, that without them disease or discomfort at once arises. I forbear to do more than allude to the recognition of myxedema by Sir William Gull in 1873, to its naming and the discovery of its connection with an atrophic condition of the thyroid gland, by Dr. Miller Ord in 1877; and to the discovery by Mr. Victor Horsley in 1890 of its antidote in thyroid transplantation, for which Dr. G. R. Murray of Newcastle soon afterwards substituted subcutaneous injection of thyroid extract, and Dr. Hector Mackenzie the much pleasanter method of thyroid feeding. I likewise merely mention ovarian extract, which often mitigates markedly the miseries of the menopause, and suprarenal extract which, with its extraordinary power of con-

tracting blood vessels and of consequently raising the blood pressure, must necessarily have a great future in therapeutics. The animal extracts (not wholly unknown to the ancients, though first studied in modern times by Brown Sequard) have doubtless a great future in practical medicine, and ere long many more will be in use, though doubtless some already proposed will fall short of their promise and pretension.

In thinking of the standpoint of today I next recall the splendid work—purely scientific again—of the French and Italian investigators of malaria: of Laveran in 1880, and more recently of Marchiafava and Celli, Bignami and Grassi, but more especially of Golgi, who first proved that the feverish attacks coincided with the sporulation of the malarial amoeba. To which I am pleased to add that it is, as you know, the president of our Tropical Diseases Section, Major Ronald Ross, who, following the promptings and surmises of Dr. Patrick Manson, has discovered nearly the whole life cycle of the protozoön, and not only that, but has identified the true delinquent and disseminator of malaria with the mosquito *Anopheles*, a fact subsequently demonstrated by experiment on a human subject by the celebrated Italian biologist, Grassi; and still more recently by the experiment at Ostia in the Roman Campagna, where Drs. Low and Sambon and three others living by night for four months in their mosquito-proof hut, retained their health; whilst Messrs. T. P. Manson and George Warren (courageous sufferers for science), bitten in London by infected mosquitoes from the Sancto Spirito Hospital in Rome, developed soon afterwards every symptom of malarial fever. It seems that the hemamebideæ of malaria pass the whole of their life-cycle between animals and mosquitoes, and Dr. McCallum of Baltimore has further supplied the missing link of their sexual reproduction in the mosquito only. But the original hemameba can hardly have evolved itself in either. Whence, then, can it have originated? That is a question which I cannot answer, though I may refer to the statement made by Captain L. Rogers, I.M.S., officiating professor of pathology in the Medical College of Calcutta, that where pure and filtered water is drunk there but little intermittent fever will be met with. At all events, it is quite clear that vertebrate animals are the intermediate hosts of the malarial germ, and that it has hitherto never yet been found in water or anywhere else, save in mosquitoes and in some vertebrate animals only. Elephantiasis, whose hematozoön, the filaria nocturna, was discovered in the blood by Surgeon-Major Timothy Lewis in 1872, is distributed by another mosquito, the *Culex pipiens* or *celiarius*, as first proved by Dr. Manson. And even this does not exhaust the delinencies of these dangerous insects, as there can be little doubt that they also disseminate yellow fever; witness the experience of the American army surgeons in Cuba, where that scientific martyr, Dr. Jesse W. Lazear, though isolated from yellow-fever cases, yet died of it seven days after submitting to the puncture of an infected mosquito, and Dr. James

Carroll, under similar conditions, narrowly escaped with his life. This particular mosquito has recently been recognized by the United States surgeons as the *Culex fuscicatus*, and it is probable that the transmission of yellow fever is due to it alone. The study of tropical diseases has, in fact, now become a refined department of biological investigation. Smith and Kilborne have shown the part played by ticks in disseminating the cattle fever of Texas, and ticks also are said to be responsible for the miana disease of North Persia, and for a dysenteric fever of the Zambezi. Some forms of dysentery, as first suggested by Lösch in Russia in 1875, are probably originated by an ameba. In this town of Cheltenham old cases of malarial fever are often met with in returned officers and civilians, and I have yet to see the case that will resist six subcutaneous injections of 3 gr. each of the acid hydrobromate of quinine.

What would have been the state of ophthalmology today without the invention in 1851 of the ophthalmoscope by the physicist Helmholtz? Then consider the benefits conferred by electricity. It may be that great results will follow some day from cataphoresis, or the electrolytic introduction of drugs, recently written about by Dr. Morton. At all events, there is no doubt in my mind as to the benefit in gynecological work conferred by the treatment of Apostoli. Dr. Thomas Keith is not likely to have been mistaken in this matter, and what I have myself seen of permanent cures of really serious cases makes me feel sure that the Apostolian treatment for fibroids is not the delusion that some persons, who perhaps have not quite mastered it, proclaim it to be. It is, indeed, tedious, uncomfortable and troublesome, and I for one shall be only too pleased if Sneguireff's simple treatment by superheated steam should prove itself an efficient substitute. Then there is the marvelously successful treatment of lupus by the chemical rays of the electric arc, devised by Finsen of Copenhagen, though it is a question again if these results are any better than those of Hannover, speedily obtained by a simple jet of heated air (atmocausis).

Where should we be without the scientific chemists: to cite a few names only—Courtois, who gave us iodine in 1811; Balard, who gave us bromine in 1826; Serullas, who discovered iodoform in 1822; Soubeiran, who discovered chloroform in 1831; Liebig, who discovered chloral in 1832; and Niemann, who gave us cocaine in 1860? Not one of these was a practitioner of medicine, nor, unfortunately, a Briton.

MORE UNIVERSITIES AND RESEARCH INSTITUTIONS NEEDED.

I think I have said enough to prove that the progress of pure science means medical progress also, and that it is to the men of pure science that we must still look to hold aloft for us the torch of progress. I can only hope that in the great advances still to be made Great Britain and Ireland may play their worthy part; but I confess I have my misgivings unless some improvements are made

in our educational arrangements. As the result of several recent Augusts spent in many of the continental capitals, I have been struck with the thoroughness and scientific spirit everywhere there manifested; being very different, I regret to add, from the antiscientific spirit which characterizes most of the wealthier and more cultivated classes in this country. This antiscientific spirit is only eradicable by the better education of the young. To what other cause can we ascribe the fact that although the aniline dyes were discovered in 1858 by an Englishman, Dr. W. H. Perkin, yet almost the whole of their manufacture is now carried on in Germany. One company, the Badische Anilin and Soda Fabrik, employs 146 scientific chemists, 75 civil engineers and 6,300 workmen in one alone of its three factories. I know not if any words of mine will reach the eyes of those who govern in this country, but if they do I will implore them to give to our youth more facilities, similar to those enjoyed on the continent and in America. I know that much has been done, and no fault is to be found with our primary education. The National Physical Laboratory and the Jenner Institute of Preventive Medicine have been established, the former in principle the latter in reality, thanks to the splendid munificence of Lord Iveagh. New colleges, universities and technical schools have been started, and some 15 to 17 research scholars are appointed every year, one-half of whom, I may remark, proceed at once to Germany to make their researches! What has been done, however, is as nothing to what ought to be done.

The defences of the empire must not be overlooked; but of what avail will be these defences if our trade is gradually lost for want of exacter knowledge? For trade and medical progress, and those very defences themselves, rest entirely upon progressive science.

Depend upon it, there is as much scientific ability and aptitude for research in the country of Cavendish and Priestley, of Faraday and Kelvin, of Darwin and Huxley, of Jenner and Lister, of Rayleigh and Ramsay, as in any foreign nation; but here the chances and opportunities are much fewer, and many a great discoverer that might have been, one of whom it might have been written that

He broke his birth's invidious bar,
And grasped the skirts of happy chance—

spends his untrained energies in futile efforts and vain regrets, and wholly wastes his commanding intellect for the want of instruction and opportunities easily accessible.

But the cost? It would be as nothing in proportion to the gain; and a Faraday, a Koch, or a Pasteur would be a cheap purchase at a million. Whereas France, Germany and the United States educate at their universities approximately one student in every 1,500 of the population, we in the United Kingdom are content with less than one in 2,000. Whereas Germany spends £753,000 a year on its 22 universities and France

£740,000 a year on its 16, we in Great Britain and Ireland are content with less than one-fifth of that amount; namely, £135,339 among 7 of our 13. Although the Leland Stanford University of California has received no less than nine millions sterling from private munificence, and many others of the 480 American universities and colleges have likewise received huge sums—I may specify the Chicago University £2,000,000, the Johns Hopkins University £1,400,000, and the Cornell University over £1,000,000—no such general largesse is, I fear, to be expected from our British millionaires. The help must come from government, supplemented by local contributions, or it may not come at all. Yet the matter is one of life or death for the country, for more and more every year the victory in every department, and the predominance in arts and trades, will pass to the possessors of the latest knowledge, the deepest science, and the most perfect and most economical processes. I cannot but believe that this great need will soon be remedied, and that at the cost of a few battle-ships real universities of teaching and research, like the new University of Birmingham, will be established in every large town, and technical and research institutions—there are 25 of these in Germany and 43 in America—in most of the smaller ones. At present we are feeling keenly the competition of America, a competition that is not likely to diminish, for it possesses over 100 schools of chemistry, and has 10,000 students of engineering. This competition we can only hope to resist by imitating the foresight, generosity and enthusiasm for science of the American governments and of the American men of wealth. And here I would wish to quote the words of Dr. T. K. Pearsons of Chicago, himself the donor of £800,000 to its University. "Monuments and monumental arches," he says, "once finished, become dead memorials; their active function ceases. The school and college live, just as does the memorial in cold statuesque granite, but *their* functions never cease; education goes on from day to day, thinkers are moulded, the nation is served, and humanity is benefited in the college."

Oh! that these words may find a practical echo in this country! Examinations are of secondary consequence. China is the most examined country in the world,—and look at it! Original work done under the professor's eye and at his suggestion is far better than any examinations, and the true ideal of a real university must always be in the words of Paulsen: "*Die Erkenntnis der Dinge durch freie Forschung.*" ("True knowledge from free research.") Let us hope that we shall not have long to wait for many such universities, where the best and most practical scientific education will be open to all at low cost, as in the University of Michigan, where the fees do not exceed £7 a year; or at no cost at all, as in the State of Massachusetts, and in many of the Western States of America. There is no time to lose. The Consultative Committee on Education is, how-

ever, a good beginning, which, I sincerely hope, will soon be followed by the appointment of a Minister for Education, a functionary to be found in nearly every civilized State except our own. It is not trades' unions and skilled workmen that can insure the continued prosperity of a nation, but the trained intelligences that direct its energy; and we may rest assured that whichever nation shall elevate highest the general standard of education, will be the nation which will lead the world. Since the preceding section was written I have to record the magnificent—I hope it will prove infectious—generosity of Mr. Andrew Carnegie, with his gift of £2,000,000 to the Scottish universities, one portion of it to be applied mainly to the teaching and endowment of research, and the rest to replace the fees hitherto paid by their students. Happy Scotland! that not only receives about one-third of the whole parliamentary grant for university education, but has found besides such a princely and farseeing benefactor as Mr. Andrew Carnegie.

THE PUBLIC HEALTH ACT OF 1875.

Any reference to the medical standpoint of today were quite imperfect without some mention of the important position now happily assumed by the sanitary medical service; and it is a matter for legitimate pride that in this particular Great Britain was beforehand, and set, by the Public Health Act of 1875, an example that foreign countries, with the exception of the United States and Belgium, seem in no great hurry to imitate. In every town and district there is now a skilled expert who is the guide, philosopher and friend of every household where epidemic disease makes its appearance. It is to the labors of such as he and to the existence of isolation hospitals, that the great diminution in the zymotic death-rate is due. To his labors and to the increased cleanliness and better food of the population generally is due the gratifying diminution of the phthisical death-rate within 60 years from 38 to 13 per 10,000—the presage, I cannot doubt, of the total abolition at no distant date of consumptive and tuberculous disease altogether. And this, although Naegeli has recently proved that, at any rate as far as Zurich is concerned, 96% of the deaths under 18 in that town are due to tubercle. To Dr. Nathan Raw and to the guardians of Liverpool must be given the great credit of taking the first deliberate steps for the stamping out of tuberculosis by establishing a rate-supported sanatorium near Heswall for the isolation and treatment of the consumptive poor—a good example, likely to be largely imitated soon throughout the country. Here I would wish to solicit a generous and helpful interest in the sanatorium of 60 beds to be built at Limpley Stoke, near Bath, in which the consumptive poor of the counties of Gloucester, Somerset and Wilts will be treated with every advantage of hill air, full dietary and modern science. Pure air implies at least no fresh infection; and high feeding, as so convincingly shown by Sir Hugh Beevor at

the last annual meeting, occasions an enhanced resistance against the tubercle bacilli.

The originator of the method of high feeding and fresh air was undoubtedly Mr. George Bodington of Sutton Coldfield, by whom it was devised and carried out with great success so long ago as 1836. Most of the credit, however, of advocating persistently and quite independently the necessity and importance of fresh air must be given to the father of the distinguished president of the Royal College of Surgeons of England; namely, to Dr. Henry MacCormac of Belfast, whom it was my privilege to know in my youth; and well do I remember his striking book, "Consumption and the Breath Rebreathed." Like Semmelweis, the earliest of antiseptic obstetricians, and like Harvey, whose subversive discovery only brought about the loss of most of his practice, Dr. MacCormac excited at first opposition and ridicule only. The more reason, therefore, that full credit should now be given to the impassioned and eloquent advocate of fresh air, who anticipated by more than half a century some of the best knowledge and practice of today. Here, then, is a method half English and half Irish in its conception, however much it may have been pushed and popularized during recent years in Germany. And there can be no doubt as to the cures. Soon after Koch's discovery of the bacillus tuberculosis, I looked for it and found it at once in phthisical sputa, and each finding was sentence of death; but now it is found as a simple matter of diagnosis, to disappear completely and often finally at the completion of the cure by fresh air and high diet. Of the contagiousness of phthisis I can entertain no doubt whatever, and the greatest care should be taken to destroy sputa. Remembering the liability of birds to phthisis, Dr. Tucker Wise's cautions as to cage birds should not be forgotten. Indeed the connection of the lower animals with our diseases must never be overlooked. The "harmless, necessary cat" is quite often the conveyor of diphtheria, the dog always of hydatids, and the rat often of plague. "No rats, no plague," it has been said, and he who would exterminate his city's rats would do much to insure his city's immunity against the plague. In the case of Glasgow, however, it is right to add that the rats were guiltless.

ASPIRATIONS, ETHICS AND CONCLUSION.

And now for a few concluding words about the aims, the aspirations and the ethics of the profession. After a long and expensive education, after knowledge acquired laboriously and at great personal risk (the clergyman's death-rate is 16 per 1,000, the lawyer's 20 and the doctor's 25), the medical man must not hold himself too cheaply. He is the heir of a long tradition, originating from the sages of India and from the temples of Greece. Our health and happiness are in his hands, and the issues of life and death tremble often upon his judgment. So he must bear himself with confidence and proper pride, remember-

ing his great traditions and the antiquity of his calling, which ranks next to that of priest. He is worthy of his hire, and that hire should be such that in the day of his popularity he may make due provision for his age and retirement and for those whom he will leave behind him. He must work hard and read and think all the days of his practicing, for the best practice of today will not be that of even five years hence. His aspirations must be for the very best in each department of practice, for the progressive advancement of his art, and for the increased dignity and consideration of his calling.

Above all, let him be chary of any commerce with the enemies of science. *Magna est Scientia et prevalet.* None the less serious is his responsibility who, knowing its benefits, yet regards its progress, or who ignorantly would deny to others what he is insufficiently instructed to understand for himself. Beware of panaceas. There are none in truth, though the worship of Panacea was not confined to ancient Greece, and is as reprehensible in the cold, clear light of twentieth-century science as is the equivalent assumption by too many of specialist omniscience.

The wise practitioner will strengthen his position, as he will certainly increase his knowledge, by somewhat frequent consultations, and he will do well if, like Hunter and Jenner, he cultivates some extraneous intellectual interest to relax occasionally the stress of his anxious labors. I venture to think that nothing will do him more good than the pursuit of one or other of the arts, or of some branches of biological or physical dissection, be it zoölogy or botany, electricity or telescopic, for

Neque semper arcum
tendit Apollo.

And the quotation is apposite, for was not Apollo the first physician and the father of Æsculapius, and does he not say of himself in "Ovid,"

Invenit medicina meum est, optiferque per orbem
Dior, et herbarum subjecta potentia nobis?

The wise practitioner, moreover, will confine his studies within certain limits if he wishes to attain to a thorough knowledge of even some portions of his great subject. He cannot be a universal specialist, and I would commend to your consideration the admirable advice contained in one of Goethe's sonnets:

Wer grosses will, muss sich zusammenraffen:
In der Beschränkung zeigt sich erst der Meister.

For which I would propose the following English equivalent:

Who would be great, must pull himself together;
The Master shows himself in limitation ever.

The good and worthy practitioner will never be wanting in sympathy. Too often there is physical pain to be relieved, and, thank God, it can be relieved; though at other times the sufferings will be nervous rather than physical; and these are the occasions when sympathy and patience are most needed, though it is not always easy to

show the first and to retain the last in the interest of some nervous sufferer on a cold, wet night at 3 o'clock.

In respect of medical ethics the case is very simple. Treat and think and speak of your brother practitioners as you would wish them to treat and think and speak of you.

Medical ethics are, indeed, so completely summed up in this single sentence as to make it quite unnecessary for me to read to you the section I had written on this subject. With high aims and aspirations, with true ethical, that is to say, brotherly feeling, and with constant consideration for the public weal, we shall each and all be worthy of the well-known description in *Chaucer*, and be "*veray parfit practisours*," though I hope it will not be said of us, as it was of that particular one, that

His studie was but litle on the Bible.

No! we will read "*Ecclesiastius*," though not "*Ecclesiastius*" only, in the hope that it may be said of each of us in the words of an old poet, who was writing of a good and brave physician of his day:

He holds no parley with unmanly fears,
Where Duty calls he confidently steers,
Faces a thousand dangers at her call,
And trusting in his God surmounts them all.

After Providence, ladies and gentlemen, reason is and must necessarily be our daily guide, for which cause it is consoling to recall the words of one of the greatest of French writers:

La Raison triomphe de la mort, et travailler pour elle,
C'est travailler pour l'éternité.

And if I have mentioned the word *la mort* it will but afford me the opportunity of concluding with my solemn conviction, as best expressed in the words of Longfellow:

There is no death! what seems so is transition;
This life of mortal breath
Is but a suburb of the life elysian,
Whose portal we call death.

Original Articles.

A CRITICAL NOTE UPON CLINICAL METHODS OF MEASURING BLOOD PRESSURE.¹

BY WILLIAM H. HOWELL, M.D.,

AND

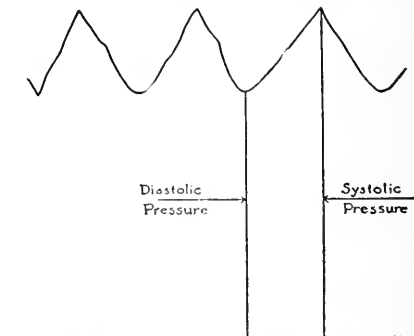
MR. C. F. BUCHER, JR., BALTIMORE, MD.,

From the Physiological Laboratory, Johns Hopkins University.

THE recognized importance of a means for determining accurately the blood pressure in man under varying physiological and pathological conditions, has led to the invention of a number of instruments for this purpose. These instruments, though varying in form, make use of two fundamentally distinct principles, which are illustrated in the well-known methods of von Basch and of

Mosso. The idea underlying the method of von Basch is to determine the pressure necessary to obliterate the pulse, and his instrument is simply a means for arriving at a quantitative determination of this pressure, instead of relying, as is the case in ordinary practice, upon a subjective estimate of the pressure exerted by the finger in compressing an artery. Mosso's method, based on a principle proposed by Marey, consists in increasing the pressure on the outside of an artery until the pulse wave reaches its greatest amplitude. It is evident that this latter method will give a lower valuation than the former, and it is important to determine which method gives us the more accurate indication of the pressure relations in the interior of the artery.

In considering this problem it is necessary to bear clearly in mind that the pressure in the arteries varies greatly with each pulse wave. The extent of this variation with the heart beat is greater than is usually supposed. In the carotid of the dog Hürthle found, for instance, that each heart beat increased the pressure by as much as 100%, from 80 to 160 mm. of hemoglobin. In the



experiments recorded in this paper, and made by a different method, namely, with the use of maximum and minimum manometers, such an extreme variation was found only in the case of abnormally low pressures, produced by cutting both splanchnic nerves. Under what might be called normal or approximately normal conditions, in which the mean blood pressure in the aorta was over 100 mm. of hemoglobin, the increase caused by each heart beat varied between 15 and 58% of the pressure in between the pulse waves. The average of 20 separate observations, the details of which are given in the table included in this paper, gave a difference of 33%; that is, the aortic pressure was increased 33% by each pulse wave. It is convenient, following the general usage, to speak of the pressure in the artery at the maximum of the pulse wave as the systolic pressure, and of that at the bottom of the pulse waves, or between the pulse waves, as the diastolic pressure. According to the average figures given above, the variations in the pressure in the

¹ Read by invitation at the annual meeting of The Massachusetts Medical Society, June 12, 1901.

aorta of the dog are represented graphically in the accompanying diagram. In man, with his slower pulse, the variation with each heart beat is probably greater than in the dog. The true mean blood pressure for any artery is evidently the arithmetical mean between the systolic and diastolic pressures in that artery.

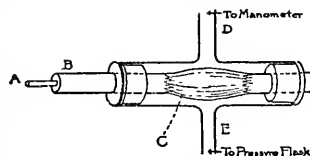
It is obvious from these statements that the method of determining the blood pressure by obliteration of the pulse wave must give, if accurately performed, the systolic pressure in that artery, and this undoubtedly is the result obtained with more or less accuracy by the method of von Basch and the variations of this method used by Potain, Hoorweg, Gärtner and others. It seems equally obvious, as has been pointed out by Sahli, that the principle used by Marey of ascertaining the pressure under which the artery will give its maximum pulsations must give the diastolic pressure. A glance at the above diagram shows that when the pressure on the outside of the artery is equal to the constant diastolic pressure on the inside, the arterial walls will undergo the maximum vibration with each pulse.

This interpretation of the result obtained by the method of Marey and Mosso was not verified by them upon the living animal, and as the method has been and is being used in this laboratory in various researches, an effort has been made to furnish this experimental proof. Walden published some incomplete results that were not conclusive, and the problem was therefore again tested more carefully. The result, it may be said, is to completely verify the *a priori* probability that the method properly carried out gives the diastolic pressure.

The method used to obtain this result was as follows: The two common carotids were exposed in a dog; one of them, the right carotid, was connected in the usual way with a mercury manometer writing its record upon a kymographion. Between the artery and the manometer, however, two Williams valves were so placed as to act, one as a maximum valve, the other as a minimum valve. By means of stopcocks properly arranged, the artery could be thrown directly into connection with the manometer, or through either the maximum or the minimum valve, so that at will either an ordinary record could be obtained or a record of the maximum or minimum pressure. The left carotid was ligated high in the neck, and dissected out for as great a distance as possible. This long stump was then placed in a modified plethysmograph, so that its pulsations could be recorded, and the pressure on its outer surface could be raised or lowered at will by means of a pressure flask. In most of the experiments made for the purpose under discussion, the plethysmograph, or sphygmomanometer, as it should be called, was made of the same pattern as was used by Walden. It consisted of a conical bag of peritoneal membrane lying in a wide glass tube. The large end of this bag was reflected over one end of the glass tube, and held in by a rubber

stopper pierced by a hole through which the arterial stump penetrated. The end of the stump of the artery was tied to the small end of the bag, and was anchored by running the cord to the other end of the glass tube, where it was kept in place by the stopper. The pressure flask was connected with the outer glass tubing, as was also a recording manometer. By this means the pulsations of the stump were transmitted to the recording instrument, and as the pressure in the glass tube was raised by elevating the bottle, the loose peritoneal membrane was pressed down upon the artery. As the pressure was raised the pulsations became larger and larger until the maximum was reached, and then smaller as the pressure was still further increased. This instrument and the method of placing the artery in it need not be described in detail, as it was afterward replaced by a simpler form, which had the further advantage that it could be used upon the same artery in which the pressure was being taken directly by the mercury manometer.

The construction of this second form of sphygmomanometer is readily understood from the accompanying diagram:



A A¹ represents the artery which, after being tied and cut, was drawn through the apparatus as represented, and then, on the peripheral side, either tied down in its normal position and extension, or connected with a manometer to record the internal pressure directly. B and B¹ represent small glass tubes inserted in each end into rubber stoppers placed in the larger glass tube. The ends of B and B¹ were connected by a membrane tube C made of peritoneal membrane and with a diameter about three times as great as that of B B¹. The large outer glass tube had two openings, D and E; one of these, D, was connected with the recording apparatus to measure the size of the pulse; the other, E, was in connection with a pressure flask. By means of this latter the outer tube and the connections could be filled with water, and then as the pressure was raised the membrane C was forced down on the artery, if needed be, until the artery was completely obliterated.

The pulsations of the artery in the sphygmomanometer were at first recorded by a mercury manometer, but it was soon found that with this apparatus there might be much uncertainty as to the pressure at which the greatest pulse was obtained; the maximum was not clearly marked, especially when the heart was beating rapidly, as after section of both vagi. The difficulty obviously lay in the inertia of the column of mercury, which prevented an accurate registration of

the quickly recurring pulse waves. The apparatus was therefore changed so as to introduce a Fick spring manometer, provided with a compound lever to increase its delicacy. Both the Fick manometer and a mercury manometer were connected with the sphygmomanometer, the former to register the size of the pulse wave, the latter to register the pressure on the artery. The procedure adopted was to register the blood pressure in the right carotid in the usual way on the kymographion, as also the maximum and minimum pressures. Then on the left side the pressure in the sphygmomanometer was raised about 10 mm. at each step, and the corresponding pulse wave was measured with the Fick manometer first, and then the actual pressure by means of the mercury manometer. The pressure was noted at which the maximum amplitude of the pulse wave was obtained, and then again the pressure in the artery on the right side was determined as in the beginning. With the Fick manometer there was never any difficulty in determining the maximum pulse, and the only error of importance in the measurements lay in the fact that the steps by which the pressure was raised in the sphygmomanometer were usually about 10 mm. apart, so that a slight over or under valuation was possible. The results obtained after the method had been perfected were as follows:

	Observation.	Diastolic pressure in R. Carotid, measured by the minimum manometer.	Pressure at which the maximal pulsations were obtained in the L. Carotid, as measured by the sphygmomanometer.
Exp. VII.....	A	156.5 mm. hemoglobin	155 mm. hemoglobin
	B	156 "	157 "
Exp. VIII.....	A	111 "	112.5 "
	B	129 "	129.5 "
	C	82 "	81 "
	D	85.4 "	85 "
Exp. XI.....	A	106 "	109 "
	B	119.5 "	110 "

¹ Animal bled profusely.

The measurements made on the two sides were practically simultaneous, and the animal was under such even conditions of anesthesia that its pressure remained constant through considerable intervals. The agreement in the pressures on the two sides leaves no doubt that Marey's method of measuring the pressure at which the greatest amplitude of pulse is obtained gives very accurately, under the conditions of these experiments, the minimum or diastolic pressure. In the dog the two common carotids spring from the arch of the aorta close to each other, so that on each side what was measured was the aortic pressure at practically the same spot. It is important, however, to emphasize the fact that in estimating the pressure in the sphygmomanometer, measurements were made to the *base* of the pulse wave in the tracing showing the maximum pulse. In the experiments made by Mosso and his pupils with his form of sphygmomanometer it is not expressly stated whether the measurements were made to the bottom of the pulse waves or not,

or whether an average was taken between the bottom and top of the pulse wave. The implication, however, is that the measurement was made to the bottom of the pulse wave, as this measurement obviously gives the amount of the external pressure. One might suppose that the maximum pulse would give the full range of pressure from diastolic to systolic, and that, therefore, measurement to the middle of the pulse wave would give the true mean pressure. Such a supposition, however, is unwarranted, as it is not certain that the mercury column accurately records the full extent of the pressure change, and moreover the tension of the walls of the arteries and the surrounding tissues will prevent the full extent of the systolic pressure from being transmitted to the water in the sphygmomanometer. The method is adapted to measure only the diastolic pressure.

Mosso's method, as used upon man, consists in putting the ends of four fingers into a plethysmograph or sphygmomanometer of special construction, and determining the pressure, brought to bear on the outside of the fingers, at which the pulsations record their greatest amplitude. While it is quite possible, in this case as in the experiments described above, to use a Fick manometer to record the pulse, the necessary calibration of the instrument introduces both a difficulty and a source of possible error. It is much more convenient to use the mercury manometer to record both pressure and pulsations. In numerous experiments in this laboratory it has been found that if the proper care is taken to have rigid connections throughout, no difficulty is experienced in getting a clear maximum in the recorded pulsations as the pressure is raised. This fortunate fact is due undoubtedly to the relatively slow pulse in the human being. If for any reason the rate of the pulse should be greatly increased, then, as in the dog, there would probably be uncertainty in the determination of the true maximum, and it would become necessary to use some form of recorder more accurate than the mercury manometer.

While the Mosso sphygmomanometer gives an accurate determination of the diastolic pressure upon the naked artery, it remains uncertain whether this same quantitative result is reached when the human finger is used. It would seem that some of the external pressure must be used in overcoming the resistance of the tissues surrounding the arteries, and that therefore the final result reached must be too great by a corresponding amount. What this resistance amounts to cannot be stated, but it is evident that in observations upon the same individual it must constitute a constant factor and therefore disappear as a source of error in comparative measurements. von Basch has estimated the resistance of the tissues at 6 to 8 mm. of mercury and Potain at 10 to 20 mm. of mercury.

Another possible source of error in this instrument has been commented upon by Brush and Fayerweather in a recent paper. It lies in the

fact that the arteries in the ends of the fingers are probably small enough to participate directly in vasomotor changes. If these arteries should be thrown into active vasoconstriction, it is evidently possible that the local pressure within them, on the capillary side of the resistance, might be smaller, while general arterial pressure was increased. The authors quoted obtained results in their experiments on the blood pressure during sleep, which they could only interpret in this way, and were therefore obliged to construct a similar instrument to measure the pulsations in the large arteries of the wrist. Hill and Barnard's simple apparatus, which makes use of the same principle as the Mosso instrument, is constructed to take the pressure in the large arteries of the arm just above the elbow, and theoretically should give the diastolic pressure in these arteries. In the experiments made in this laboratory, however, the results obtained with this instrument have been irregular and inconstant, as compared with the results from the Mosso apparatus. This unfavorable result may be due to a want of delicacy in the recording apparatus, arising probably from the fact that much of the pulse is lost by the air transmission and the elastic walls of the bag and tubing.

The Mosso apparatus as arranged for the fingers is perhaps too complex for ready clinical use, but under the favorable conditions of the laboratory it can be used with facility, and apparently with reliable results as regards the diastolic pressure. It is generally assumed, however, that it is more desirable to know the mean pressure, and an effort was made to ascertain whether the Mosso instrument can be used for this purpose. The idea was that by raising the pressure in the Mosso sphygmomanometer to the point of complete obliteration of the pulse the systolic pressure would be obtained, and that by taking the arithmetical mean of this and the diastolic pressure, the true mean pressure would be given.

To test this point experiments were made upon the dog's carotid in the following way: One carotid was passed through the sphygmomanometer before described, and fastened securely on the other side in its normal extension; the carotid on the other side was connected directly with a mercury manometer provided with maximum and minimum valves. On one side the pressure was raised in the sphygmomanometer until the pulse was just obliterated, while simultaneously the maximum or systolic pressure on the other side was measured directly. It was found that the sphygmomanometer gave a reading of 184.5 mm., while the maximum manometer showed that the greatest pressure at that time in the arteries was only 156 mm., giving a discrepancy, therefore, of 28.5 mm. Part of this may be accounted for by the pressure necessary to overcome the rigidity of the walls of the artery, but according to all measurements this factor could not account for the entire difference. It would seem that even after the artery in the sphygmomanometer is completely obliterated, the pulse waves may still be recorded.

We may suppose that each sharp wave of pressure striking against the partially obliterated lumen at the entrance to the sphygmomanometer, or by giving a thrust to the artery, registers some pulsation. In other experiments which were made with the artery lying somewhat loosely in the sphygmomanometer, the pressure necessary to obliterate all pulsation in the instrument was 100 mm., and more above the true systolic or maximum pressure.

This interpretation of the too high result obtained with the sphygmomanometer was strengthened by a series of experiments in which the sphygmomanometer was placed on the left carotid, and the same artery on the peripheral side of the instrument was then connected with a mercury manometer provided with a maximum valve. The pressure in the sphygmomanometer was raised until no pulse got through to be recorded by the mercury manometer beyond. It should be added that to determine the point of disappearance of the pulse the float and pen were removed and the oscillations of the mercury were determined by the eye. As soon as the pulsations disappeared the pressure in the sphygmomanometer was noted, and then at once reduced to zero, and a reading made of the maximum pressure within the artery by means of the maximum valve.

The following results were recorded:

	Maximal or systolic pressure.	Pressure in sphygmomanometer at which no pulse could pass through.
Experiment XI.....	157.5 mm.	162 mm.
" XII.....		
Observation I.....	157 mm.	171 mm.
" II.....	160.5 "	180 "
" III.....	158 "	175 "
" IV.....	158.5 "	171.5 "
" V.....	164 "	173 "

In the first experiment the difference between the two readings is 5.5 mm.; in the second experiment, omitting Observation II, the difference varies between 9 and 14 mm. This difference is small enough to be accounted for by the extra pressure necessary to overcome the stiffness of the arterial walls. The dog in the second experiment was much larger than in the first, and his carotid was correspondingly larger and thicker walled. von Basch has estimated that in the human radial artery a pressure of 1 to 5 mm. hemoglobin is required to close the empty artery. The results given above indicate a greater rigidity in the case of the dog's carotid. It is quite evident from these experiments that the Mosso apparatus or similar plethysmographic contrivances cannot be used to measure the systolic pressure, a conclusion which has already been announced by Marcy and by Colombo. The latter found that in individuals in whom the arteries in the fingers are relaxed, and give therefore a large pulse, the outside pressure must be raised to as much as 340-360 mm. to obliterate all pulsations.

The method of determining the arterial pressure in man by obliterating the pulse, according to the procedure employed by von Basch, Potain and

others, should give approximately the systolic or maximum pressure in the artery examined. This *a priori* conclusion has been verified experimentally by Potain with the aid of an artificial schema, and the experiments described above may be taken as a further verification of its substantial accuracy. Under all conditions, however, methods of this kind must give a somewhat supramaximal result, since some excess above the true maximum is required to overcome the rigidity of the walls of the artery. This factor, according to von Basch, is small for arteries of the size of the radial or temporal in man, but all criticisms of the method of von Basch, and the various modifications of it proposed, unite in showing that several sources of error combine to give a reading higher than the true maximum, so that Tigerstedt concludes that the error in the readings may vary as much as 32 to 78 mm. hemoglobin, a variation obviously too large for reliable results. These instruments have therefore not come into general use. The recent apparatus devised by Gärtner is, however, so ingenious, and withal, so simple and easily applied, that we may assume that it will be used very commonly in clinical work. The principle involved in the instrument is the same as in the method of von Basch. The end of the finger is made anemic by a rubber cap or ring, and the arteries are then blocked completely by a supramaximal pressure applied to the circumference of the finger through air pressure. As this pressure is gradually lowered a point is reached at which the blood stream breaks through and flushes the tip of the finger. Outside the attractive simplicity of the apparatus, the method differs substantially from that of von Basch in that the obliteration of the blood current, or rather the moment at which this obliteration is just overcome, is judged by the eye instead of by the sense of touch.

Evidently the theoretical considerations that apply to the von Basch instrument hold good in the main for the Gärtner. Gärtner himself contends that his instrument gives the mean pressure, but the experimental evidence that he offers is singularly inconclusive. It is quite possible that the blood pressure taken in the finger by the Gärtner tonometer might approximate the mean pressure, if it should so happen that the blood current did not break through the block promptly for some reason, such as the adhesion of the compressed arterial walls, but such an approximation would be accidental and uncertain. The probabilities, on the contrary, are that the figures obtained will be if anything higher than the systolic pressure, owing to the action of the same factors that bring about this result in von Basch's instrument; namely, the elasticity of the arterial walls, the resistance of the soft tissues surrounding the vessels, and the utilization of the velocity increment of the flowing blood. This probability is confirmed by the high figures reported for the arterial pressure in the finger when determined by this method, and also by the comparative experiments of Federn. This latter observer, using both the Gärtner tonometer and the von Basch

sphygmomanometer, reports that the former gave always the higher values. He attributes this result to a vasomotor effect arising from the process of making the finger tips anemic. It seems evident, therefore, that the Gärtner apparatus must be regarded as giving approximately the systolic pressure within limits of error not accurately determined, and that probably the result is always in excess of the actual figure. The experiments recorded above on the naked carotid artery of a dog, in which the outside pressure was determined at the point at which the pulse just ceased to record in the artery beyond the block, corroborates this point of view. It will be remembered that the pressure thus obtained was in excess of the systolic pressure by 5 to 14 mm. according to the size of the artery.

From the facts presented, therefore, we must conclude that of the two principles that have been used, one gives approximately the diastolic pressure, the other the systolic pressure. The arithmetical mean of the results of the two methods should give approximately the mean pressure. If either instrument is used alone it becomes a question as to which result gives the most important indication. To throw some light upon this question, a number of experiments were made upon dogs in which the diastolic and systolic pressures were determined directly, by means of maximum and minimum manometers, under varying conditions that influenced either the heart beat or vascular tone.

The results are presented in the accompanying table:

Observation.	Diastolic pressure.	Systolic pressure.	Mean pressure calculated.	Mean pressure determined by mercury manometer.	Rate per minute.	Amplitude.
Exp. X.	mm.	mm.	mm.			mm.
I.....	133	159	146	142.75	96	2.4
II.....	132	167	149.5	144.92	96	1.75
III.....	174	201.5	187.75	183.87	210	2
IV.....	172	199	185.5	182	210	2
Exp. XI.						
I.....	100	156	128	127.49	114	9.83
II.....	108	156	132	129.2	120	8.4
III.....	161	196	178.5	177.4	153	6.5
IV.....	165	215	191.5	185.46	132	6.9
V.....	133	160	146.5	141.69	132	4.81
VI.....	124	158.5	141.25	145.45	126	4.95
Exp. XII.						
I.....	112.5	158.5	135.5	133.35	87	17.35
II.....	111	159	135	133.4	84	17.7
III.....	110	157	133.5	133.77	84	16.87
IV.....	112	155	133.5	136	82	16.4
V.....	113	155	134	138.03	84	17.17
VI.....	129	160	142.5	134.5	234	1.25
VII.....	128	160.5	134.25	136	234	1.25
Exp. XIII.						
I.....	143	226	184.5	182.86	153	8.5
II.....	141	216	178	169	162	8.5
III.....	226	272	249	252.5	174	10
IV.....	188.5	258	223.25	226	174	13.40
V.....	161	137	119	124.75	162	5.25
VI.....	37	68.25	52.62	47.33	162	3.7
VII.....	36	70	53	51.75	162	3.7
VIII.....	35	71	53.25	63	162	4
IX.....	38.5	74	56.25	50.82	162	4
X.....	41	79	60	52.82	162	3.9
XI.....	45.5	78	61.75	57.24	162	3

* Severed both vagi.

* Severed both vagi.

* Severed vagi, and bled profusely.

* Severed both vagi.

* Severed left splanchnic.

* Severed right splanchnic.

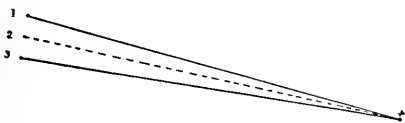
An examination of the table seems to justify the following conclusions:

(1) The mean blood pressure as usually determined by means of the mercury manometer, corresponds with fair accuracy to the arithmetical mean of the maximum and minimum pressures.

(2) A rise of blood pressure occasioned by an increased heart beat (section of both vagi) affects the diastolic pressure to a greater extent than the systolic pressure.

(3) A fall of blood pressure occasioned by vascular dilatation (section of both splanchnics) affects systolic and diastolic pressures equally. In the section of one splanchnic, as will be seen from the table, the fall in pressure affected the systolic more than the diastolic pressure, but in this case the heart rate was also affected, whereas section of the second splanchnic did not affect the heart rate at all. The physical effect of a purely vascular change would seem to be shown best under the latter conditions.

(4) It is possible for the systolic and diastolic pressures to be affected in opposite directions, as is seen in Exp. XII, in which section of both vagi was intentionally accompanied by a profuse hemorrhage. In this case the mean pressure remained



1. Systolic pressure. 3. Diastolic pressure.
2. Mean pressure. 4. Pressure in the capillaries.

unchanged, the diastolic pressure rising 16 mm. and the systolic pressure falling 15 mm.

It is desirable, of course, that these experiments should be extended to include a larger number of conditions. As far as they go they indicate that the general trend of arterial pressure, even under extreme conditions of cardiac or vascular changes, so long as these changes are not accompanied by hemorrhage, is given by instruments measuring either the systolic or diastolic pressure. Whether one or another form of instrument is used is a matter of convenience and accuracy. When possible it is most desirable that the results of one method should be checked by the other. As between the Gärtner and the Mosso instruments the former is by far the simpler, but the latter if properly used is probably more sensitive and exact. It is perhaps needless to add that neither instrument can be used successfully for comparative results without careful attention to details.

Many writers have emphasized the desirability of an instrument to measure mean pressures, but to the present authors the special importance of such an instrument seems doubtful. In the circulation the pulse wave disappears in the capillaries. At this point in the circulation, therefore, the systolic pressure, diastolic pressure and mean pressure all coincide. The relations of the three factors

may be represented in principle by such a scheme as shown above.

For comparative purposes it would seem to be a matter of indifference which of the three factors is known at any given point in the arterial system, provided the method used can be shown to give reliable results. For purposes of analysis and accuracy it would be much more desirable to have parallel records of the variations in systolic and diastolic pressure than a single record showing simply the mean, even if the latter measurement was possible. In our ordinary laboratory experiments we follow the latter plan, to be sure, but we would gain a much clearer insight into the details of vascular changes under varying conditions if the ordinary manometer record was supplemented by maximum and minimum tracings.

In the use of the Mosso apparatus on man the experience acquired in this laboratory shows that the following precautions are perhaps the most important for good results:

(1) All connections between the recording manometer and the sphygmomanometer should be rigid and inextensible to prevent loss of pulsations.

(2) The fingers should be warmed before placing them in the apparatus, or, as is our usual custom, the first water driven through the apparatus to remove the air should be very warm.

(3) If the heart beats are so rapid as to give an uncertain maximum, it is necessary to employ a spring recorder of some kind.

(4) The first results upon any individual are usually too high, owing doubtless to the psychical factor. Lower and more constant results are obtained when the subject has become accustomed to the procedure and is in a relaxed condition.

(5) In comparative observations the hands should always be at the same height to equalize the hydrostatic factor.

With the Gärtner tonometer the precautions just mentioned (4 and 5) are equally important. In addition, care must be taken in comparative observations to place the pressure ring on the same part of the finger; when over the joints of the phalanges, lower pressure may be obtained than when between the joints. Some attention must be paid also to the initial pressure in this pressure ring,—it is well in successive observations to start with initial pressures that are approximately equal. Finally, those who make serial observations upon human beings with these instruments, under normal or pathological conditions, must bear in mind the important fact, noted in a preliminary communication by Dr. Clelia D. Mosher, that in both men and women there are periodic oscillations of arterial pressure.

THE GRATWICK RESEARCH LABORATORY.—The Medical Department of the University of Buffalo, according to *American Medicine*, is in receipt of a gift of \$50,000 for the purpose of erecting a laboratory to be devoted entirely to research work. It will be known as the Gratwick Research Laboratory.

THE RELATION OF BODILY MUTILATIONS TO LONGEVITY.

BY JOHN HOMANS, M.D., BOSTON,

Medical Director New England Mutual Life Insurance Co.

AT the first glance the subject of this paper seems one of much interest and about which much may be written. When the writer begins his task, however, he finds his subject very considerably restricted. In the library of the Surgeon-General at Washington there is nothing bearing on the question, and I find but little that has been written or published concerning the duration of life after the loss of limbs.

There is an article published in the *Medical Examiner and Practitioner* for February, 1901, by John Lincoln Porter, M.D., on "The Relation of Deformities to Life Expectancy," from which I will quote. You will see that the article refers to deformities rather more than to mutilations:

It is impossible to make positive statements or even to deduce conclusions of value in regard to anything pertaining to life expectancy without statistics, and in looking up the influence of deformities upon the duration of life, I have found that statistics pertaining to this subject are entirely lacking. Indeed, I have been unable to find a single article or contribution on the subject, and in the complete files of the *Medical Examiner* there is no reference to deformities.

I have been surprised at the small amount of space and attention given to the subject of deformities by our chief companies. In the printed instructions issued to agents and examiners by thirty of the largest insurance companies in this country, deformities are mentioned as influencing life expectancy by eight, while twenty-two do not refer to them at all.

One of the most authoritative writers of the day (Senn) on surgical pathology, says: "A person who has once been the subject of tubercular affection of a joint is always in danger of suffering from a local recurrence or tuberculosis in some other organ." The spores of the bacillus of tuberculosis may remain in a latent condition for an indefinite period of time in the cicatrized primary lesion, to become a cause of subsequent danger as soon as the local or general conditions enable them to develop and exercise their specific pathogenic properties.

Through the kind interest of the Surgeon-General and Assistant Surgeon-General of the United States Army I have been referred to two of the annual reports of the Surgeon-General; namely, the report for the year 1892 and that for the year 1895. In these reports there is a discussion of the death-rate of men who suffered amputation during the civil war. To these statistics I shall refer later on. It is probable that one might learn much from the records of the Pension Bureau, but they are in no such shape at the present time as to be of any value in this connection.

Let us first consider the general relations of mutilations to longevity and later the regional mutilations, beginning with injuries to the head, next to the upper extremities, and so on down to the feet.

In general it may be said that the deprivation of any important part of the body would make a man's chance for longevity less than that of sound, unamputated persons, but in many instances there might be ameliorating circumstances which would render the subjects of these mutilations appar-

ently as good lives as most other people of the same age. And here let me say, once for all, that so far as I know there are no statistics on this subject.

Injuries to the skull.—An applicant who had suffered a fracture of the skull, with loss of substance of bone, or brain, or both, would not be an average good risk; without loss of substance, and without symptoms, he would be as good a risk as anyone else. Fractures of the spine are generally fatal, and if a man should recover from such an injury, I think his natural longevity would be curtailed.

Blindness.—Loss of sight from an injury would not lessen longevity as a rule, but those whose eyes have been removed on account of carcinomatous or sarcomatous growths would be likely to be short lived. The blind, if in comparatively comfortable circumstances, are as long lived as any one, so far as my experience goes. I may add that I have been medical inspector of the Perkins Institution for the Blind for over twenty years.

Losses of the upper limbs are more important, as bearing on longevity, the nearer the amputations have been made to the thorax. A loss of a hand, *per se*, in a person able to pay a premium on life insurance, would not cause a declination, but there is in this mutilated condition, as in others, a mental depression and dissatisfaction at times, and more of a moral risk than in the unamputated. Several of my fellow soldiers in the war of the rebellion who suffered amputations of various kinds and degrees became intemperate in the use of alcohol or morphia and *all* of them that I recall, whether cases of excision or amputation, are now dead. Probably persons in civil life who have suffered amputations on account of injuries are better risks than those whose limbs have been removed on account of gunshot wounds; their habits are apt to be better and their injuries are less numerous, less constitution and more definite. A soldier may have many more bruises and injuries at the time of his accident than the man in civil life, and probably would have less property and less chance to make a living and earn money.

I should think that the loss of an arm might affect the respiratory power of the thorax in certain attitudes, and the loss of both arms might cripple the breathing capacity by depriving the subject of the ability to support and rest himself by suspension or by bearing or leaning on his arm. Of course an amputated upper extremity would cripple the mechanical powers for manual labor tremendously, and render the successful pursuit of carpentry, blacksmith work or any trade requiring the use of the hands, impossible, except to a limited extent.

Naturally a well-insured income, removing the subject above all occasion for anxiety, would induce the examiner to approve a life where the opposite conditions would cause a declination. The causes also of amputations, whether traumatic or constitutional, would influence one's judgment. Traumatic causes would be more favorable than

pathological. A man whose limb had been removed on account of a sudden injury would be a better subject than one whose limb had been removed on account of cancer, sarcoma or tuberculosis. All of the latter should be declined, as their chance of longevity would not be so good as the average. All that has been said of the loss of the upper extremities will apply to the lower, with the additional disability of impaired power of locomotion.

From June 17, 1870, to Jan. 15, 1892, 10,187 former soldiers of the U. S. Army filed claims for amputations of limbs; 5,053 had lost their arms and 5,134 their legs. At this time an act was passed by Congress granting an artificial limb — or its commuted value — once every five years to all officers, soldiers and seamen who had lost a limb during the war for the suppression of the rebellion. These 10,187 cases of amputation were filed in 1870-1892. In January, 1892, there were 7,412 cases of amputation on the list of pensioners. During 22 years 2,756 of the cases had died; that is, 27.14% of their number.

The death-rate of those with disabled or amputated limbs is considerably higher than it would have been if the disabled or amputated limbs had been the only results of the war service that tended to shorten life; for it must be observed that many of these men had other wounds or disabilities besides those affecting their limbs.

In general terms, the age of those persons during the 20 years of observation covered the period of life from 30 to 50 years of age, and the average annual death-rate was for the amputated cases about 14.1 per 1,000, and for the others 16 per 1,000 living at the beginning of the period. The experience of insurance companies shows the death-rate of men between the ages of 30 and 50 to be an average of about 9 per 1,000 annually. The increase among our pensioners to 14.1 and 16 per 1,000 expresses the influence of their disabilities and of the exposures associated with the incurrence of them in shortening their lives.

These rates, large as they are, compared with the average rate prevailing among individuals of corresponding age in civil life, apply only to a certain period of 20 years. To determine the influence of wounds and exposure in increasing the death-rate of the soldiers of the war of the rebellion, we should require to know the number of the wounded or otherwise disabled living at the close of the war, and the deaths that occurred among them up to June 30, 1870, when the statistics of the operations of this office under the artificial limb laws take them up and account for them with precision. It is not possible to obtain these data in the cases of the disabled men, but the facts concerning the amputated cases are better known.

At the close of the war there were, according to the records of this office, 13,052 recoveries from amputation of the arm or leg, such as would have entitled each to benefit under the artificial limb law subsequently enacted; and as in 1870 only 10,187 applied for artificial limbs or commutation, it may be inferred that 2,865 of those

maimed soldiers had died up to that time — 21.95% of their total — a much larger percentage of mortality than is shown by any of the subsequent quinquennial periods. By incorporating these figures with those previously given, it is found that during the twenty-five years from the close of the war to 1890, 5,621 subjects of amputation died out of a total of 13,052 cases, or 431 per 1,000. Dividing the quarter of a century into successive periods of five years, the deaths during the first period were 2,865, or 21.95% of the total; during the second 999, or 9.81% of the survivors at the beginning of the period; during the third 557, or 6.06% of those surviving in 1875; during the fourth 583, or 6.75% of those alive in 1880; and during the fifth, 1885-1890, 610, or 7.58% of those on the rolls in 1885. It is thus seen that the mortality rates of those men who were disabled during the war were very large during the early years succeeding the occurrence of their disabilities, and from what follows it may be observed that even now their annual death-rate is largely in excess of that of the average citizen.

At the close of the war the recoveries from amputations of the upper extremities numbered 6,249. In 1870 1,193, or 19.14% of their number, may be assumed to have died, for only 5,053 filed their claims for artificial arms; 557 cases, or 11.02% of those alive in 1870, died before receiving a second benefit; 268 cases, constituting 5.96% of the survivors, died after the second but before the third benefit; 293, or 6.93% of those living in 1880, died before 1885, and 305, or 7.75% of those alive in the last-mentioned year, died before the expiry of the next five years.

The recoveries from amputation of the lower extremity numbered 6,703 at the close of the war; but as only 5,134 reported for artificial limbs, 1,569, or 23.41%, may be assumed to have died. The deaths and the percentages constituted by them for the next four quinquennial periods were as follows: 1870-1875, 442 and 8.61; 1875-1880, 289 and 6.16; 1880-1885, 290 and 6.59; 1885-1890, 305 and 7.41.

The death-rate of those who suffered amputation of the leg was greater than that of the cases of amputated arm during the early period succeeding the war, but during the later years the rates in the two sets of cases have not varied much.

Since each of the 21,102 persons on the rolls has received an artificial limb, or its commutation, one or more times, the number of certificates issued by this office has amounted to 68,456 — 40,959 in cases of amputation and 27,497 in cases of loss of use of limbs, the relative percentage being 59.83 and 40.17.

The certificates entitling to benefit in cases of amputated upper extremities number 20,185, of which 287 were for limbs in kind and 19,898 for commutation. With the artificial limb furnished in kind the law provides for the free transportation of the pensioner to and from the place of manufacture, thus affording an opportunity to those who had settled in the West to have a trip to New York, Philadelphia, or other eastern city,

which might be utilized in seeing old friends and relatives. Notwithstanding this inducement to be fitted with the artificial arm, 98.6% of the arms which might have been called for were commuted. Only a little over one man in a hundred of these armless men elected to receive an arm. Its usefulness is regarded as *nil*, and although some may claim it to be an ornamental addition to a maimed individual, the man with a war record generally prefers his empty sleeve. The records show also that few of those who were furnished with an artificial arm called for a renewal of it at a subsequent period.

The artificial leg is shown by the statistics to be an appliance of much more practical value than the arm. Of 20,214 certificates issued in cases of loss of the leg, the limb in kind was called for in 4,421, the money equivalent in 15,793, or in 21.9 and 78.1%, respectively. At first sight it would seem from these statistics that the allowance of an artificial leg once every five years is largely in excess of the needs of the maimed soldiers, since so many elected to receive the money value rather than the limb; but it must be remembered that in many cases, on account of conditions of the stump, a leg cannot be worn; and then, unfortunately, the financial circumstances of many of the old soldiers are such as to prevent them from accepting the expensive luxury of an artificial leg when its acceptance would cause them the loss of the \$75 which they would otherwise obtain. Although the names of 5,134 men crippled by amputation are on the rolls, only 4,421 artificial legs were used during the whole period of 20 years.

In amputations of the foot 560 certificates were issued: 24 for the artificial foot and 536 for its money value, \$50—4.3 and 95.7%, respectively.

There were 16,410 certificates issued in cases of loss of use of the arm. Few of these were susceptible of benefit by surgical apparatus, only 34 such having been recorded in the 20 years. Commutation was paid in 16,376 cases.

Similarly in loss of use of the leg, benefit was derived from apparatus in only 49 cases, while commutation was paid in 11,987.

From the Surgeon-General's report for 1895 I learn that there were claims allowed for amputation from June 17, 1870, to June 30, 1895, amounting to 10,427. Of these, 3,073 had died, or 29.47%, 294.70 per 1,000. These deaths extended over a period of 25 years, and the pensioners were all probably at least 30 years old or older when their pensions were granted. This mortality is at least three times as great as that in the same number of insured unimpaired lives between the ages of 30 and 50. I have quoted at length nearly all that is said on this subject by our Surgeon-General, and I have no doubt that one who is accustomed to dealing with statistics, like our fellow member, Dr. Marsh, for instance, will be able to learn much more from these figures than I have told you. At any rate this information shows us that, as a class, persons with amputated limbs are not so long lived as those unamputated, and that each case must be decided individually.

It seems unnecessary for me to enumerate the various disabilities and deprivations caused by loss of limbs, and my task is only to record the effect on the longevity of the mutilated individuals as far as I have been able to ascertain it.

In regard to mutilations of the thorax and its contents: A successful recovery from acute empyema after the removal of small portions of one or two ribs need not necessarily shorten a man's life or deprive him of insurance, if the lung has become well expanded and the functions are well performed. Injuries to the heart, when recovered from, would cause these sufferers to be declined as not having a normal vitality.

BELOW THE DIAPHRAGM.

Abdominal mutilations.—It may safely be said that persons whose stomach, spleen, liver or kidneys have been meddled with surgically, or removed, either surgically or by accident, do not promise a longevity which would justify their insurance. In regard to cases of recovery after incision of the gall bladder and removal of calculi, not connected with cancer of the liver, I think they would be good risks if we could eliminate the possible recurrence and reformation of the stones; but this we cannot do, and it is reasonable to assume that gall bladders in which gallstones have once formed are more prone to such an occurrence than perfectly healthy gall bladders in which no stones have ever formed.

Indeed, in my own experience I have seen stones form in a gall bladder from which I had removed some 200 gallstones 18 months before. Again, all the symptoms of recurrent gallstones may recur, and yet on opening the gall bladder we find none. Such a case has occurred in my own experience. I think that this possible recurrence ought to exclude persons who have had cholecystotomy successfully performed, from life insurance.

Renal mutilations.—A person who has had a diseased kidney removed may live to be very old; but the possibility of this depends on the reasons for which the kidney was removed, and on the amount of work the remaining kidney can perform. The removal of a large suppurating kidney full of pus and calculi is a great relief to the system; and if the other kidney is sound it is probable that the individual will get along as well as the majority of persons with two sound kidneys, but usually in cases of severe pyelitis and cystitis both kidneys are diseased, and only the worst one is removed; and I should say that as a rule the person who had recovered after the removal of a kidney, and is well and strong, has had enough good fortune, and ought to be content to get along without life insurance. At the same time I am at present considering the application of a strong, healthy man who has had a kidney removed on account of cystic disease. But most suppurating kidneys are tuberculous.

Mutilation of the bowels.—In regard to recoveries after excisions of small portions of the bowels after injuries, or gangrenous hernia, I should say that longevity was likely to be as

great in them as in persons whose bowels had not been meddled with. Persons who have recovered from operations for the removal of the appendix have, I think, as great likelihood of living to be old as those in whom this operation has not been performed. Where the bowel has been excised for the removal of new growths the probability of recurrence is so great that such persons are not likely to be long lived; yet all malignant diseases of the alimentary canal are apt to be slow in their growth and recurrence.

Ovarian and uterine mutilations.—In regard to the longevity of women after the removal of ovarian or uterine tumors, it is impossible to speak with accuracy. Provided the tumors were not malignant, and the women have made rapid and perfect recoveries, I believe their longevity is up to the average. Ovarian tumors, however, on their removal are not commonly studied histologically, and many that are adeno-carcinomata, that is, glandular cancers, are not recognized as such, and the real nature of the disease is only revealed by a recurrence. Probably most surgeons who perform ovariectomy are satisfied with the recovery of the patient, and do not have the tumor examined pathologically and histologically. In 10% of my cases of ovariectomy in which, so far as I remember, the cysts looked, if I may say so, healthy, smooth and shining, cancer of the abdominal scar or of some of the internal organs has been fatal within a year or two of the operation; and even in several cases where the original tumor has been reported by competent observers to be a simple cyst-adenoma, there has been a fatal development of cancer. The longevity of a portion of those women who recover from ovariectomy is not so great as the average of healthy women, and so I think that applicants who have recovered from ovariectomy should be rejected, unless the pathological and histological history are well known and are perfectly satisfactory, as no one can tell which of them will die of subsequent malignant disease, or of intestinal obstruction, or suffer from hernia. In structure the walls of ovarian cysts are very like those of cancers, and it would be speculative to insure such cases.

In regard to those who recover after hysterectomy for the removal of fibroids, the probability of longevity is greater than in those who recover after ovariectomy, because these tumors are almost never malignant, and neither the scar of the abdominal incision nor the internal organs are likely to be infected with cancer. Yet occasionally there is cancerous development in a fibroid uterus. I think I have seen 3 such cases in 200 abdominal hysterectomies, and it does not seem to me that persons who have suffered such extensive mutilations as abdominal section and the removal of the uterus and ovaries, can be considered quite as good subjects for longevity as healthy persons of the same age who have suffered no such mutilation.

Then, again, all women who have had abdominal section performed are liable to ventral hernia, and this may become strangulated at any time.

There is very little said in the insurance manuals on this subject. In these books one is advised to reject cases of amputation at the shoulder or hip, and generally cases of amputation above the knee, and to accept those with other amputations of the upper or lower extremity if the amputation was not done for disease, and a well-fitting artificial limb is worn.

Perhaps this matter is as well summed up by Brinton, who lectured on "Examinations for Life Insurance" in England more than 30 years ago, as by anyone since his time. He says: "The effect of the loss of a limb, or a special sense, it is rarely necessary to estimate. Amputation of a limb for disease is said to confer an increased risk of visceral—especially of pulmonary—disease. But here the previous malady would itself enter into our calculations, as well as the present health (including any appearances of latent mischief) of the person examined. Amputation for injury or accident is also said to be often followed by a plethoric state and a tendency to corpulence, that are attended with increased risk to the constitution. These, however, would also be visible facts that could scarcely escape notice.

"And in respect to these mutilations, as well as to complete blindness, deafness and the like, we may sum up their other chief indirect effects in the general statement: that whatever interferes with the exercise natural to a healthy individual, or deprives him of the proper guards against accident which nature furnishes, of course increases his risk of disease and injury respectively. But how far it will do so must be judged of from the details of each case; in other words, the habits and circumstances of the individual. In the affluent classes the care and attention that wealth can secure often reduce the influence of such accidents to a minimum that may practically be overlooked altogether."

In conclusion I should say that, as a class, persons who have suffered amputations or other mutilations are not so likely to be long lived as those who are healthy and have not been mutilated; but by careful selection many of the mutilated persons might be picked out who would be good subjects for life insurance.

THE GENERAL CHARACTER OF THE PROBLEMS OF PUBLIC HEALTH BACTERIOLOGY.¹

BY HIRBERT W. HILL, M.D., BOSTON.

THE problems confronting public health bacteriological laboratories are so numerous, diversified and intricate that even a brief enumeration of them would involve reference to almost every department of bacteriology.² I will try, therefore,

¹ Read before The Massachusetts Medical Society, June 12, 1901.

² As examples: *Diphtheria*.—Is there a relation between types of *K. L.* and of clinical diphtheria? Is there a relation between morphology and virulence? Do virulent diphtheria bacilli lose virulence in the throat or nose in time, and does such loss correspond with morphological changes? Does the diphtheria bacillus (as is widely taught) degenerate or otherwise change in morphology during the convalescence of the patient? Are certain forms of bacilli (Hoffman's, etc.), known to be widely distributed in

rather to point out their general characteristics, confining myself to one or two illustrations only. To set them forth clearly, the relation of public health bacteriology to other fields of bacteriology must first be outlined.

THE RELATION OF PUBLIC HEALTH BACTERIOLOGY TO OTHER FORMS OF BACTERIOLOGY.

To begin with, bacteriology as a science deals always with the potentialities of certain minute particles of living protoplasm. These potentialities make themselves evident by the reactions, physical, chemical, biological, which they produce upon their surroundings, and therefore bacteriology is less a direct study of the bacteria than it is a study of their environments and the relations of the bacteria to them. The difficulty of bacteriological investigation is due largely to this fact, while the importance of a full knowledge of these potentialities is so great in so many directions that notwithstanding the difficulties involved, it is essential that the knowledge be achieved.

In chemistry and physics, the fields of the academic research worker along purely theoretical lines are sharply distinct from those of the worker in applied chemistry and physics, but in bacteriology, there exists as yet in this country no definite class of men who deal solely with theoretical bacteriology. Almost all the bacteriologists of this country are engaged in applications of the science to some practical end.

Applied bacteriology finds expression at the present time in four more or less distinct fields.

Industrial bacteriology is concerned particularly with the action of bacteria as they affect certain industries of economic importance. While indirectly of hygienic value, the immediate object of industrial bacteriology is the placing on the market for consumption of articles (chiefly foods) which are better or more acceptable for the attention paid to their bacterial relationships.

Pathological bacteriology (using the term pathology in its ordinary, rather restricted, sense) is occupied chiefly with the relations of certain

bacteria to the animal body. While essentially analytic, it has ultimately a hygienic bearing, pointing out not only the processes of bacterial diseases, but also the best methods of interfering with and so overthrowing them.

The two remaining fields of bacteriology are directly hygienic. These are water and sewage bacteriology on the one hand, and board of health bacteriology on the other. The water and sewage bacteriologists are concerned principally with those very important life processes of bacteria which come into play in the pollution of water and the purification of sewage. Their work brings them in contact with sanitary engineering particularly, and, in this country at least, the typhoid bacillus is practically the only distinctively pathogenic form with which they deal.

The board of health bacteriologist is concerned more intimately and directly with hygienic work in its general sense. Although dealing much with bacterial diseases, his field lies less in the study of existing disease processes than in the study of questions connected with the origin, transmission and suppression of diseases. The pathological bacteriologist considers the relations of pathogenic bacteria to the sick; the public health bacteriologist considers the relations of pathogenic bacteria to the well. The public health man deals with the crude materials; the pathological bacteriologist deals with the finished product.

These general fields of bacteriology are of course more or less interrelated, and much light, direct and indirect, may be obtained by each of them from the others. But each necessarily has problems peculiar to itself, which bear particularly on it, and for the solution of which it cannot look to the others. Bacteriology as a whole owes much to pathology. Without the attention drawn and the impetus given by the study of the relations of bacteria and disease, bacteriology would not yet have reached its present position. But the bacteria of disease are a small and specialized group, the proper elucidation and appreciation of the relations of which depend ultimately on work in lines more general and more connected with nature at first hand than pathological bacteriology in the ordinary sense can supply. It seems probable, therefore, that the bacteriology of the future will advance in correlation with the advances of preventive medicine, and will reach its highest development in these and in industrial lines.

THE GENERAL FORM OF THE PROBLEMS.

Ten years or so ago bacteriological laboratories as adjuncts to boards of health were almost unknown in this country; today every large city and many considerable towns possess them. They vary in size and equipment from one small room, where a local practitioner spends an hour or two each day examining diphtheria cultures and sputum, up to the large buildings of the New York Board of Health, one of which, at least, is designated as wholly for research. Since much of the work of these laboratories is diagnostic, one problem constantly pressing upon all of them is to

healthy throats, true diphtheria bacilli, or are they closely allied to them, perhaps as a saprophytic form of the true pathogenic bacillus? Are they capable of gradual transition under favorable conditions to the pathogenic form? Can diphtheria be contracted otherwise than from previous cases? *Tuberculosis*.—To what extent do true tubercle bacilli occur in healthy throats or noses exposed to the disease and not exposed? Do forms resembling tubercle bacilli occur which are liable to be mistaken for them on examination? What is the relation of the smegma bacillus to the tubercle bacillus? What is the distribution of the smegma bacillus? What is the relation of both of these to the "tinthy" hay bacillus? Can tuberculosis be contracted from other sources than previous cases (directly or indirectly)? What are the relations of bovine and human tubercle bacilli? *Typhoid Fever*.—What is the relation of this bacillus to the colon and paracolon groups? What are the relation of the Widal reaction to typhoid, paratyphoid, paracolon and colon infections? These are a few of the questions coming under but three of the pathogenic bacteria dealt with in public health work. While some of the questions are qualitative in the given form, calling merely for yes or no as an answer, it is probable that majority of the answers cannot properly take this form, but must be quantitative in character; thus diphtheria bacilli may perhaps lose virulence sometimes during convalescence, sometimes not, and it may some day be possible to tell in what percentage this loss occurs if at all, and what are the contributory circumstances. These questions require wide investigation and the obtaining of so many individual results as to permit of quantitative deductions therefrom. They are not new problems, qualitatively considered, but much remains to be done on the qualitative side alone, while the quantitative side has been as yet scarcely attempted in many cases. The quantitative side is, of the greatest possible hygienic importance, as a moment's consideration will show.

send out early and accurate reports. This is a very important matter if the laboratory is to meet the wants of the board of health and of the physician. But to attain this ideal of "early and accurate reports" involves many contributory problems in itself. The promptness of reports depends largely upon executive arrangements, but their accuracy depends upon complete knowledge and perfect methods. Unfortunately, our knowledge is incomplete and our methods imperfect. We are therefore constrained to acquire more information and to improve methods, or, failing this latter, to determine the imperfections of the present methods with a view to their indirect elimination.

The examination of diphtheria cases by culture for diagnosis and for release furnishes such excellent examples of both of these problems that I shall describe some of its features as illustrations of the general character of certain of the questions now pending — questions which apply to every form of diagnostic work, and indeed to all bacteriology.

In diphtheria diagnosis, in the majority of cases, the bacteriologist can say that the culture submitted to him shows or does not show the presence of diphtheria bacilli. But not infrequently certain forms of bacilli are found which, while morphologically perfectly familiar, must still be considered as belonging to those forms, the true relations of which to the diphtheria bacillus are not yet determined. To this day there is evidence and authority of the highest on both sides of the question, one affirming and the other denying that these particular forms of bacillus are forms of the diphtheria bacillus. Bacteriologists have struggled with this difficulty for years, but it still remains a difficulty. Renewed attention has been directed to it of late by Westbrook of Minneapolis. To indicate the importance of its practical bearing, it is only necessary to point out the principal results to be expected from its solution.

If these bacilli are not forms of the diphtheria bacillus, many communities in which they are now regarded as such will be justified in releasing convalescent diphtheria patients perhaps a week on the average earlier than at present. This means 100 years in time more liberty for 5,000 cases of diphtheria. Much trouble in dealing with institutional epidemics will be eliminated, and a large number of the persons now quarantined as infective under such circumstances may go free. The diagnosis of diphtheria also will be made somewhat more accurate, although fortunately the error from these forms is small in this particular.

If, however, these forms be diphtheria bacilli, if they be true infective agents, present ideas concerning the epidemiology of diphtheria will need very radical revision, since probably one-third of the members of most civilized communities have these forms of bacilli in their noses or throats, or both. Present methods of diagnosis and present procedures regarding isolation

and release will require very radical remodeling.

One may foresee, however, other possible solutions. It is conceivable that these organisms are diphtheria bacilli in the classificatory sense, but are nevertheless nonvirulent, so that they need no consideration from the diagnostic or hygienic standpoint. Perhaps some of them, indistinguishable morphologically from certain forms of true diphtheria bacilli, may not be diphtheria bacilli in any sense. It is conceivable that only a few of them are infective, most of them not. But without speculating any further, it is evident that the solution of this problem, legitimate, necessary, pressing as it is, is not a matter to be arrived at off hand. It brings up questions of morphology, of polymorphism, of evolution, of degeneration, of classification, of nomenclature, and many others, which can only be solved with much time and patience. It involves a reconsideration of the basic conceptions of bacteriology, perhaps their reconstruction in some directions.

It may seem at first glance strange that a problem so simple as this one apparently is should be so difficult of solution. In the older and more developed sciences, similar problems could very probably be readily settled by the application to them of previously established factors. But in bacteriology the factors are not yet fully established — indeed they are less firmly established now than heretofore. In the older days a bacterial species was a definite entity; today we shrink from the use of the word species at all, because we do not know what it means — or that it means anything. For example, the typical colon bacillus and the typical typhoid bacillus present so many distinctive features that one is amazed to think that their differentiation should ever have given rise to any difficulty. But a complete chain can be constructed in such a manner that, with the typical typhoid bacillus and the typical colon bacillus at opposite ends, the intermediate links, composed of atypical typhoid bacilli and atypical colon bacilli taken consecutively, show very little difference from one to another. A similar state of affairs is probably true of other species, and almost surely of the diphtheria bacillus. Indeed, we are by no means sure that the diphtheria bacillus is a bacillus in the old sense, nor exactly what we mean by the word bacillus itself. These are not merely interesting academic questions, they are essential matters relating to everyday life and practice.

Such investigations necessarily carry the investigator deep into the foundations of bacteriology. It is at this point that all bacteriologists meet, however diverse their special fields. Upon each worker, industrial, pathological, hygienic, it presses; for new problems cannot be readily solved with the foundations shaking under our feet, although that shaking is not from decrepitude, but from the movements of reconstruction. Such problems press peculiarly on the hygienic bacteriologist, because his are problems peculiarly

connected with the ultimate factors of health and disease.

If, however, our knowledge were perfect, our methods would still be imperfect. The methods of chemistry and physics are imperfect, unavoidably so. The absolute cannot be reached. Chemists and physicists having realized this long ago, eliminate the difficulty, so far as they may, by determining just how accurate their methods are, and then allowing for the slip—the working error. Yet for some reason one is constantly called upon to combat a widespread impression that bacteriological methods differ from those of every other science and art in being themselves infallible. In diphtheria diagnosis, for instance, the accuracy of a report depends first on obtaining a representative culture from the patient, then in having it properly inoculated, properly grown and properly examined. Slips at some points in this chain occur to an extent which makes an error, if only one culture be taken, and consisting in failing to find the bacilli in the culture when they are really present in the throat, of from 5 to 10% of the cases which finally prove positive. The working error in release examinations is much larger, reaching an average of 30% and constituting the sole reason for the requirement of two consecutive negative cultures for release. Even the presence of the diphtheria bacillus does not always mean that the patient is suffering from the disease, since a certain number of healthy unexposed persons and a larger number of healthy exposed persons present them.

Another problem, neither executive nor technical, evolves itself from these considerations; the impressing of the fact that working errors exist, and their natures, on those who use these methods, so that they may allow for them and more intelligently employ the reports they receive. In the older days, a bacteriologist's report required only direct and simple translation into terms of a corresponding clinical diagnosis. This form of empiricism gave, it is true, a high percentage of successes; but like other empirical procedures, it was apt to leave the empiricist high, dry and puzzled at unexpected and usually most inopportune times. Since both our knowledge and our methods are imperfect, it is the part of wisdom to take these imperfections into account. No one can make a proper and intelligent diagnosis of diphtheria or other bacterial disease without bacteriological aid, but it is just as true that no one who trusts empirically and implicitly to that aid can succeed.

In concluding what is evidently a very condensed and inadequate outline of the subject, I may summarize the points I wish to bring out thus:

The problems of the public health laboratory, in relation to disease, are essentially epidemiological and preventive.

While primarily of the nature of applied science, they call for investigations, the scope of which is very wide, and involves peculiarly the study of the science of bacteriology itself as well as of the art.

INTRACRANIAL PRESSURE AFTER HEAD INJURIES.¹

BY WALTER B. CANNON, M.D., BOSTON.

INTRODUCTORY REMARKS BY WILLIAM N. BULLARD, M.D., BOSTON.

THE experiments about to be described by Dr. Cannon were instituted by him in the Physiological Laboratory of the Harvard Medical School at my suggestion, for the purpose of throwing some light, if possible, on the cause of certain phenomena which had been observed clinically and to which I had previously frequently called the attention of the profession. The object of this work was (1) to attempt to prove experimentally the fact of the increase of brain pressure after trauma; (2) to determine the cause of such increase, if it existed.

The first object has, I feel convinced, been attained. How far the second has been accomplished I must leave to others to determine.

For these very valuable experiments Dr. Cannon is entirely responsible, both as regards methods and conclusions, and deserves all the credit therefor.

The clinical phenomena attending traumatic injuries to the brain have been made prominent in this country by the studies of Dr. W. N. Bullard and Dr. G. L. Walton. In cases of brain lesion there is usually a history of a blow or a fall on the head, or evidence of the rupture of an intracranial blood vessel. The most notable and constant of the primary symptoms is unconsciousness, which may persist until death or may pass away. If consciousness returns, it is commonly lost again, often gradually increasing dulness passing into stupor. The final appearances, whether consciousness is recovered or not, are deeper and deeper stupor, then coma, from which the patient cannot be aroused, and ultimately death. In this final stage certain typical signs manifest themselves. The temperature characteristically rises as the time of death approaches, the pupils do not react to light, there is stertorous breathing and slow heart beat. Sometimes there is paralysis of the face and limbs, though there may be clonic spasms in various muscles. Passage of urine and feces is also an occasional occurrence.

Between these symptoms and the symptoms produced in animals upon increasing intracranial pressure, there is a striking similarity. The resemblance between clinical symptoms and experimental phenomena has led to the application of the term "pressure symptoms" to the peculiar symptom complex following brain injury, and the evidence of intracranial pressure observed in these cases on operation confirms the validity of the term.

From a study of the pathological alterations after traumatic lesions of the brain it is clear that there may be hemorrhages and lacerations so severe as to result in almost immediate death. It is also clear that in many instances of fatal issue the initial lesions—the scattered minute thrombi and punctate extravasations always present in contusion—are so slight as to be in themselves no adequate cause of death. That this inference is true is indicated by the recovery of consciousness after the initial loss of it—a result hardly to be

¹ Read by invitation before The Massachusetts Medical Society, June 12, 1901.

expected if the primary lesions were intrinsically fatal. But not infrequently in these cases the recovery of consciousness is followed by a slow subsidence of conscious life, with a progressive increase of the so-called pressure symptoms until death supervenes. Leyden long ago showed that, in order to produce death, intracranial pressure must equal arterial pressure. Apparently what occurs in these puzzling cases is this: The intracranial pressure somehow rises higher and higher until it equals blood pressure in the arteries. At this point the circulation in the cerebral blood vessels comes to a standstill, the vital centres in the medulla no longer receive their normal nutrition, they become paralyzed and life ceases. Now the question presents itself, In what way is the intracranial pressure gradually and progressively increased until the pressure in the blood channels is overcome and death results? It is clear that the pressure symptoms which slowly manifest themselves are dependent on secondary processes following the primary lesions of the brain. It is certain, also, that *edema* of the tissue follows the primary lesions of the brain. Is there any causal relation between these two phenomena?

The classic theory of Bergmann, put forth to explain the secondary increase of cerebral pressure, starts with the assumption of an intracranial hemorrhage, which acts as a foreign body within the cranium, causing an obliteration of the capillaries and veins in the region it occupies. The result is stasis of blood in the obliterated area, which results in high blood pressure in the border areas. This high blood pressure leads to an increased transudation of fluid, because plasma may pass, according to the theory, more easily into the brain substance than blood through the compressed capillaries. The transudation will increase the volume of the foreign body and compress other capillary areas, and so the process runs till death occurs.

It should be noted that by this theory it is assumed that transudation occurs because of high blood pressure in the capillaries of the border areas. This is due, however, not to a general increase in blood pressure, but to external pressure in the brain substance about the vessels, increasing until it partially overcomes the internal pressure in the capillaries themselves. Since there is this higher pressure *outside* the vessels, transudation from them must be well-nigh impossible.

But even the assumption that plasma passes from the vessels does not remove every difficulty. For if the secondary increase in intracranial pressure is the result of transudation, this pressure must be dependent on the pressure of the plasma. The pressure of the plasma is in turn dependent on blood pressure and is as much *less* than blood pressure as the resistance which the tissue about the capillaries offers to the outflow from them. The difficulty now arises in attempting to induce a method of compression, manifestly less effective than arterial pressure, to overwhelm arterial pressure. In the end, by this reasoning, the direct force of the blood through

the free ways of the vessels must be greater than the lessened pressure of the transudate, and the flow will persist.

This and other theories, moreover, have the grave defect of not regarding the processes taking place in the portion of the brain substance in which the circulation is impaired. It will be shown that in this neglected region swelling and pressure occur wholly independently of any blood pressure whatever.

About two years ago Dr. W. N. Bullard pointed out to me the importance of knowing the cause of increased cerebral tension following injuries to the head, and since that time I have busied myself at intervals with the problem.

My experiments show that at the moment of injury the intracranial pressure rises to a height sufficient to check the blood flow into the brain. Immediately after the injury the general blood pressure usually rises for a moment, then falls. Thereafter a gradual recovery of normal blood pressure occurs, with a simultaneous increase in the extent of the pulsation of the brain.

Occasionally after injury to the head there is paralysis of the respiratory centre and cessation of respiration. If artificial respiration is persisted in and the heart action remains strong, the centre will resume its function—an observation of practical importance, confirmatory of Horsley, Polis and Kramer.

The normal cerebral pressure is about 13 cm. of water, and after injury the brain pressure may rise to an average of 25 cm. of water. Men retain consciousness, however, in the midst of the paroxysms of strychnine poisoning, when, according to Hill, the brain pressure must equal at least 68 cm. of water. The primary loss of consciousness after a blow on the head is apparently due to the circulatory disturbances, though minute changes in nerve cells must also be considered. But the increase of brain pressure to 25 cm. of water is clearly not sufficient to account for the pressure symptoms observed in clinical cases. There must be other secondary processes at work to produce such results.

Before inquiring into these secondary processes, three conditions must be regarded: the anatomical arrangement of the cerebral blood vessels, the changes caused by injury, and the effect of these changes on the circulation in the brain.

On the surface of the brain the vessels form a vast canaliculate reservoir with free communication from one part to another. From this common reservoir there pass into the brain substance the nourishing arteries; some to the cortex, some to the deeper fibre tracts. Each of these vessels is independent, terminal, not anastomosing with other vessels from the surface or with branches from the central supply. Interruption of the arterial supply to a part does not therefore permit the easy establishment of a collateral circulation.

The pathological changes in contusion of the brain, which exist in all cases of intracranial injury, are a diffuse formation of thrombi, punctate extravasations and thin patches of hemorrhage in

the meninges. Owing to the terminal nature of the arteries the general formation of thrombi and extravasations must result in a general diminution of the blood supply of the injured tissue. Whether the interruption of the flow causes stasis or anemia, the result must be impaired nutrition of the brain. The problem of the secondary increase of intracranial pressure is essentially the determination of the behavior of brain tissue deprived of its normal nutrition.

From studies of such widely different structures as unicellular organisms, the muscular tissue of the frog, and nerve cells, it has been proved that lack of oxygen causes protoplasm to absorb water. Loeb ligatured the leg on one side in a large number of frogs, and after a time removed and weighed the two gastrocnemii muscles. Normally the two muscles have the same weight, but under the circumstances of the experiment the muscle deprived of its blood supply took up water so that in 48 hours it had gained 15% in weight. Loeb concluded that his experiments left no doubt that the assumption of water by a muscle deprived of its blood supply is due to chemical changes in the muscle increasing the internal osmotic pressure, and that these chemical changes are probably due to lack of oxygen.

As has been noted, the initial changes in the injured brain are hemorrhage and contusion, with thrombi and extravasations. The result of these changes is an impaired blood supply to the injured region and a consequent lack of oxygen. Both experiment and clinical observation prove that edema of the tissue follows. Bergmann says: "One finds about the region of injury merely a small zone, which is scattered with specks of blood and colored yellowish red; farther on, as far as the swelling reaches, the brain substance appears moist, glistening, soft—that is, highly edematous." Now the question arises, Is this edema, this result of primary pathological changes, this concomitant of the secondary pressure symptoms, a passive transudate due to blood pressure, as has been held hitherto; or is it the effect of chemical changes in the brain substance, resulting from diminished blood supply, and causing the taking of water into the tissues by increased osmotic pressure? The difficulties encountered by the former process when required to produce the equivalent of arterial pressure have been noted; the latter process provides a force amply sufficient to overcome any possible blood pressure.

Normal salt solution has the same osmotic pressure as the blood, and for this reason may be injected into the vessels without injury. Animals have been infused with the solution even to 110% of body weight within 143 minutes without producing any general edema. Since normal salt solution is isotonic with the tissues, so that in its presence water does not pass into them when they are nourished, the passage of water from the solution into the tissues when they are not nourished indicates an increase of osmotic pressure within them. Upon this statement was based the following series of experiments with brain-tissue.

Normal salt solution was allowed to run through the cerebral arteries of a cat, under a pressure equal to normal blood pressure. The brain very soon began to take up water, and the pressure of the brain against the skull, measured by a mercury manometer, began to increase. In half an hour the flow through the vessels had markedly diminished and the cranial pressure had increased to three times the normal amount. In four hours and a half the pressure of the brain nearly equaled blood pressure and the flow through the vessels had practically ceased; a few hours later the brain had taken up water until it completely filled the cranial cavity.

Is this increase of pressure, this taking up of water, due to transudation, or is it the result of an active process in the tissues themselves? That brain-tissue, deprived of its proper blood supply, will take up water from a solution isotonic with the blood, entirely independently of any mechanical pressure of the solution, can readily be demonstrated by removing a brain and placing it in .8% sodium chloride solution. Under these circumstances it will almost immediately begin to increase in weight, during the first four hours most rapidly, and thenceforth slowly and persistently for days. In one instance, after five days the brain had increased one-third in weight and in size. Since a diminution of the intracranial space by one-twelfth causes death, it is evident that impairment of the nutrition of the brain as a whole may cause it to take up water to a degree far greater than that necessary to produce death. Now what is true of the brain as a whole may be assumed to be true of any parts deprived of their blood supply, and localized regions thus affected would take up the water of the plasma from neighboring regions and swell in the same manner in which the brain as a whole will swell. Indeed, histological observation of injured brain-tissue has shown that the dendrites and bodies of the nerve cells swell as they degenerate and vacuoles from within them precisely as in unicellular organisms deprived of oxygen.

Observations on brain and nerve cells prove that blood pressure is not a necessary factor in causing cerebral swelling and edema. It may be that there is transudation from the cerebral blood vessels when intracranial pressure is locally increased, but it has not been shown that the transudation is a mechanical result of the increased pressure, nor that, even with a mechanically produced transudate, the pressure resulting therefrom is sufficient to cause death. Moreover, the factors increasing the osmotic pressure of the tissues have not been regarded. Hill states: "Under normal pressures the secretion and absorption of cerebrospinal fluid does no doubt follow osmotic laws." He overlooks the fact that deprivation of nutrition causes chemical changes within tissues, which affect osmotic pressure, a force far beyond mechanical blood pressure in its powers.

A conception of the force involved in the increase of weight when the brain is placed in salt solution may be obtained by means of a method

used by Loeb. A brain was placed in a 2% solution of sodium chloride. During the first 4 hours there was a diminution of weight, because the osmotic pressure outside was greater than that within the tissues. Soon there was a sharp rise, however, and after about 10 hours the slow persistent increase in weight began. The osmotic pressure of a 2% sodium chloride solution is about 14.5 atmosphere. The pressure within the tissues must have developed to this great height in order that the water should pass into them. Inasmuch as the osmotic pressure of an .8% salt solution is only 5 atmospheres, there is evidence of a pressure increase of 9 atmospheres, which is about 57 times ordinary blood pressure. Naturally such a pressure never becomes fully operative in the tissues—disruption must take place long before that result could occur. The internal osmotic pressure is nearly balanced by the external, but because of the greater internal pressure fluids pass inwards till the mechanical pushing of the tissues overcomes the push of the blood, thereby shutting out the source of fluid supply. It is clear, therefore, that in the chemical changes taking place in dying tissues there is a force present abundantly able to overwhelm the blood pressure.

The mischief arises because the brain is surrounded by a rigid case. Swelling of a part consequently compresses the only compressible portion of the cranial contents—the blood vessels. Thereby new areas are shut out from normal blood supply, and changes now take place in these tissues as well, with the result that water passes into them; thus the swelling spreads until the blood flow is so greatly excluded from the brain that life is no longer possible.

It is thus, I believe, that the cases of head injury resulting in death from secondary increase of brain pressure would be explained. Injuries to the brain interfere with its proper blood supply. Such interference causes an increased osmotic pressure within the tissues, and a consequent taking up of water from the surrounding plasma. The swelling and edema of the brain after head injuries, therefore, is not due to passive transudation, as Bergmann and others have maintained, but is the result of an active process in the tissues themselves, a force many times greater than blood pressure, and amply sufficient to produce all the pressure symptoms and account for all the signs of intracranial tension which the clinical cases of cerebral trauma often manifest.

A VALUABLE PATHOLOGICAL LIBRARY FOR CORNELL UNIVERSITY.—It is stated that the library of the late Birch-Hirschfeld, professor of pathology and pathological anatomy at the University of Leipzig and director of the Leipzig Pathological Institute, has been acquired by Cornell University. The library includes about 5,000 volumes and is one of the most valuable in existence in this particular field.—*New York Medical Journal*.

Reports of Societies.

THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

FIFTEENTH ANNUAL MEETING HELD AT THE HOTEL CHAMBERLIN, OLD POINT COMFORT, VA., APRIL 30, MAY 1 AND 2, 1901.

(Concluded from No. 5, p. 134.)

FIRST DAY.

INVERSION OF THE TUNICA VAGINALIS FOR HYDROCELE.

DR. ROBERT H. GREENE read this paper, and said that within the last 10 years a new operation for the radical cure of hydrocele had originated in France, and its use was being advocated by a number of surgeons at the present time. It consisted in an inversion of the tunica vaginalis. About one month ago he operated upon a case of hydrocele by this method, instead of the Volkman method, the one usually employed. This had been called Longuet's operation by one writer on the subject, and is apparently called by the Germans Winkleman's operation. This case was his first, the patient being an old man with an extensive hydrocele of the tunica, accompanying three small hydroceles of the cord. No complications followed. It was very difficult to say to whom the credit of having first performed this operation should be given. Dudley Tait last March gave a clear description of the operation, with references. It was difficult to understand why the name of Longuet should be given the operation, for with the exception of Vautrin the credit of having reported any number of cases as first operated upon by this method belongs to Jabouley, who began to operate in 1894, and whose cases were reported by Berard March 24, 1895. Since 1896 several French surgeons have reported cases. In Germany Winkleman published a paper in 1898, giving the history of 12 successful cases operated upon by this method, but he did not refer to the French surgeons as having originated it. Dr. Greene then gave a somewhat liberal translation of Winkleman's description:

"Incision down to sac of hydrocele. Incision of sac 3 or 4 cm. long from above downward, more toward the upper than the lower pole. After the hydrocele fluid has escaped, the testicle is drawn completely out, so that the entire tunica vaginalis proper is turned inside out. The incision in the tunica then comes in relation with the insertion of the spermatic cord into the testicle, which incision may be shortened by suture or two, so that the testicle cannot return through the opening in the tunica. The tunica and testicle are replaced in the scrotum, with the result that the entire serous surface of the tunica vaginalis proper faces outward toward the loose connected tissue of the tunica vaginalis communis, with which it may soon become fused, the testicle lying outside the tunica, between the tunica and the scrotal wall. This bloodless operation is com-

pleted by closure of the external wound in the scrotum. In the majority of cases the testicle is dislocated upward as the result of the operation."

Drainage is not required. The only complication mentioned by any of the writers on the subject was the one mentioned by Winkelman, who says that there may follow a "slight periorchitis swelling, due probably to the saturation of the loose connective tissue interspaces with the secretion of the serous membrane, which may persist for some time." This same method had been tried for hydrocele in connection with operations for hernia, and operations for varicocele can be performed at the same time. This operation could be performed for double hydrocele by means of a single scrotal incision, followed by an incision through the membrane separating the two sides of the scrotum. Winkelman does not consider it necessary to confine his patients to bed.

Conclusions.—(1) That this is an easy operation to perform, and that it results in the cure of the hydrocele seems undoubtedly true.

(2) The fact that so many operations have been recorded, with the history of no unfavorable result as regards suppurative or neuralgia of the testis, offers pretty conclusive evidence as to the safety of this operation from the above complications.

(3) The effect it may have in causing atrophy of the testicle or changes in the function of that organ is a subject concerning which clinical data, extending over a period of time, are necessary before final conclusions can be drawn.

A CASE OF UNUSUAL BACILLUS, OR ABNORMALLY BEHAVED GONOCOCCI.

DR. J. P. TUTTLE of New York described this case. The patient was a man 50 years old, who gave a history of a protracted urethritis, and who was taken with symptoms of severe cystitis and discharged large quantities of pus and mucus in the urine. Inoculations and cultures were made in various media to establish the nature of the disease. No results were obtained from the inoculation experiments. In the culture experiments a mixed form of coccus similar to gonococcus, but resembling more the diplococcus found in cerebrospinal meningitis, was found. The behavior of this coccus was entirely different from that of gonococcus in that it was rapidly destroyed in all acid media; in an alkali media it thrived wonderfully. The case finally resolved itself into a very obscure form of syphilis, and under the influence of mercury the urinary symptoms gradually disappeared.

PARTIAL EXCISION OF THE BLADDER AND URETHRA FOR CARCINOMA.

DR. TUTTLE also reported this case of cancer of the rectum, which involved the urethra, the prostate, and possibly the wall of the bladder. The interesting features of this case were the extensive involvement of the disease, the relinquishing of the morphine habit after it had been so firmly established, the relief given by colotomy,

and the marvelous recuperative power of the patient. The patient was in a most emaciated condition at the time of operation, and was taking 36 gr. of morphine a day to relieve the pain.

SECOND DAY.

CLINICAL OBSERVATIONS ON SYPHILIS.

DR. JOHN A. FORDYCE of New York read this paper, considering it under the following heads:

Gangrene of the initial lesion.—He had recently observed such a case in a patient who presented no phimositis or paraphimositis, who was in good health and who was not addicted to alcohol. During this process the induration disappeared, but it reappeared upon cessation of the process. But little is known of the etiology of the condition aside from the conditions of the tissues, which are due to some general cause, as diabetes, alcoholism, etc. Chlorinated soda solutions he found had an exceedingly rapid and beneficial effect, probably due to the chlorine, which is set free and which penetrates the tissues. The cure is facilitated by the free use of iodoform.

Lichen planus and syphilis.—Certain generalized form of lichen planus may readily be mistaken for the papular or papulosquamous syphilide. In a case reported by him there were grouped papules with circinate or gyrate outlines having a pigmented centre and surrounding areas of pigmentation. This resembles in a very striking manner a relapsing syphilide. Pruritis is very marked in lichen planus, but not present in syphilis as a rule.

Syphilis and pemphigus.—He related the history of such an instance, in which it was shown that a venereal history, with relapsing eruptions with pigment changes in the skin, even when combined with mucous membrane lesions, were not necessarily pathognomonic signs of syphilis.

Syphilis and psoriasis.—A scaling papular syphilide is generally made up of small lesions which do not tend to run together in large scaling patches as in psoriasis of some weeks duration. In the latter affection large areas of skin are often implicated by the enlargement of single lesions and the confluence of adjacent patches.

Syphilis and lepra.—He related a case to illustrate the failure of the therapeutic test as an aid in diagnosing obscure eruptions. A careful examination of the patient showed a pronounced thickening and exquisite sensibility of both ulnar nerves and atrophy of the muscles of the ball of the left thumb. These conditions, together with the eruption which one would not expect to encounter in syphilis, pointed strongly to lepra, an opinion which was confirmed by the presence of lepra bacilli in a piece of tissue excised from one of the infiltrated patches. Mercury administered into the muscles caused a disappearance of the eruption. Crocker and others have noted the rapid disappearance of leprosy nodules after intramuscular injections of soluble salts of mercury.

Syphilis and lupus.—The late superficial ser-piginous syphilides of the skin may at times

closely simulate lupus vulgaris, and while the differential diagnosis is usually not difficult, an exceptional case may come under observation which taxes our diagnostic powers to the utmost. In syphilis the inflammatory foci are scattered here and there throughout the derma, while in lupus the infiltration is continuous, looking more like a new growth than an inflammatory deposit. The connective tissue reticulum in lupus is more pronounced, and is woven in and about the granulation tissue in a very characteristic manner. In syphilis the exudation cells are grouped about certain vessels which early show obliterative changes.

A CASE OF PROSTATECTOMY.

DR. JAMES BELL of Montreal read a report of such a case, which presented the following points of special interest: (1) The atrophy of the left testicle 50 years before operation, and the demonstration at the time of operation that practically the whole of the prostatic enlargement, at least such as was pathological, was in the left side of the prostate gland. (2) The perfect restoration of function, which has not been usual, at least in his personal experience of prostatectomy. (3) The peculiar kind of prostatic enlargement in this case demonstrated something of the uncertainty which must always be an objection to the Bottini operation, which is now so much in vogue. Of the usual Bottini incisions made into the prostate, only one could have had any effect upon the enlarged portion of the prostate.

WHAT I HAVE LEARNED FROM ONE HUNDRED AND SIXTY-ONE OPERATIONS FOR THE RELIEF OF SENILE HYPERTROPHY OF THE PROSTATE GLAND.

DR. ORVILLE HOWWITZ of Philadelphia read this paper. The various operations he performed were classified as follows:

Vasectomy.—There were 28 cases, with no deaths. The results obtained lead him to make the following conclusions: (1) As a curative measure vasectomy is of little value, and is not to be recommended. (2) The operation appears to be most effective when performed on patients between 50 and 60 years of age, in whom the prostatic enlargement is of the soft glandular variety. The genital organs of patients of this age are usually in a healthy condition, and the individuals usually object to any operation that is liable to interfere with their sexual functions. (3) The operation is serviceable in those cases where the physical condition of the patient renders him unfit to undergo surgical procedure, who will not submit to a more serious proceeding, who has to depend upon the frequent use of the catheter, or who suffers from periodic attacks of orchitis. (4) Sexual vigor is not diminished by the division of the vasa deferentia. (5) Atrophy of the testicle does not result from the operation.

Castration.—There were 44 cases and 2 deaths. The following deductions he thought were warrantable: (1) In selected cases, bilateral castra-

tion will always hold a place in genito-urinary surgery as a means of removing the obstruction caused by prostatic hypertrophy. (2) The operation is indicated in men of advanced years, whose sexual powers are lost, the overgrowth of the prostate being glandular in character, or who have reached that period of life where the passage of a catheter becomes difficult and retention of urine not uncommon, or if advanced disease of the bladder and kidneys does not preclude a serious operation. (3) The primary effect of castration on the glandular prostatic hypertrophy is first, to relieve congestion, and secondarily, to cause atrophy. (4) When the prostatic enlargement is fibrous in character no benefit is derived from the operation, and the employment under these circumstances is not to be recommended. (5) Orchidectomy in very old subjects with extensive disease of the bladder and kidney is attended by a large mortality, and is a very serious operation.

Suprapubic cystotomy.—The indications for a suprapubic cystotomy in prostatic hypertrophy may be summarized as follows: (1) When retention exists and it is found impossible to evacuate the urine by the usual methods that are employed for the purpose. (2) As a temporary palliative means in those patients who have reached the "breakdown period of catheter life," whose resisting powers have disappeared, and who suffer from secondary involvement of the bladder and kidneys, and whose condition is such as to preclude the resorting to any more serious operation, but require immediate relief from the symptoms caused by the obstructing prostate gland. (3) In feeble old men, in whom the enlargement of the prostatic growth is fibrous in character, which renders the introduction of a catheter difficult, and the passage of the Bottini cautery knife impossible, in whom there is long-standing chronic cystitis, with probably diseased kidneys, which precludes a prostatectomy, suprapubic cystotomy may be selected as the least dangerous and most satisfactory operation which can be employed.

Prostatectomy.—His conclusions he summarized as follows: (1) With the exception of ligation of the internal iliac arteries, prostatectomy is the most dangerous of any operation that has been recommended for the relief of prostatic obstruction due to hypertrophy. (2) Suprapubic prostatectomy is the safest method, especially if combined with perineal drainage. (3) The best period to select to perform this operation is early, before the breakdown of catheter life and serious complications have supervened. (4) Either an atonied or contracted bladder of long standing, associated with chronic cystitis, attended by the formation of sacs or pouches, are contra-indications for the operation. (5) A partial prostatectomy is indicated in those cases where a valve-like lobe exists, which interferes with urination, or where there is partial hypertrophy of one of the lobes. (6) A complete prostatectomy is indicated where a hypertrophy of the three lobes has taken place, especially if the condition

is associated with tumor formation, projecting well back into the bladder, or has given rise to a stenosis of the prostatic urethra. (7) Perineal prostatectomy is best suited in those cases where the enlargement of the lateral lobes has a tendency to grow towards the rectum or obstruct the urethra. (8) When performing a perineal prostatectomy the semicircular incisions advocated by Pyle or the transverse cut of Nicoll is the most satisfactory. (9) The removal of a portion of a small, hard, fibrous prostate gland by means of the perineal route is a very difficult operation. There is danger of not only extirpating the entire gland, but the prostatic urethra as well.

Bottini operation.—From the results obtained by the experience that he recorded in his paper, he felt warranted in forming the conclusions as follows: (1) Success following the Bottini operation depends on having perfect instruments, a good battery, the necessary skill, and the employment of a perfect technique. (2) In suitable cases the Bottini operation is the safest and best for the radical cure thus far devised for the relief of prostatic hypertrophy. (3) It is often very efficacious in advanced cases of obstruction as a palliative measure, rendering catheterism easy and painless, relieving spasm, lessening the tendency to constipation, and improving the general health. (4) It is of special service in the beginning of obstructive symptoms due to hypertrophy of the prostate gland, and may be regarded as a means of preventing catheter life. (5) It is indicated in all forms of hypertrophy, except where there is a valvular formation, or where there is an enormous growth of the three lobes, associated with tumor formation, giving rise to a pouch both above and below the prostate gland. (6) Where the bladder is hopelessly damaged, together with a general atheromatous condition of the blood vessels associated with polyuria, results are negative. (7) Pyelitis is not a contra-indication as a resort to operation. (8) The character of the prostatic growth has no bearing on the results of the operation.

SOME OF THE CONDITIONS FOLLOWING THE BOTTINI OPERATION FOR PROSTATIC OBSTRUCTION.

DR. L. BOLTON BANGS of New York read this paper, in which he presented some of the conditions following the operation which appeared to him to have physiological and pathological significance. He brought out three points which he considered of importance: (1) The muscular impediment which almost immediately followed the removal of the instrument, and which was most surprising. This muscular impediment usually subsides after three or four days, when ordinary catheters can be readily introduced. In order to overcome this difficulty previous to this time, he has had made a series of metal catheters, patterned after the Trendelenburg searcher, and with solid tips, in order that the instrument may be rendered sterile. (2) The process of repair, as witnessed with the cystoscope, begins and pro-

ceeds as under ordinary aseptic conditions. A specimen removed from one of his patients was then shown, which demonstrated that the grooves made had immediately relieved the mechanical obstruction. In his opinion the spontaneous urination which followed the operation was due not only to the formation of the grooves, but to contraction of the cicatrices and to atrophy of the gland tissue. (3) The decided necessity for after-treatment was emphasized. Patients usually come with chronic catarrh of the prostate, seminal vesicles, bladder and urethra, and the after-treatment should be continued until all foreign material has been excluded from the urine. As an explanation of the 3 deaths which occurred out of 42 cases operated upon, he gave "bad judgment in operating." In 1 case there was a parenchymatous prostatic abscess, which could not have been diagnosed. In another case death occurred in a delicate old man, who insisted upon the operation being performed.

CONTRACTURE OF THE NECK OF THE BLADDER.

DR. C. H. CHETWOOD of New York read a paper with this title. He stated that in treating of the subject of contracture of the neck of the bladder the literature, which is limited and obscure, will encroach upon the prolific subject of prostatic hypertrophy; (1) because the two knowledges have much in common and are more or less confounded; (2) because one of the purposes of the writer is to introduce as a substitute for Bottini galvano-caustic operation, a more surgical procedure, claims of superiority of which are based upon special advantages, as greater precision, lower mortality, fewer complications, and the promise of better results.

Definition.—What is meant in the paper by contracture of the neck of the bladder is a fibroid stenosis of the vesical sphincter, or fibrous infiltration of the glandular and muscular tissues encircling the bladder neck, simulating symptomatically stone in the bladder, and resembling senile prostatic hypertrophy by the mechanical hindrance it produces to the urinary outlet. Many of the cases of prostatic hypertrophy reported are simply cases of contracture, notably some of those reported by Bottini.

Causes.—The cause of this condition is found in long-standing chronic inflammation, centering in the region of the trigone (behind) or in prostatic sinus (in front). It is commonly, but not necessarily, of gonorrheal origin. Prostatic abscess, stone in the bladder, traumatism, or any of the conditions involving permanent suppurations in the neck of the bladder, or the prostatic urethra, may be behind them, and it may also coexist with prostatic hypertrophy, when it becomes one of the elements of obstruction formed by a morbid growth.

Symptoms.—The symptoms of contracture of the neck of the bladder are analogous to vesical calculus. The most prominent symptom is the urgency and frequency of urination, the calls for this act varying from one-half to two and a half

hours day and night. The desire is generally precipitous, and if not responded to is promptly productive of pain in the bladder region or involuntary urination. The difficulty in starting a flow in some cases causes a complete retention. In long-standing cases the force and stream is distinctly less than normal. The residual urine exists in variable quantities. Examination per rectum discovers nothing characteristic. Examination by way of the urethra with a short, beaked sound meets an obstruction beyond the prostatic sinus, and after entering the bladder the same obstruction will be recognized by turning the beak towards the bas fond.

Treatment.—The treatment of this condition, if intended to be radical, must be directed to the removal of the causes of obstruction. The only satisfactory surgical means of attacking it is through incision. Perineal cystotomy was performed for a long time through the inspiration of Mercier, who was one of the first to conceive the idea of cutting the neck of the bladder through the urethral channel. The complications and difficulties following this were similar to those met with in the Bottini operation, among which may be mentioned hemorrhage, painful and prolonged bladder spasms, complete retention of urine, swollen testicle, prostatic abscess and profound urinary infection. All of these dangers result if not removed when the perineal opening is made. One of the greatest objections to the Bottini operation is the lack of precision it allows and the many complications and difficulties which have occurred during and after its performance. The writer advocates a modified Bottini operation, which consists in employing a specially constructed instrument which performs the same function as the galvano-caustic knife of Bottini, which operates through the perineal opening. The speaker then described this instrument and the technique of operation. Sixteen cases were reported. The ages varied from 30 to 73 years of age, 6 being under 45 and the remainder between 45 and 73. Out of this number there was but 1 death, which occurred 5 weeks after operation, from pyelonephritis. He concluded by saying that if a perineal opening was made many cases of the contracture type of prostatic hypertrophy would be recognized, and that these, as well as many presenting unilateral or bilateral enlargement, would be found suitable to perineal prostatotomy with the galvano cautery. The perineal incision permits of exploration, which is better and more rapid than the cystoscope.

The following officers were elected for the ensuing year: President, Dr. W. T. Belfield of Chicago; Vice-president, Dr. Paul Thorndike of Boston; Secretary, Dr. James R. Hayden of New York; Member of Council, Dr. William K. Otis of New York. Next place of meeting, Atlantic City.

It is reported that the King of Italy has given \$40,000 toward the erection of a hospital for children suffering from tuberculosis.

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283 WASHINGTON STREET, BOSTON, MASS.

THE NEED OF ISOLATION HOSPITALS.

WITH the growth of our smaller communities and cities the need of suitable isolation hospitals for the reception of cases of contagious disease is being more and more recognized. Within the last few months it has not been unusual to see stated in the daily papers that such and such a town has been obliged to improvise a hospital, on the appearance of a contagious disease. It is evident that houses, and no doubt usually very poor ones, rapidly turned into the purposes of a hospital, do not fulfill the modern ideal of what a contagious hospital should be. Even the smaller towns should make provision for cases which cannot be received at general hospitals, by a suitable building with the proper equipment for the best care of the person afflicted, and for the prevention of the spread of the disease, whatever it may be. We would also urge that the objectionable term "pest-house" be given up, and a more descriptive and less obnoxious title substituted. It is unfortunate to run unnecessarily against natural prejudices, and we may readily understand why people should object to being sent to a pesthouse, and welcome the idea of being treated in an isolation hospital. But whether or not the name is changed, the demand for such institutions in all towns except the smallest is apparent. It not unfrequently happens that a focus of disease develops in a thinly populated district, and it becomes necessary that the patients should be cared for as near at hand as possible, and not be taken a considerable distance, which might not only prove detrimental to themselves, but also be a menace to others, or, at least a source of alarm. The most humane and least expensive thing to do under such circumstances is undoubtedly to provide hospitals near at hand.

In spite of the fact that there has been legislation on the matter, which requires that every city

in the Commonwealth maintain one or more hospitals for the isolation and care of persons suffering from contagious disease, many cities are still without such hospitals. For example, the *Haverhill Gazette* calls our attention to the fact that in that city no such hospital exists. The act of legislature is as follows:

Section 1. In any city in which no suitable hospital accommodations have been provided for the care and treatment of persons suffering from contagious diseases dangerous to the public health, the board of health of such city may address a communication to the mayor thereof, stating that, in the opinion of said board, the safety of the inhabitants of the city demands that suitable hospital accommodations should be provided for the reception and treatment of persons suffering from such diseases other than smallpox and those of a venereal nature. The mayor shall forthwith transmit such communication to the city council, and the city council shall forthwith order such hospital accommodations to be provided, and shall make the necessary appropriations therefor.

Sec. 2. Every city in which hospital accommodations have been provided, in accordance with the provisions of this act, shall make an annual appropriation for the maintenance of such hospital accommodations, and said appropriation shall be expended under the direction of the board of health, unless otherwise ordered by the city government.

This act should not be further evaded. It is poor economy to refuse the necessary appropriation for the maintenance of isolation hospitals, whether or not they are in constant use. That an isolation hospital properly conducted may be a source of the greatest usefulness, and devoid of popular prejudice, is shown by the experience of Worcester in the establishment of such an institution, the details of which are given by the superintendent, Dr. May Salona Holmes, in our issue of July 4. Owing to the increasing possibility of prophylaxis, the various infectious diseases are exciting a greater interest than ever before, and nowhere may the problems be so advantageously studied as at an institution in which several or many patients suffering from the same disease are gathered. A striking example of this fact is the work which has resulted from the development of the department for contagious diseases at the Boston City Hospital and at other large institutions of this character. No one can fully estimate the value to the community of such institutions, both in the actual treatment of the cases and also in the increased confidence aroused among the people at large that such diseases are within reach of modern medical methods. It would undoubtedly be desirable, and we see no good reason why it could not be arranged, that smallpox should not be sharply separated in its treatment from other diseases of the same general class. It would mark a step in advance if a certain portion of the general isolation hospital could be set apart for the treatment of

smallpox as it arises. The fatality of the disease is not excessive, and there would undoubtedly be a definite advantage in treating this malady as other infectious and contagious diseases are treated, in a well-equipped hospital and not in a so-called pesthouse, surrounded by all the unpleasant associations which that name suggests. The zeal for hospital building has never been at a greater height than now, and we trust that a proper proportion of this zeal may be diverted in the direction which we have suggested.

THE PHYSICIAN AS A LEGISLATOR: A SUGGESTION.

From the moment when he enters upon a course of professional training for a medical education to the close of life, the medical man, perhaps more than any other, is disinclined to enter upon the field of politics, and consequently the State legislature, as well as the halls of Congress, rarely prove an attractive field for physicians. This fact is more evident at the present day than at any time before, and while it may undoubtedly redound to his credit as a proof of the quality of "sticking" to his profession, and of departing from its training and practice neither to the right nor to the left, it is also true that those few physicians who have been elected to the legislature in the past have usually proved to be extremely useful legislators. It is doubtful if several of our most noted medical laws, such as the Medical Registration Act, the Food and Drug acts, the acts relating to poisons, to contagious diseases and others of like character would have been enacted, if it had not been for the presence of active, intelligent and practical physicians in the legislature, who could urge the importance of these laws, explain their usefulness, and meet the objections which were sure to be argued against them.

A few years since there were seven physicians in the legislature of Massachusetts at one year's session, and as a consequence several important medical laws were enacted; but the number has gradually diminished, until, at the last session, the profession was not represented by a single physician.

It has always been a commendable custom to place one or more physicians upon the Committee on Public Health, but in their absence this important committee must be composed of druggists, plumbers, undertakers and others whose interests are usually devoted to minor topics and not to the weightier medical questions which concern the public health and welfare. The need of sound medical advisers upon such a committee is always apparent.

Of other professions and occupations there is usually an abundant representation. Lawyers by the score may always be counted upon to fill the legislative seats, so also with other occupations. In the *New England Grocer* of June 28 the editor presents sketches of sixteen grocers who were members of the legislature of 1901, and takes just pride in stating that these were "men of stamina and ability, earnest, forceful, progressive men." He adds: "It may be there are one or two others."

As a result, several prominent matters of importance to men of this occupation were introduced in this session, and at least two measures, these relating to the proper labeling of articles of food and to the one of preservative substances, went through the necessary stages of debate and became laws.

It is to be hoped in the coming session, for the good of the profession as well as of the community at large, that medicine as well as law, education and agriculture, may have at least one or more worthy defenders upon Beacon Hill.

MEDICAL NOTES.

BOSTON.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon Aug. 7, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 19, measles 45, typhoid fever 18.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Aug. 3 was 210, as against 240 the corresponding week last year, showing a decrease of 30 deaths, and making the death-rate for the week 19.1. The deaths from consumption were 23; pneumonia 7; whooping cough 0; heart disease 14; bronchitis 3; marasmus 8. There were 5 deaths from violent causes. The number of children who died under 1 year was 86; under 5 years, 99; persons more than 60 years, 26; deaths in public institutions, 63.

NEW YORK.

THE PARK AVENUE TUNNEL.—The July Grand Jury on Aug. 1 handed in its presentment in regard to the Park Avenue Tunnel to Judge Newburger, sitting in Part I of the Court of General Sessions. It states that during its investigations, with the assistance of the district attorney, the Grand Jury examined not only the most available expert witnesses, but many persons who are compelled to ride through the tunnel or who live along its line, besides several officers and employees of the railroad companies. After detailing the pernicious conditions now existing,

the jury presents to the Court the officers and directors of the various railroads operating within the tunnel as maintaining a public nuisance, and recommends that vigorous and speedy action be taken to abate the same. The three following specific recommendations are then made: (1) That the brick walls dividing the tunnel into three parts be removed, and that steel columns and girders be substituted; (2) that passenger coaches while not in use during the day be protected from the sun by a shed; (3) that, inasmuch as the most eminent experts assert that there is no remedy for the existing evils so long as coal-burning locomotives are in use, the railroad companies be compelled to change the motive power within the tunnel and its approaches to some method of propulsion which will not endanger the public comfort and health. The president of the Health Department has given out the assurance that so far as it has the legal power it will do what it can to remedy the existing evils, and Assistant District Attorney Le Barbier, who has charge of the investigation, states that if the public nuisance complained of is not remedied at once, the facts as found by the July Grand Jury will be presented to the next Grand Jury, with a request for a criminal indictment against the railroad officials.

CRUSADE AGAINST MALARIA AT CONCORD.—During the past few days Dr. Doty, health officer of the port, has begun an active crusade against malarial fever at Concord, borough of Richmond, in the vicinity of the quarantine station, where the disease prevails to a very large extent. A systematic inspection of individual homes is being made by a detail of policemen, with a view to correcting injurious conditions, and crude petroleum put in all the stagnant pools in the district. Dr. Doty is of the opinion that the mosquito larvæ remain at the bottom of the water most of the time, and he has designed a special apparatus to force the oil down to the bottom and spread it thoroughly there. The oil will naturally rise to the top later, so that he expects to accomplish all that is done by others in depositing it on the surface, and more, if possible. A careful investigation of the mosquitoes found in the region is also being made.

PRECAUTIONS AGAINST SMALLPOX.—In view of the persistence of smallpox during the spring and summer, it has been feared by many that with the advent of cold weather the disease will spread to a still greater extent, and it is now announced that several wealthy individuals have determined to provide a private hospital, on the same general plan as the Montum Hospital for scarlet fever and diphtheria, for the accommodation of such smallpox patients as are able to pay.

NOTIFICATION OF TUBERCULOSIS IN JERSEY CITY.—On Aug. 1 the physicians of Jersey, N. J., were notified by the local Board of Health that hereafter they would be required to include in their reports of contagious diseases all cases of tuberculosis met with in practice.

Miscellany.

CONFERENCE ON MALARIA IN NEW YORK.

A CONFERENCE in reference to malarial fever and its prevention, was held at the meeting of the Board of Health on July 31. Among those who took part in it in addition to the commissioners, were Sanitary Superintendent Roberts, Assistant Sanitary Superintendent Dillingham and Dr. H. M. Biggs, director of the bacteriological laboratories of the department. The unanimous opinion was expressed that there was no danger of malaria from the lakes and ponds in Central Park. These have been thoroughly inspected, and while mosquitoes have been found, none of them are of the species transmitting the disease. As a result of the conference, the board approved of a circular prepared by Dr. Biggs, and ordered its distribution to the physicians of the city. The circular states that malarial fever is quite prevalent in certain boroughs of New York, and that it is not unlikely to extend to Manhattan and Brooklyn, in view of the extensive excavations and consequent formation of rain-pools in various parts of these boroughs, if means are not employed for its prevention. After referring to the recent investigations going to show that malarial fever requires for its transmission the active intervention of a definite kind of mosquito,—that is, anophelines,—the circular goes on to say that certain simple precautions suffice to protect persons living in malarial districts from infection. The following precautions are then recommended:

(1) Proper screening of the house and of the bed. The chief danger of infection is at night, inasmuch as the anophelines bite mostly at this time.

(2) The confinement and continuous screening of persons suffering from malarial fever, so that mosquitoes may not bite them, and thus become infected.

(3) The administration of quinine in full doses to malarial patients, and persistence in the use of the remedy for a few weeks after apparent recovery.

(4) The removal of the breeding places of the mosquitoes through drainage, filling up of holes and surface pools, and emptying of tubs, pails, etc., which contain stagnant water.

(5) In pools which cannot be drained or filled the destruction of the mosquito larvæ by the use of petroleum thrown upon the surface; by the introduction of minnows and other small fish which eat the larvæ, or by other methods. In conclusion, the circular states that the Board of

Health desires the co-operation of all physicians in its efforts to disseminate information in regard to the causation and prevention of malarial fever, and in its efforts to restrict the prevalence of this disease in New York City.

Correspondence.

[From our Special Correspondent.]

SOME MEDICAL ASPECTS OF THE PAN-AMERICAN EXPOSITION.

Judging by the relative amount of space afforded for exhibition purposes at the Pan-American Exposition, the Marine Hospital service is thought more highly of by the Treasury Department officials in charge than is the Medical Department of the Navy by the naval authorities. The Marine Hospital exhibit is located in a conspicuous position immediately on the left of the main entrance of the Government building, and has an abundance of floor space for its display. The exhibit, which is both instructive and attractive, was installed by Passed Assistant Surgeon H. D. Geddings, who is one of the experts of the Marine Hospital service in bacteriology. During his absence at the present time the exhibit is in the very competent charge of Hospital Steward Richardson.

Next to the main aisle are displayed large models of the Marine Hospital quarantine stations at Delaware Breakwater and Reedy Island; the former showing the facilities provided for the segregation, accommodation and care of 1,000 immigrants, while the Reedy Island model shows the general plan of arrangements made for ship disinfection. A third model shows the arrangement of the interior of the disinfecting station at Reedy Island. Nearby is a large model of Camp Perry, Florida, located between Waycross and Jacksonville, recently constructed by the Marine Hospital service for use in yellow-fever epidemics. The camp is sewerred and has a piped water-supply. The administration building, disinfecting plant, kitchen and mess hall, etc., are wooden structures; it is intended to expand the shelter accommodations of the camp by means of tents, as required. This camp is designed to accommodate 1,200 persons. Immediately back of this model are several large cases containing surgical instruments, appliances, microscopes and microscopical accessories. Behind these, in turn, are several cases showing potato, gelatin and agar tube cultures of various pathogenic and non-pathogenic micro-organisms. Behind these last cases there is an excellent display of plate cultures and photomicrographs, lighted from behind by electricity. This part of the exhibit is very complete and instructive to the medical man, though not of particular interest to the average visitor—above whose comprehension it largely is. Back of these cases there is a dark room fitted up with an x-ray apparatus. The latter, however, is understood to be rarely operated. Adjoining this room a veiled space shows the traveling bacteriological laboratory supplied by the department—as contained in a set of eight boxes—set up for use. A Kinyoun-Francis steam disinfecting chamber, 60-inch diameter, and fitted up for use in disinfecting with formaldehyde if desired, is also on exhibition in this space. The walls are hung with shaded map charts, showing the relative mortality from various diseases in different parts of the United States. Another veiled space represents a model operating-room, with instrument case, water sterilizer, operating table, etc. Adjoining this another space contains an exhibit of ward furniture, clothing for convalescents, dressing case, medicine cupboard, etc. A third enclosed space contains a small professional library and miscellaneous apparatus. Considerable printed matter—circulars and reprints of professional papers by surgeons of the Marine Hospital service—is distributed to visitors, and

everything possible is done to advertise the department. The exhibit is modern and complete, and should certainly not be overlooked by the medical visitor to the Exposition.

In connection with the quarantine work of the Marine Hospital mention may here be made of a model of the New York Harbor Quarantine Station, located in the northeast corner of the Manufactures and Liberal Arts Building. Near this latter model there is located a model of the Chicago drainage canal. Both of these models are worth the inspection of those interested in preventive medicine. Adjoining is a large map showing the sewerage system of Boston, while in the small room immediately behind is displayed a series of large photographs illustrating the disposal of sewerage and the collection, storage and distribution of drinking-water in Boston and several small towns in the vicinity. Directly across the aisle from this photographic exhibit is the display made by the Prudential Life Insurance Company, consisting of a large number of admirable charts, illustrating the influence of age, sex, nativity, occupation and various diseases upon the death-rate. It is interesting to note that of various occupations the soldier stood eighth in order of liability to death by accident; railroad men, miners, electricians and sailors being more liable to casualty. As the soldier represents a physically superior class, it is not strange that the charts show the lowest mortality — of all the occupations given — to be in the military service in respect to tuberculous, Bright's disease, liver disease and other similar affections.

In the next parallel aisle, on the east side a row of booths is of professional interest. The Kny-Scheerer Company makes an excellent display of surgical instruments and aseptic furnishings for operating-rooms. Several manufacturers of artificial limbs also make display of their products, while other firms exhibit invalid beds and other appliances.

Immediately behind this row of booths is located the exhibit in hygiene and public health, in charge of Dr. Otto of Buffalo. This exhibit consists almost wholly of charts, photographs and blank forms illustrating the work of various health departments. The exhibit is so small as to be readily overlooked, but is well worth careful inspection and study. On the walls of the alcove are charts illustrating the regulation of the practice of medicine in various states of the Union; the number of medical men in each state in proportion to its population; the proportion of towns in each state having sewerage systems and public water supplies; the expenditure in each state, per capita, for the care of the public health, etc. Numerous swinging charts give in greater detail the vital statistics of various states. The Chicago Board of Health makes an interesting display; charts showing the lower mortality in that city as compared with that of the larger cities of the world. Other charts show the progressive reduction in the mortality of Chicago; the distribution of mortality in that city by months; the decreased mortality from diphtheria following the use of antitoxin; child mortality in relation to the purity of the milk supply, etc. It is interesting to note that while in 1872 the average duration of life in Chicago was 15 years, 2 months and 10 days, in 1900 the average length of life had been steadily increased to 30 years, 3 months and 20 days. The display made by the Massachusetts Board of Health consists of an interesting series of photographs and charts dealing with the purification and analysis of water, disposal of sewage and refuse, the preparation of antitoxin, the adulteration of foods, and other features of the work of the board. The Health Department of the city of Buffalo has a small though well-selected exhibit, among which may be noted a chart showing the diminished mortality from diphtheria following the use of antitoxin; photomicrographs of sections of rubber nursing-bottle tubes, showing the impossibility of accomplishing the sterilization of such tubes; photographs showing conditions in the tenement-house districts of the city, and the sanitary improvements which have been made therein. The lowered mortality in Buffalo for 1900, as compared with

1891, is graphically represented, both as a whole and in respect to its chief causes, by tombstones having superficial areas as worked out from the mortality statistics. The exhibit of the Pittsburgh Board of Health, among other things, contains photographs of the municipal disinfecting plant. Various manufacturers of vaccinated virus make a display of their products, and the exhibit also contains a library of various Public Health Reports and works on Sanitation by American authors.

* * *

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, JULY 27, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under 15 years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and croup.	
New York . .	3,437,202	1,644	844	47.48	3.52	.97	33.13	.97	
Chicago . .	1,698,575	—	—	—	—	—	—	—	
Philadelphia . .	1,215,597	461	174	32.98	2.17	.43	15.84	.87	
St. Louis . .	575,238	—	—	—	—	—	—	—	
Baltimore . .	508,957	245	110	41.00	3.26	.41	26.11	—	
Cleveland . .	381,768	—	—	—	—	—	—	—	
Buffalo . .	352,397	—	—	—	—	—	—	—	
Cincinnati . .	328,902	—	—	—	—	—	—	—	
Pittsburg . .	321,616	157	74	21.63	2.55	2.55	5.09	1.28	
Washington . .	275,718	—	—	—	—	—	—	—	
Milwaukee . .	283,915	—	—	—	—	—	—	—	
Providence . .	175,597	76	—	21.05	—	—	10.52	.13	
Boston . .	560,892	208	73	31.74	3.37	.36	14.91	1.44	
Worcester . .	119,421	34	17	41.16	5.88	—	35.28	2.94	
Fall River . .	104,863	54	35	37.35	9.25	—	54.00	—	
Lowell . .	94,969	37	22	37.80	—	—	27.00	—	
Cambridge . .	91,886	19	9	42.08	10.52	—	26.30	—	
Lynn . .	65,513	7	1	14.30	14.30	—	—	—	
Lawrence . .	62,559	25	21	71.44	88	—	43.76	—	
New Bedford . .	62,442	21	15	42.94	4.76	—	33.32	4.76	
Springfield . .	62,009	30	9	33.67	—	—	20.00	—	
Somerville . .	61,643	11	6	72.72	—	—	27.27	—	
Holyoke . .	45,712	24	17	70.89	—	—	54.17	4.17	
Brookton . .	40,063	10	1	—	—	—	—	—	
Haverhill . .	37,175	6	4	16.67	—	—	—	—	
Salem . .	35,556	8	2	25.00	—	12.50	—	—	
Chelsea . .	34,072	15	8	25.00	—	—	—	—	
Malden . .	33,664	8	25.00	—	—	—	—	—	
Newton . .	33,587	8	2	25.00	—	—	12.50	—	
Fitchburg . .	31,531	8	3	—	—	—	—	—	
Taunton . .	31,036	11	2	—	—	—	—	—	
Gloucester . .	26,121	—	—	—	—	—	—	—	
Everett . .	24,336	7	1	—	14.30	—	—	—	
North Adams . .	24,200	6	5	50.00	—	—	50.00	—	
Quincy . .	22,809	4	—	25.00	—	—	—	—	
Waltham . .	23,481	8	3	12.50	12.50	—	12.50	—	
Pittsfield . .	21,766	5	—	40.00	—	—	—	—	
Brookline . .	19,935	—	—	—	—	—	—	—	
Chicago . .	19,167	10	7	30.00	—	—	30.00	—	
Medford . .	18,244	5	3	40.00	—	—	20.00	—	
Newburyport . .	14,478	4	1	—	—	—	—	—	
Melrose . .	12,962	2	—	50.00	—	—	—	—	

Deaths reported 3,205; under five years of age, 1,519; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebrospinal meningitis, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,308; acute lung diseases 105; consumption 305; scarlet fever 27; erysipelas 6; typhoid fever 41; whooping cough 18; measles 2; cerebrospinal meningitis 12; smallpox 10.

From whooping cough, New York 6, Philadelphia 8, Pittsburg 2, Boston 2. From cerebrospinal meningitis, New York 8, Baltimore 1, Somerville 2, Chelsea 1. From scarlet fever, New York 16, Philadelphia 2, Baltimore 1, Pittsburg 4, Boston 2, Salem 1, Beverly 1. From typhoid fever, New York 13, Philadelphia 7, Baltimore 5, Pittsburg 11, Boston 2, Lawrence, Somerville and Chelsea 1 each. From smallpox, New York 9, Philadelphia 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,029, for the week ending July 13 the death-rate was 15.6. Deaths reported 3,439; acute diseases of the respiratory organs (London) 133; whooping cough 54, diphtheria 63, measles 95, fever 16, scarlet fever 41.

The death-rate ranged from 9.4 in Halifax to 26.7 in Birkenhead; Birmingham 17.1, Blackburn 12.2, Bolton 17.9, Bradford 15.4, Brighton 13.9, Bristol 10.6, Burnley 15.0, Cardiff 12.3, Croydon 10.1, Derby 10.3, Gateshead 18.4, Huddersfield 15.4, Hull 11.2, Leeds 18.5, Leicester 10.8, Liverpool 25.9, London 14.2, Manchester 17.8, Newcastle-on-Tyne 19.3, Norwich 13.0, Nottingham 15.4, Oldham 13.7, Portsmouth 20.0, Preston 21.2, Sheffield 14.5, West Ham 14.9.

METEOROLOGICAL RECORD

For the week ending July 27, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer	Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches.	
	Daily mean.	Daily mean.	Minimum.	Maximum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S. M. T. W. T. F. S. S. M. T. W. T. F. S. S.	29.36 29.33 29.33 29.33 30.08 30.08 30.08	80 80 80 80 76 76 76	90 94 94 94 86 86 86	66 65 65 65 72 71 71	68 70 69 68 68 67 67	69 62 62 62 65 65 69	S W W W E E E	9 15 15 15 8 8 8	9 9 9 9 4 4 4	O. F. O. O. F. O. O.	F. T. C. C. T. T. T.	
Mean	29.36	81	84		67							.93

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING JULY 18, 1901.

PECKHAM, C. T., surgeon. Upon expiration of sick leave of absence, relieved from duty at Galveston, Tex., and directed to proceed to Boston, Mass., and report to the medical officer in command for duty and assignment to quarters. July 17, 1901.

NYENHOUT, J. A., passed assistant surgeon. Granted extension of leave of absence, on account of sickness, for thirty days, from July 9. July 6, 1901.

WICKES, H. W., passed assistant surgeon. Granted leave of absence for twenty-seven days from July 15. July 8, 1901.

GREENE, J. B., passed assistant surgeon. Directed to proceed to Point Pleasant, N. J., for the physical examination of keepers and surfmen of the Life Saving Service. Upon completion of said duty to rejoin station at Washington, D. C. July 16, 1901.

FOX, CARROLL, assistant surgeon. To report to the medical officer in command at Port Townsend, Wash., for temporary duty. July 11, 1901.

LORP, C. E. D., assistant surgeon. Relieved from duty at the Immigration Depot, New York, N. Y., and directed to proceed to Galveston, Tex., and assume command of the service, relieving temporary Acting Assistant Surgeon Wm. Kellier. July 17, 1901.

GLOVER, M. W., assistant surgeon. Relieved from duty at Boston, Mass., and directed to proceed to New York, N. Y., and report to Surgeon G. W. Stoner, Immigration Depot, for duty. July 17, 1901.

BAILEY, C. WILLIAMS, acting assistant surgeon. Granted leave of absence for seven days. July 6, 1901.

FOSTER, J. P. C., acting assistant surgeon. Granted leave of absence for forty days from July 31. July 19, 1901.

GOMEZ, S., acting assistant surgeon. Granted leave of absence for thirty days from July 15. July 12, 1901.

McNEER, R. L., acting assistant surgeon. Relieved from duty at Baltimore, Md., and directed to proceed to Cape Charles quarantine and report to Assistant Surgeon C. W. Wille for duty and assignment to quarters. July 17, 1901.

SAFFORD, M. V., acting assistant surgeon. Granted leave of absence for fourteen days from July 17. July 6, 1901.

STEARNS, W. L., hospital steward. Granted leave of absence for twenty days from August 11. July 15, 1901.

RODRIGO, A. H., hospital steward. Granted leave of absence for sixteen days from August 17. July 15, 1901.

LAGRANGE, J. V., hospital steward. Granted leave of absence for thirty days from August 2. July 15, 1901.

SCOTT, E. B., hospital steward. Granted leave of absence for one day. July 8, 1901.

WATERS, M. H., hospital steward. Relieved from duty at St. Louis, Mo., and directed to proceed to Washington, D. C., and report to the Bureau for duty. July 11, 1901.

APPOINTMENTS.

H. J. BEARD appointed interne for duty at Evansville, Ind., July 17, 1901.

M. H. ROSS appointed interne for duty at Cairo, Ill., July 12, 1901.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JULY 27, 1901.

E. O. HUNTINGTON, assistant surgeon. Detached from the "Newark," when placed out of commission, and ordered home to wait orders.

C. F. STOKES, surgeon. Ordered to the "Oregon" immediately.

P. LEACH, surgeon. Detached from the "Oregon" upon reporting of relief, and ordered home to wait orders.

A. FARENHOLT, passed assistant surgeon. Detached from the "Oregon" and ordered home to wait orders.

C. T. SMITH, surgeon. Detached from the "Mayflower" when put out of commission, and ordered home to wait orders.

D. N. CARPENTER, passed assistant surgeon. Detached from the Naval Hospital, Chelsea, Mass., upon reporting of relief, and to Franklin.

R. R. RICHARDSON, assistant surgeon. Detached from the Naval Hospital, Newport, R. I., and ordered to Naval Hospital, Chelsea, Mass.

J. R. WHITING, assistant surgeon. Resignation accepted, to take effect from August 3, 1901.

SOCIETY NOTICE.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.—The American Association of Obstetricians and Gynecologists will hold its fourteenth annual meeting at the Hotel Hollenden, Cleveland, O., Tuesday, Wednesday and Thursday, Sept. 17, 18 and 19, 1901, under the presidency of Dr. William E. Davis of Birmingham, Ala.

RECENT DEATHS.

DR. STEPHEN FESS, who practised for many years in Brooklyn, N. Y., previous to losing his sight, died from bronchitis on July 31, at the age of 76. He was a graduate of Harvard, and is said to have been one of the best Greek scholars in the country. He began the practice of medicine in Cincinnati, and served as surgeon in the army during the civil war.

DR. HENRY B. HORLBECK, at the time of his death and for many years health officer of the port of Charleston, S. C., died there July 31. He was a surgeon of ability, and an ex-president of the American Medical Association.

BOOKS AND PAMPHLETS RECEIVED.

An Epidemic of a Peculiar and Unfamiliar Disease of the Skin. By Jay F. Schamberg, M.D., Philadelphia. Illustrated. Reprint. 1901.

The Uses of Phenol in Dermatology. By Jay F. Schamberg, A.B., M.D., Professor of Diseases of the Skin in the Philadelphia Polyclinic and College for Graduates in Medicine. Reprint. 1901.

Impetigo Contagiosa. By Jay F. Schamberg, A.B., M.D., Professor of Diseases of the Skin at the Philadelphia Polyclinic and College for Graduates in Medicine. Illustrated. Reprint. 1901.

Surgical Applied Anatomy. By Sir Frederick Treves, K.C.V.O., C.B., F.R.C.S. New edition, revised by the author with the assistance of Arthur Keith, M.D., F.R.C.S. Illustrated. Philadelphia: Lea Brothers & Co. 1901.

Smallpox, With Particular Reference to the Prevalent Epidemic. By Jay F. Schamberg, M.D., Professor of Diseases of the Skin at the Philadelphia Polyclinic and College for Graduates in Medicine. Illustrated. Reprint. 1901.

Renal Tension and Its Treatment by Surgical Means. By Reginald Harrison, F.R.C.S., President of the Surgical Section of the British Medical Association; Surgeon to St. Peter's Hospital. Illustrated. London: John Bale, Sons and Danielsson, Ltd. 1901.

The Diagnostics of Internal Medicine, a clinical treatise upon the recognized principles of medical diagnosis, prepared for the use of students and practitioners of medicine. By Glenworth Reeve Butler, A.M., M.D. Illustrated. New York: D. Appleton & Co. 1901.

Address.

ADDRESS IN MEDICINE.¹

BY JAMES F. GOODHART, MD., LL.D., F.R.C.P.,
Consulting Physician to Guy's Hospital.

FRIENDS IN COUNCIL.

To be honored by the request to give this address before the British Medical Association is an opportunity that comes only once in a man's lifetime. How shall I utilize it? It might be thought perhaps that an almost unlimited scope is here given to the lecturer, but in the selection of a subject there are indeed several sharp limitations to his choice.

In the first place, it being an address in medicine, the only thing that I must not lecture upon is medicine in detail. In the next place, as I understand it, this is an occasion on which in some measure we sit in open session; when men other than medical have in years past sought and found topics of common interest in the subject-matter of the address; and then the lecturer himself is in, to him, a unique position; for once in his life he becomes for the moment, at the invitation of our great brotherhood, the mouthpiece — aye, even the priest sometimes, if he be happily inspired — of the temple of our most sacred longings, of our strongest feelings, our highest aspirations. Is not he then indeed under the most strict of limitations to whom it comes, to have to put as a duty, with all the authority that such an opportunity offers, his view of the position of medicine at the present day, of its weakness or its strength, as it enters into the life of the English-speaking peoples. There is, however, this much of freedom in my choice: "For what can a man do that cometh after the king, even that which hath been already done." Many of you must have often thought and said before what I shall say tonight, but I conceive that to express the consensus of your thought, to "watch what main currents draw the year," is the duty upon which you would wish me to embark.

The position of medicine, then, today as I see it is this: The living body, the clay between the potter (the doctor) on the one hand, and the wheel (the blind guidance of animal life) on the other.

The living body! Think of it, if you can, with that freshness and plasticity of mind, that awful wonderment, that first came to you when out of the darkness you first began to peer into your dawn, and think about the phenomena of life. Think of it — brain, spinal cord, heart, lungs, and so on. All separate, yet all one. All separate, so that each has its individual wants, each its own special food which it needs to draw selectively from a common stockpot (I beg pardon of our juices), each with its own methods of work and times of rest; each so individual that if you take the imprint of one's finger creases, the intonation of man's speech, the general character

of his handwriting, and no doubt, too, if one could take it by some unconscious graphic method, the action of our muscles, the flow and method of one's thought, and so on, there are probably in the whole universe no two living beings exact in counterpart. I take this to mean that if we could see into the minute details of the working of the machine, not only that no two men think alike, but no two men have hearts alike, as expressed by function; no two men have a liver that pours out its bile exactly alike; that is, at the same rate and in response to exactly similar impulses, or in which the ultimate elements are not individualized.

There are, of course, certain rough results which have to be obtained as a necessity of the organic combination. Without some universal gauge the machine could not work, and the body with its respective organs would perish; but I take it that though these results are common to us all, the function that produces them is as much different and peculiar to the individual as the various impulses and motives differ in men and women whose output of action is a common one, and directed to the good of the body politic.

THE VITALITY OF LIFE.

And yet all our parts are one. So absolutely one that it is impossible to suffer bad pain in two separate parts of the body at the same time — one comes and the other goes. So absolutely one that when you think hard your feet grow cold, so one that when one member of the body suffers, all the members suffer with it; so one that the temporary failure to lock or unlock the points at the many junctions and sidings will disarrange the whole. So much so that to any thinker sufficiently detached from himself it may well seem that the harmonies of the song of life are so extremely intricate as to be impossible of performance. And yet the song of life is sung, and on the whole to most of us the result is beautiful.

And then behind all, or rather before it, is this curious unfathomable mystery, "the boon of life." "I needs must live," the body seems to say. Some cynic asks where is the necessity. But that is life, or all we know about it. The "needs must" live, an unconscious, blind, unquenchable energy that carries on the being irrespective of his will, and which, blending with his conscious will, renders the clay at once so plastic, and yet, too, at one and the same time so unimpressible. Ah, that living energy, let me dwell upon it a while, for it supplies the motive of much that is to follow. As yet we know it not, whence it cometh or whither it goeth, but at least this may be said of it: that it rolls on from the cradle to the grave dominating the man with an absolute domination; and of it he is in some measure the unconscious slave. Take the case of a man who is so extremely ill that you think there is no hope. You turn your back and he recovers completely. Instead of saying there is no hope it would have been nearer the mark to say that man cannot die, so dominant is that force in him that called him

¹ Read before the annual meeting of the British Medical Association at Cheltenham, July-August, 1901. — By the courtesy of the British Medical Journal.

into being. Many and many a mistake does the doctor make by underestimating the vitality of life. Take again the case of the being, not a very common one, I grant you, in proportion to the number who would have you believe that such is their desire—who want to die and cannot do so—their masterful vitality will not let them go. Think, too, of the number of times you must have seen and talked to a man or woman drinking himself or herself to death, and who, in spite of your outspoken declaration that there could be but one ending to such a course, he continues on the downward road after the same and perhaps accelerated fashion. He wills to reform, but there is that within him that is stronger than his will; his very energy of living eggs him on to his destruction.

Forced to obey even in his own despite his being's law.

The spirit of life has no knowledge of death. It is always eager, and death comes to it as a catastrophe by the fault or decay of its subordinate ministers—the brain, the heart, lungs, liver, skin, and so on. And this irrepressible living energy will carry on to old age a very weakly flesh. In saying this I think of the disappointed ones in the race, the tired, the painful; for I have come to the conclusion that there are those who are tired, who are full of pain, from early years even to old age. There are many of these who have missed their mark, who must be very weary of life, but the motive force of their being will not let them go. I suppose, too, that this ever restless, yearning life within us tends to show up the weaknesses of our bodily construction. It is, no doubt, only to be expected that with a restless, driving power within us, joints that are losing the polish of their early smoothness, bones that no longer allow of sureness of aim, tired bodies that need sleep or rest—organs, in short, that now work with labor that before ran riot in their unconscious ease—should, if stimulated, express their work in weariness that is perhaps worse than pain. Let me give an example: There are a large number of people who at the present day come and tell you that they cannot think or that they cannot concentrate their thoughts. I seldom find that the associates of these have observed any difference in them. They can, in fact, think well enough, only thought is conducted with a sense of labor now, whereas in times gone by it had glided on untold. Who does not know, too, of the common complaint of muscular fatigue, the man or woman who is always tired? The muscular apparatus works with conscious labor, and thus all the pleasure of living is taken away; and you cannot cure these people, because they are mostly people full of vital activity; the spirit within them is a willing one, but the flesh is weak.

Strangely tenacious is this initial energy. Decadent this part or that of the body may be, but the mainspring holds still; the suicide maybe, rebellious of its mastery, snaps it; or disease quells it by rendering its servants unable to subserve its purposes. But even this often only after

a long and weary struggle in which the prolongation of life seems almost a cruelty. And still more wonderful, anon we see this fundamental life struggling on for some time after its ministers have ceased to work, and the man as man no longer lives. What wonder, then, that with this force within us we feel, we even seem to know, that the purposes of nature are not consummated by death, or that the strenuous spirit of a Huxley should be found to exclaim that he would prefer hell to annihilation.

Now take these two points—the intricacy of the mechanism of the animal body, and the indomitable animal spirit of life that innervates it. How do these react upon the practice of medicine, and do we acknowledge the reaction as it exists?

THE DIFFICULTIES OF MEDICINE.

It is clear, without my laboring the point, that a body so composite as ours is so very delicate a machine that there must be many and many a case presented to us where we do not—many even where we can not—know what is the matter, and taking even the most favorable view of the progress of scientific discovery, it is probable that this will be so till time shall be no longer. We cannot know, because the intricacy of the machine hinders one in getting at the real facts; we cannot know, because even when we have got at the facts we cannot be sure that the remedies used will get at the disease.

When we come out of the aloofness of the contemplation of growth, nutrition, degeneration and death, to take part in the active grappling with these by stimulating this function and dulling that, in the attempt, in short, to arrest or stop disease, our difficulties become appalling; but this is quite unrecognized by most of those with whom we have to deal. There has been much interesting and perhaps interested talk of late about water-tube boilers, their intricacy of working and there excessive wear and tear, and the difficulty of their repair without stopping the ship. Now, supposing that such a machine as our modern warship could be worked automatically with hatches down, and that the only positive knowledge to be obtained of the condition of its entrails was by the observation and analysis of the smoke and the bilge water, by post-mortem examination at the breaking-up of old vessels and the recording where each had gone to pieces, would the progress of knowledge, think you, be very rapid in the evolution of the science and art of shipbuilding? Would the feeling of power to deal with the defects of the machinery as they arose be very robust in any engineer who had had much experience? Would not "I can" have to wait upon "I am not sure," and the result be some tangent from direct purpose? And, excepting the self-righting power of the living organism, which, from my present point of view, does but make confusion worse by rendering still more uncertain the real relation between means and ends, our naval engineer is in the same position as are we when we attempt to control or modify

function, for it is impossible to get at the organ that is implicated, and function and excretion are, so to speak, waste products, or, as I like to call them, ash. Take the liver or the bones as concrete examples. Of the bones and the exchanges that go on between them and the other component parts of the body I think we may say we know nothing, and yet no doubt they extract material from the general store that the general store is better without, and they return to the common stock material which is better adapted by the abstraction for the purposes of other parts. Then the liver, the largest organ in the body; its imports and exports must be enormous, and from the familiar way in which it is spoken of there cannot be a man in the whole world who does not think he knows all about it. But what are the facts? We know something about the physiology of the liver, but this knowledge has been mostly obtained by experimentation on the lower animals, by observations that occasional cases of disease afford us, and by certain inferences that we draw — very much at second hand — from the changes produced by disease in the organ. But all these things, valuable as they are, and without which where we should be I don't know, yet are very far from giving us that real and intimate knowledge of the living organ that we require to enable us to treat its diseases.

For example, there is not a soul in this room tonight who, if I asked him how and why gall-stones are formed, could give me any useful information on the subject. Yet thekerneled public flock to us for treatment, and expect to be cured. And when, alas, as often happens, drugs fail, they apply to surgery, which in that case is but a refuge for the destitute, for that is not the treatment of disease.

Then there is the question of hepatic stimulation of the liver by cholagogues — we still give our blue pill and podophyllin, and so on, and speak with early innocence of "touching" the liver, and so still perpetuate the idea that certain remedies go for the liver and increase its various secretions. I don't say this is all wrong, or that the remedies are not valuable in the conditions for which they are given, but all the positive experimental evidence that we possess I think goes to show that these remedies are chiefly intestinal in their action. And I instance them particularly because they not only show up the difficulties that an intricate machine causes us in obtaining information, but also another point too often forgotten — which, nevertheless, is constantly interfering with our inferences on the treatment of disease — that we send a remedy forth on one mission which we suppose it to have performed, whereas in reality its virtue has been expended in quite a different direction. Take the matter of pain — a pain with a definite cause, if only we can find it; but it is deep down in the recesses of our impenetrabilia, and it has absolutely no distinguishing feature — so that no human being can do more than say that it may be this or it may be that. A position this that would seem to claim

for the doctor all the patient's sympathy — it usually, however, meets with a great deal of derision.

Take next the vital element and its bearing upon the handling of disease. Here again we are often foiled when we would be positive because of the personal equation, as it is called, the individuality of the patient. When Mrs. Smith asked her doctor why it was that a particular pain possessed her, he is said to have replied with ready wit and no less truth, "Madam, it is because you are Mrs. Smith." And the lady no doubt thought her doctor a very amusing man, but she had not a glimmer of the great truth that had been administered in such an excellent coating. But, indeed, that "because you are Mrs. Smith" constitutes one of, if not the most, insuperable of the difficulties to framing any system of precise medicine, and over and over again fattens crass ignorance at the expense of real knowledge.

In the practice of medicine you cannot jump the fact that the inflections of your voice are not exactly like those of anyone else; and as long as the world lasts this variability of the living force, this individuality, will prevent the attainment of the popular desire — a cut-and-dried remedy — not only for every disease — that is no use to Dick when the remedy touches only Tom's variety; no, we want a remedy for every disease, and for every variety of it, as met with in the young and in the old, in the otherwise healthy and the unhealthy, under the specious garb of mildness or the pronounced type of malignity; that is another of the cruxes of medicine that the world wots little of. And then as part of the animal energy of man, of the spirit of life, perhaps the chief human expression of it, comes that wonderful indescribable something that we call hope. One hears talk of forlorn hopes, but hope is never forlorn; its spring is always light and buoyant, and it is as indomitable as life itself. Of all the unnatural conditions of which medicine takes count, perhaps none is so much so as life without hope. When hope flies out of the window death is lurking at the door, but in the good providence of God man cannot quench it, and I beseech you that you never try. And it is these attributes of hope, so indissolubly linked as it is to life, that constitute it indeed a thing to be reckoned with in our dealings with disease; for if not forlorn it has one characteristic — I will not call it a failing, for, after all, it brings more help than trouble in its train — it is generally blind in the matter of life to anything but the certainty of returning health. It is ever ready to ask three questions, and no more. What is the matter with me? What will cure me? And how long will it take? And to these it expects immediate and positive answers.

With human life, then, and hope before us we may pass on to the patient who embodies them, and to the doctor who, while also similarly endowed, has yet to influence and control them as best he may.

PATIENTS.

We must for a moment consider each of the two parties, their influence upon each other and thus upon the progress or otherwise of scientific medicine. Are we gradually surging on by a natural process of evolution to a perfect system of the treatment of disease? Is the management of the sick man and the ailing man in the present day as perfect as it might be? On the larger side of the subject—that of preventive medicine and the scientific knowledge of disease—it is obvious that great discoveries have been made in the recent past, and the dawn is surely breaking of a still more brilliant day. So far as this side is concerned, I think it may be said that we are steadily working upwards to that time when much of the present gross disease—tuberculosis, microbial fevers, etc.—shall be no longer; though even here, if there were time, I might pause to show how a weak sentimentalism sometimes steps in to delay the promise of the future; but in the aspect with which we as physicians are concerned, the daily treatment of disease, with all the manifold details of the aches and pains that flesh is said to be heir to, one cannot but feel that there is room for improvement, both on the side of the patient as on that of the doctor. Now, on looking over the field of disease, although it is said that the average duration of life is longer than it was, I neither find that medicine is less often in request nor that an ailing public is less in evidence. I am here to contend on the contrary, that we are growing more and more sensitive about our health, more impatient when the flies of ill health worry us, that we are crying more loudly for a cure for every disease, whether it be one that is commencing and curable or so advanced that—as, say, in a bad case of phthisis—the greater part of an organ is practically destroyed, and a restoration of its health impossible.

This is shown in several ways: in the first place the sick man wants to know too much. He wants to know what is the matter with him when it is not possible to tell him; moreover, he will have an answer, and if not, he thinks the doctor an ignoramus, and calls in someone else. How blind he is not to see, it seems so obvious, that in this complex body of ours there must be hundreds of little accommodations between the various organs and parts that it is impossible to explain or be sure about; that there must be numberless reactions that we cannot give a cause to; numberless conditions that will bear several interpretations; numberless others that cannot be labeled at all; numberless states that look grave, and yet if we could only peer a little into the future, get just one glimpse behind the veil, we should see were just on the turn towards health, and no matter what drug was given would do well—the cradle deaths of many an ignorant man's reputation; and numberless cases that seem to be doing well that are just on the verge of a catastrophe, and these the grave of many a competent man's success. Oh, if men would only think a little

more, it seems so obvious that they must then see that even the best of us are but gropers in the dark, and that ignorance acknowledged is no proof of want of skill; rather is it a proof of thought and of the highest devotion to the advancement of our calling. Any fool can give a name to a disease, if, as is too often the case, the letter satisfieth. But what if the name is wrong, and the name determines an important line of treatment; what if the letter killeth?

It is because the public will have a disease ticketed when there is no means of identification that these difficulties arise, and because it still sets such store by the man who plunges. How much better would it be if the obvious were better recognized, that the doctor is but mortal, and if others than ourselves could take part intelligently in our doubts and difficulties. And having got a name for his complaint, from either wisdom or ignorance, the patient thinks his physic tumbles out of the same slot, and that between the two he will be cured offhand. Someone comes into your room and says: "I have got to do this or that on a particular date, and you must get me well by that time." It is the doctor or his medicine that has got to do it; there is no thought behind, as there should be, of "Will my tissues or the disease allow of this being done?" There is no idea of doubt, none of the necessity of waiting to see which way the cat jumps, none that the powers of medicine are limited in all sorts of ways, and that there are numbers and numbers of instances where there is no indication whatever that medicine will do any good whatever; that waiting for developments or subsidences is the only skillful course. Waiting is derided as "Nothing is being done for me," and someone else is called in with a "Can't you do something?" "Doctor, I'm just stuck," said a poor fellow to me the other day, when all hope had left us, though keeping him radiant still.

And it is because life understands so little the common sense of this waiting, this doing nothing, this length of illness, and so on, that it understands so little the true value of consultations. The sick man or his friend has a rooted idea that when a second opinion is sought it is to set the first opinion right. Now the wise man is he who makes fewest; there is no man who never makes any mistakes, and least of all in medicine. Our uncertainties are so thickly strewn on all sides, that it is seldom that one is in a position to give a very positive opinion; but I think I may say, with an approach to certainty, that I am in accord with those who are in a similar position to myself, that the education of every member of the medical profession at the present day is so high, that it is seldom indeed that a consultation does not produce a well-thought-out and probable diagnosis from the practitioner in charge. It is not a case of right or wrong; it is not altogether a question of less or more experience; it is a meeting to discuss doubtful and difficult points, to which each party contributes an equal share. But so little is this the light in which consulta-

tions are regarded that it has become a saying that doctors in consultation always agree; doctors apart will always differ. I am constantly being annoyed, in all innocence, by being told that "I want a perfectly independent opinion," as if that were the last thing the applicant considered himself likely to get. An independent opinion too often means an opinion more in accord with the wishes of the patient than is the one which has been originally given. Doctors would be only too glad to discuss the doubtful points of a case with the patient or his friends, if those could be found who could appreciate them intelligently; but it is hardly to be expected that differences of opinion should be made much of when the sick man is unable to appraise them at their true value; puts trivial and important matters equally into the same scales of right and wrong; and when wrong always implies with them discredit. And discredit may come from the most worthless sources. For instance, one man may have ordered hot water for drinking, and No. 2 says drink cold water. It does not matter a mote in the sunbeam which of the two is drunk, but the symptoms change within a measurable distance of the alteration, and the undiscerning man puts it all down to "the new treatment." A change in the medicine is made, say more to ease the patient's mind than with any real expectation of influencing the course of the disease; and while one man reaps the credit the other has the blame, and each alike may be entirely innocent of the result. Then this morbid sensitiveness of people in the present day is well shown by the rapidity with which they fly to medicine. This fact is, I think, patent enough,—it is to the doctor, at any rate,—for the number of new drugs for all sorts of maladies, imaginary and real, that are being daily launched upon us is bewildering in the extreme.

A woman with migraine has gone the round of all the coal-tar products that were ever invented, as well as caffeine and other things, before she thinks of applying to our calling. Most people know all about lithia and piperazine and the respective merits of the various preparations of Carlsbad salts; they all have their own form of blue pill, which generally, from the look of the prescription, seems to date from before the Flood. They have their own special dinner pill and an aperient pill as well; they know all about podophyllin, and euonymin, and cascara. They take their bismuth and soda for indigestion, Mindererus spirit and Dover's powder for colds, camphor for cholera, chlorodyne for the stomach-ache; and one old gentleman that I have known, though he had been bred amongst doctors and was old enough to know better, was so enamored of drugs that he took a daily dose of gentian and ammonia as his lunch.

Then, too, with what impatience do men and women in the present day rush into the not always sufficiently repellant arms of surgery. A little pain unnerves them, and all they know of surgery is its successful side. It is a day of great things, and why should they not have the benefit

of these advances? And so with an ache here or a pain there they undergo an operation. The energy of life that I have so often spoken of knows nothing of risks; knows nothing of shock; will bear nothing of waiting and rest in bed, and the disappointment in consequence is often considerable, although the operation was a great success.

DOCTORS.

And now for the potter who has more or less to fashion this clay as it somewhat impulsively rolls along under the momentum of the wheel of life. The simile is not a good one, for the doctor is never a fashioner, although sometimes in the plenitude of his pride he conceives himself to be and then o'erleaps himself, not he, but his patient, unfortunately, falling on the other side.

What are we doing in this impatient, restless age to stem the tide, to stay the panic, to bid the people keep its head? I do not mean in the immediate present, for we always do our best for the patient according to our lights, but with our eye on the future and that continuous progress as individuals for which the Goddess of Medicine is marking time, and surely points us to. I do not doubt, I say, that every one of us does his best for the man that consults him, but I am not sure that in attending to the exigencies of the immediate present we do sufficiently take heed of the future. And our failings in this respect are closely bound up with those of our patients, for we in our place are so anxious to overlook nothing and to cure disease, so enthusiastic in our belief in our power to accomplish what we wish. First may be put a morbid readiness on our part to detect disease. Engaged as we are in this pursuit there comes a risk that we too little appreciate the wide range of health; that is, how good a state of health is compatible with numberless slight and even sometimes considerable departures from normal. We tend to make our standard too severe for practical purposes. I will take an illustration from the heart. Here is an organ in which there are numberless slight departures from a rigid normal, both as regards its muscular action and functions, which mean nothing as regards the longevity of the patient, but to which a morbidly tender medical conscience refuses the title of health. Over and over again in the present day a heart is said to be strained, or weak, or dilated, or even diseased as to its valves from a want of sound appreciation of what is to be considered health, not for the general, but for the particular. One would almost think from all the talk one hears about dilatation of the heart, strains in healthy young people from trivial causes, the grave conclusions that are based upon, perhaps, some slight displacement of the impulse, etc., that the heart is so fragile an organ that it needs to be coddled from the cradle to the grave. It is the fountain of life certainly, and therefore a very indispensable organ, but nature gives to our comely as to our uncomely parts a strength sufficient for their day, and there is a large margin for emergencies in every part. It is for this reason that I hate

the term weak heart. It collins, or worse, throws useless upon society, many an otherwise useful life. Hearts are either diseased or healthy, and, with its margin, it is a robust organ that is all the better for plenty of work. I tell you what it does not like, and that is luxurious ease, and one may well have a shrewd suspicion that many a one who coddles a weak heart dies of real disease which an indolent habit has produced.

Let me take another organ popular at the present day both with the doctor and his patient, and upon which both parties have, I fear, gone a trifle adrift. It shall be the stomach. Catarrh of the stomach is a term that is in most people's mouths, and it is a word that appears to have a strange satisfaction in the utterance. Catarrh is quite a sufficient disease, wherever it may be, to silence the anxious inquirer, and no more questions are asked. But, as I have said before, the stomach does not catarrh, at any rate readily. It is a good, strong, healthy servant, with possibly a prejudice or two, and, if you treat it fairly, is really, quite unlike most servants of the present day, most obliging and thorough. And even if, upon occasion, you do not treat it with quite that sensitive regard that it is entitled to expect, you may hurt its feelings, as any want of consideration is likely to do to a faithful handmaid who has done her best; yet it is only a momentary estrangement, a little domestic concern that wants no third party, such as rhubarb, or creosote, or salol may be, to rub the injustice in. A little carbonic acid to soothe its ruffled feelings, and a kindly sorrow and repentance on the part of the master, with a penitential fast, and things will soon come right.

And while on stomachs I hear a good deal of a so-called dilatation of the stomach. Now a true dilatation of this organ is a comparatively rare thing, and when it occurs it often needs, and is benefited by, rather heroic measures. But the great part of these so-called dilatations are due to a passive relaxation of our inward parts, and this to the bankrupt condition of our abdominal brains. These and quite a number of other abdominal displacements are so common without any symptoms of any kind, that it is certain the condition is only a disease under special circumstances, and those special circumstances have more to do with the individual than with his displacement, and their best treatment is to let them severely alone. But the public won't have it. Who does not know the difficulty there is in preventing people from undergoing a serious operation for the purpose of stitching these harmless mobilities — for it is only quite exceptional that it is otherwise — into their places. It is the same in many another region, throats and noses suffer terribly from this lust of operation that has beset the public. Ears are now being swept into the panic, and I incline to think that the only region of our art that preserves its proper decorum is that of ophthalmic surgery, and it, I believe, reaps the reward of well doing that is usual in this topsy-turvy world in being regarded by the *élite* as somewhat old-fashioned, and so it is supposed to be the thing to

go abroad to skim the cream of skill. But let me quit the domain of medical surgery to take up the question of our administration of drugs. It is told, as many of you know, of the late Sir William Gull, that upon a doctor excusing himself for not having discovered the existence of a particular disease, he remarked that it was as well he had not done so, for if he had he might have treated it.

DRUGS.

Now, why do we give drugs? To cure disease, you answer at once, and think the question unnecessary. But wait a minute; we give drugs for several other reasons, some of which are far less free from criticism. For example, drugs are often given, not because the disease demands one, but because the patient is not happy till he gets it; too often he is not happy even then. They are given sometimes to hide our ignorance I fear, or to mark time while we watch and wait; they are given sometimes as a gambler on the Stock Exchange speculates in "futures," an enhanced reputation being the windfall that it is hoped to secure; and then we often give drugs as an experiment, in the hope that they may do good. I will deal with this last more especially, for it is a reason for giving drugs about which the public are peculiarly sensitive and ill-informed. It is often said as a matter of prejudice against the hospitals of our country — than which none could possibly be conducted more humanely and considerately — that the patients are made the subjects of experiment. So they are; but this happens not only in the hospital. If it be true — and it is true — that you and I are unique in our way, and that it is this individualism of man that constitutes the great barrier of the evolution of any system of medication, it follows that each new patient who demands treatment is more or less a case for experiment, and it is by experiment of this qualified kind — upon the king as he sits upon his throne, as for the poorest being within his realm — not only that the value of drugs is established and new powers gained over disease, but by which an increase of knowledge of disease itself is gained. The cure of disease is always the fundamental object; but not far behind it should come the alert eye to watch the deviations from the hypothetic normal which the individual resistance or the drug in its action may show in the course of the case.

All treatment by drugs is more or less of an experiment, and it is, indeed, in this fact that the enormous number of new drugs daily poured upon us finds its justification. Many and many an ailment that afflicts mankind badly needs a remedy, but for which, as yet, no remedy is opportune; and who knows but what in each new drug some human ill may find alleviation? A chemist's shop is indeed a source of wonder and dismay to me, and I could indeed wish we were less the prey of the manufacturing chemist, but I would not for a moment even seem to discountenance new remedies. What I would discountenance is the giving drugs by rule of thumb. Diseases run in fashions;

I have mentioned one or two that seem to me in fashion now, and there are fashionable drugs which, while the sun shines upon them, become the darlings of society. Their popularity is enormous—far in excess of their merits; and by and by they sink into the cold shade of neglect. Who does not even now remember the boom of the antipyretics? A few of them have remained to us for other purposes; but as antipyretics, who gives them now? They are not by any means valueless when given appropriately, but they were rushed for more than they were worth, and they are now buried by later booms, such as animal extracts and antitoxins, and many of these will be buried, too. And then as to routine in the treatment of disease. I suppose there is not a single case of gout in the whole world that has not had sodium salicylate and other easily enumerated drugs, and had them freely; and why? Because they are supposed to eliminate the cause of the disease. I find that the British public knows far more about uric acid and how to deal with it than I do with all my pains; and what men think they know in this respect, I fear that we, in the first place, and vulgar advertisement in the second place, have taught them. Yet I cannot understand how any reflective mind, making a careful study of gout in its clinical aspect, can settle down and bury itself in the doctrine that gout is a mere question of intake and output, and, if not, think of the harm that is done by false doctrine of this kind upon the thousands who are engaged in the hopeless struggle of dispossessing themselves of their fetish.

The open-air treatment of consumption, of which we are hearing much at the present day, is also bidding fair to come under the baneful influence of routine; "the new treatment," though it is hardly a compliment to our environment to call it so. What, think you, does the consumptive and his friend see in this? He sees a residence for a few months in a home, and a cure at the end of it. Is that what he has any chance of obtaining? Certainly not, and in proportion to the exaggerated hope will come the bitterness of the disappointment to the sick, and the discredit to us. The benefit to be obtained in these sanatoria is that there will be learned a habit of life—what we mean by plenty of good food and plenty of fresh air; and having learned his lesson the tuberculous man will need to practise it all the rest of his life. There is no cure in this treatment as the sick man understands cure; for although it is true that there is no disease that is more often arrested than phthisis, it is equally true that there is no disease that has a more inveterate tendency to relapse, and I very much fear that when you come to strike the balance between arrest and relapse, that the latter has the best of it. Therefore if the open-air treatment is to take its real place and be of any abiding value, the principles of the sanatorium must be introduced into the home.

And that reminds me of another fashionable idea that is now in vogue, and I will call it medi-

cal antiseptis. Antiseptics in lung disease have had a long day, tempered only by a momentary fall into heresy when it was proposed by those who ought to have known better that we should be converted into gasometers for the storage of sulphuretted hydrogen, and this was to cure consumption! I only mention this to show how much we need to keep our imaginations in check in thinking over the cure of disease. However, antiseptics in the lung from all the many inhalations up to iodoform, and finally creosote internally, have had a good innings and have not been without their minor successes; but it was very mete and right that the comparative inefficacy of such nauseous medicaments should drive us back into the arms of the great original antiseptic,—fresh air. And perhaps for that reason we have now turned a somewhat cold shoulder to the lung, and are directing our efforts to rendering the intestinal canal antiseptic, and I hear daily of creosote and salol and all sorts of other well-meaning drugs being sent on this errand of reform. Far be it from me to deery the value of useful remedies, but I cannot help asking myself the question whether the staunch believers in intestinal antiseptis possess sufficiently cultured and liberal-minded noses to be good advisers to our intestinal apparatus. It is quite evident that stercorin, however much so to us, is not a *persona ingrata* to our colic mucous membrane; it is indeed bone of its bone; and it is possible that we might be none the healthier men and women even if our doctors got their wishes in this respect.

One other drug only will I wish to mention to illustrate my point, and that shall be the use of the bromides in epilepsy. Now that these are useful drugs in this complaint no one will question today. But long ago it has gone forth from those who are in authority in such matters that after a person has suffered from epileptic fits the drug must be given regularly in considerable doses, and for long periods of time—a year or two, or more—to prevent their recurrence. And this advice is very generally acted upon. There is no doubt that it has become the routine treatment of epilepsy; and as such I think it often does a great deal of harm, and I am by no means certain that it does any equivalent good.

THE DANGERS OF ROUTINE AND FASHION.

Now all this routine and fashion, and remember I have only taken one or two instances out of numbers that lie at my hand, I object to, and I do so because it all tends to establish false relationships between the doctor and his patient; and let me attempt to show you how. The patient first of all asks us for a name to his disease, and whether we know or not we give him one. In so doing we, as I say, speculate in "futures," and that is a form of business that very often ends in bankruptcy. No remark is more frequent at a consultation than that we must give a name to the disease. I object to giving a name to anything I am not sure about, and when a man says to me, "That is all very well for you, but it would

never do for me," I object still more, because the general practitioner is the great instructor of the public in matters medical. I have not a tithe of the influence that he has, and by giving names to symptoms that are doubtful in their significance he is first of all losing an opportunity of insisting upon the dignity of ignorance; then he is conveying to the public the erroneous notion that we have the power of insight into problems that are at the time inscrutable, and we ultimately end in deceiving ourselves into thinking that we know much more than we do,—an idea that is fatal to the progress of knowledge. There are hundreds of examples that might be given, but the various febrile disorders are the most fertile in discords of this sort. It is often absolutely impossible in the early days of typhoid fever to say what is the matter; equally is it absolutely impossible in many of the eruptive fevers to say what of several things will eventually declare itself. It is not ignorance, but knowledge, that halts. When I first entered Guy's Hospital some thirty-six years ago, it was a common saying about one of our staff at that time, and certainly one of the best physicians of that day, that he knew so much that he could but seldom be prevailed upon to give a positive diagnosis. And it is true, as Sir Arthur Helps says in the book from which I have borrowed the title of this address, that knowledge brings doubts and exceptions and limitations that are all hindrances to vigorous statement.

Then a word about the evil of letting the public force our hand in the matter of drug taking. I have already alluded to routine as destructive of all scientific observation, enabling as it does the giver to see only cures and nothing of failures, though they be in very truth staring him in the face. But I am now alluding especially to the numberless occasions when drugs are given, there being at the time no distinct indication for giving anything. There is no doubt that this is a very common and bad fault with us. I do not say it must never be practised. There are times when the sick are not reasonable beings, and unless they have a bottle of medicine to anchor their faith to (oh, shifting sands!) they are in a state of unrest that is positively harmful to their progress. But there are multitudes who are not in this parlous state, who are capable of listening to reason, but who as now, having been taught to look for their prescription or their bottle of medicine, have no idea of the value of advice only, or of the need of the watchful eye. Why, we are all familiar with the "Are not you going to give me a prescription?" when you have been pouring in advice with much prodigality of tongue, and had flattered yourself that you had gained a disciple; and there is no need to go far to be absolutely sure that the great body of the public, rich and poor, pay for our prescription, and that they do not value by a button any advice that lies outside it.

But I think there is another reason for this

indifference to the value of advice which, although it is perhaps one that savors of the sordid, I must nevertheless touch upon. I have often inwardly contrasted the two professions of law and medicine, how in the one advice pure and simple is sought and found, and the givers thereof acquire positions of milk and honey, and find themselves mounting to the high places of the land. In the other, medicine passes for the consideration, and, well! the sellers thereof do not seem to possess themselves of many coveted places of honor. And if you ask me why this is, I believe it to be because we make ourselves too cheap. Advice—just think of it! A product of so unique a value that when a man of great experience in the world of medicine dies his knowledge dies with him; no other man can supply his place, and there is a dead loss to the community of a mine of unrealized information. You all know that very clever signboard in which a bullock is seen gazing yearningly upon a small jar of meat extract and exclaiming, "Alas! my brother." But I often wish that I could put my brothers as they flit from off the stage; my trouble is that my masters die unbottled. And yet we "give" advice, and there are those in number who not only accept, but ask the gift. Oh, dreadful degradation, that advice, a priceless article, should fall in value below cheese and butter.

It is told of the late Sir Andrew Clark, with what truth I do not know, that when he was asked to give gratuitous advice he said: "No; but I will give you the money with which you can purchase it." Whoever said this was a wise man; for on the one hand there was in the answer the generosity that knows no bounds of medicine to poverty; there was on the other the dignity and self-respect that fully understood the preciousness of the knowledge that he had the power to impart; and we shall never make the public understand the true position of medicine until we set a higher value upon *ourselves* and upon the *advice* we give.

What better illustration could there be of the inutility of thus giving ourselves away, than that so shrewd and penetrating and fair-minded man as Mr. Joseph Chamberlain, in so grave a matter of right and wrong as the question of cheap consultation, should have declared that the question was settled by medicine upon the strictest trade-union principles; and that another man, equally hardheaded, if erratic, should agree upon that point, and then proceed to define trades unionism as "doing the worst possible work at the highest possible price." Cheap consultations! Philanthropy has indeed there got hold of the wrong end of the stick. Why, it is notorious that such is the generosity of medicine that there is not a needy person in the whole kingdom who cannot, if he need it, obtain the best opinion in the country gratuitously. The clergy, the army, the navy, artists, actors, actresses, clerks, artisans and others pour into a doctor's room or the hospital, asking alms in the shape of advice and never get a refusal. And after it all we are insulted by

being called trades unionists—"men who do the worst possible work at the highest possible price!" And I honestly believe we have ourselves to thank for this in great measure, for we belittle the value of our advice in allowing the public to exalt so greatly the supremacy of physics.

The laborer is worthy of his hire, is but one side of the question, and not the best side, for it might be held to cover many a sordid act; the other and much the more important is surely this: "See to it that the hire is worthy of the laborer." And although expressed in these terms the face value may seem to be one of low ideals, I am far from thinking, as I speak, of any money consideration, but of the higher and nobler recompense of dignity and self-respect. And it is, in part, because I think that to careful observation it must seem that the very nobleness and generosity of medicine does tend somewhat to make us forget the importance to its well-being of these just rewards that I have chosen this subject for my address tonight.

On, then, my comrades, in your noble work, till other voices, other years, shall bid you pause in other ways, according to their seeming. Mark well the hindrances to our onward progress that together we have traced tonight, be more than ever heretofore the steersmen at the helm, to guide the sometimes teasy ship between the troubling eddies of the passing thought, and then your greater selves, firm anchored in "the spirit of the years to come," need reckon not

Lest the cause ye love
Should languish when your tender, toil-worn hands
Are crossed in peace beneath the daisied sod!
The Means was old and perishable prove,
The End endures eternally, and stands
Above the ages, face to face with God.

Original Articles.

DEMONSTRATION OF A MODEL OF THE ABDOMINAL VISCERA.¹

BY THOMAS DWIGHT, M.D., NAHANT, MASS.

A TECHNICAL discussion of the various investigations carried on in the anatomical department of Harvard would probably have no great interest to the body I have the honor of addressing. I prefer to speak rather of principles and to show a model, which, apart from any intrinsic interest it may have, is an illustration of those principles. As the society knows, I have devoted myself for many years to the study of variations and anomalies. I have striven in my teaching to popularize the fact that all men are not, so to speak, cast in the same mould, and that the study of the variations is by no means a matter of merely scientific interest, but one of real value to the practitioner. A notable point is the change in methods and scope of anatomical teaching. For instance, the study of the details of arterial anastomoses and of nerve

distribution, though not neglected, are much less considered than they were a dozen years ago; while on the other hand the study of the viscera is commanding a continually increasing attention. The method of frozen sections, which I believe I introduced into this country, the making of reconstructions from the same, and the use of formaline as a hardening agent, have enabled us to get a knowledge of the real shapes of viscera, of which anatomists thirty years ago knew little more than was known after the rise of modern anatomy. One or two general conceptions of great value have become by this method very familiar. One is the total absence of free spaces between organs, the other the fact that in growth one organ is moulded upon another, and more remarkable, that it is the hollow organs that seem to determine the shape of the solid ones and not the converse. Certain glandular organs which in the adult seem very resistant, have in fact grown by forcing their way in between others in the line of least resistance.

Whoever searches diligently for anatomical variations is sure to be rewarded not only by finding what he looks for, but occasionally by coming across remarkable anomalies. Among the curios I have found I will merely point to this case of total absence of the right kidney, to this of the aortic arch crossing the right bronchus, and to this of absence of the inferior vena cava below the diaphragm.

I now come to the task of showing this model of the abdominal viscera, enlarged three times on a linear scale, the work of Mr. James H. Emerton. For its proper understanding the condition of the body and the method of hardening must be described. The body was that of a young and slender man. The thorax had been opened and used for the demonstration of the viscera within it, but the walls of the abdomen, including the diaphragm, were quite intact. As the body had already been injected with a preservative, and the arteries with a colored mass, it was not possible to inject the formaline. I resorted, therefore, to pouring a solution of it down the gullet, and to having it carried onward by gentle manipulation of the abdomen. This was done so thoroughly that the viscera were most perfectly hardened. The stomach and the intestines were, of course, distended, but happily not distorted, so that the model shows the condition they present when full to the utmost. The model was made from a series of plaster casts taken by Mr. Emerton. First, one was taken of the surface of the upper portion of the abdomen, after removal of the walls and of the diaphragm. The liver was then removed and the process repeated. Next, the stomach was taken out, and so on. From these plaster casts this large paper model was prepared. The viscera shown are the liver, the stomach, the duodenum and pancreas, the spleen, the kidneys with the suprarenals, and the traverse part of the colon with the two flexures. The aorta, the celiac axis with its branches, the trunk of the superior mesenteric artery, the inferior cava, the portal vein

¹ Read before the Massachusetts Medical Society, June 12, 1901.

with a part of the two large veins which chiefly form it, are also shown.

The model as a whole (Fig. 1) gives a good idea of the compactness of the arrangement of the parts. A striking feature is that the liver extends across the entire breadth of the abdomen. I am

when fully distended. It disposes of the old idea, which, however, has been contradicted, that when the stomach dilates it swings forward, the greater curvature advancing and moving towards the right. The entrance of the gullet is much nearer to the front than to the back. The upper

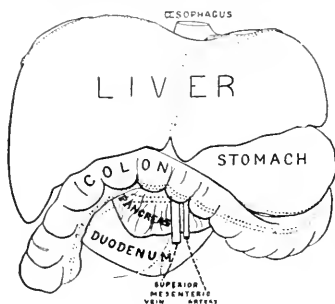


Fig. 1. Front view.

inclined to think from the study of other specimens that this is by no means very uncommon. There are different forms of livers. This one (Fig. 2) has a long and thin left lobe, in marked distinction from another form of which I have a cast, in which there is great depth and solidity of the right lobe. Very probably the amount of liver tissue in the two is about the same. The moral is that it is not easy to determine clinically whether or no a liver is enlarged. On removing the liver we obtain a good view of the stomach (Fig. 3). It shows at a glance that the lesser curvature is nearly vertical, even in a distended stomach, till near the *antrum pylori*. There is a line across the stomach which corresponds to a ridge on the liver fitting into it. I do not believe, however, that the ridge is the cause of the line, because when we look at the back of the stomach we see at the same level another depressed line, if anything more marked than the anterior one.

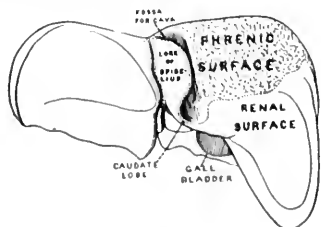


Fig. 2. The liver from behind.

This shows a tendency of the organ to be divided into an upper and a lower half, an exaggeration of which produces "hourglass-stomach." This is seen also on the left side of the model (Fig. 4). The model of the stomach is moreover interesting as showing the shape of the organ

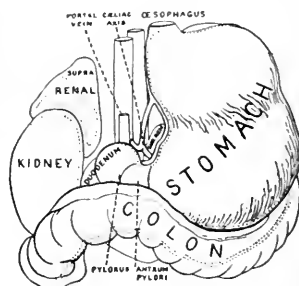


Fig. 3. Front view, the liver being removed.

half of the stomach dilates chiefly backward and the lower half forward, as the side view of the model well shows. While it is probable that owing to the absence of the thoracic viscera the stomach and colon pressed the diaphragm upward to a degree that would not otherwise have occurred, it is clear, to me at least, that the stomach cannot, under normal conditions, really occupy the place it would seem to when shown by internal illumination.

Before proceeding to the deeper parts of the preparation it will be best to notice the colon (Fig. 1), which is in a highly distended condition. It moulds itself in a festoon under the right lobe of the liver and along the greater curvature of the stomach. The position of the splenic flexure in a pocket between the spleen, stomach and left kidney is worth noting. The part under the liver completely compresses the fundus of the gall bladder. The double line

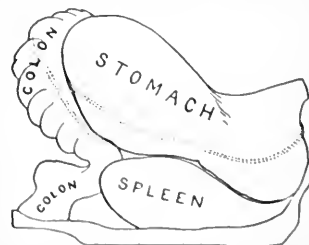


Fig. 4. Seen from the left, the liver being removed.

along the colon represents the attachment of the great omentum, which is seen on the under side of the colon on the right, and gradually crossing it to reach the upper surface on the left. The extreme distension of the stomach of course modifies the position of the colon, which if the stomach

were empty, would be in much more extensive relation with the liver and would encroach on the diaphragm.

On removing the stomach, liver and colon (Fig. 5) we come to the, to me at least, most interesting part of the model. We see the spleen, nearly the whole of the right kidney, a part of the left, both suprarenal capsules, pancreas and duodenum.

The spleen, like a large proportion of spleens, is a good deal removed from the conventional type of the organ. Cunningham's basal surface is hard to make out. About the hilum there is a tendency to excessive lobulation, which makes the organ all the more peculiar, though this tendency in itself cannot be called abnormal.

The shape and position of the suprarenals are very well shown, but require no special comment.

The duodenum is very instructive. The four parts are readily recognized. I could have wished it had been different, for I published some time ago some observations on a considerable series, by which I showed that the third part of the duodenum crosses the aorta (which is considered the normal relation) only once in four cases.

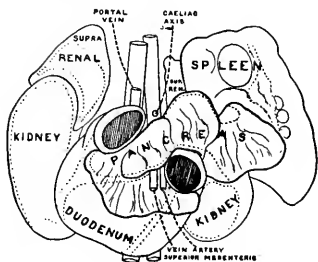


Fig. 5. Front view, the liver, stomach and colon being removed.

Here it crosses it most unmistakably. In the same paper I denied that the fourth, or ascending part on the left, is ever in front of the left kidney. I cannot deny that it is here in front of that organ, though to but a slight extent. I conceive that the latter peculiarity is in this case due to the extreme distention of the gut. In any case the model shows the relations as they were in this case; but I consider the condition exceptional. The pancreas is of all the organs the most remarkable. Those not used to hardened specimens would probably not hesitate to declare it absolutely irregular. For my part I hesitate to say just how irregular it may be. In fact I am convinced that some of the features that seem irregular to those trained only in old-fashioned anatomy are, though in a less degree, not uncommon, but even normal. It shows admirably how this organ develops by moulding itself on its neighbors. We see how it tends to embrace the end of the first portion and much of the second of the duodenum, curling round it behind as well as in front. The most remarkable thing about it is the great development of the head, which over-

laps not only the third part of the duodenum, but extends across the fourth to its very left border. It is, I am sure, very common, if not the rule, for the head more or less to overlap the duodenum; but I have seen nothing like this excessive extension of it to the left. Clearly, however, like the liver, the pancreas grows as it can, and the essential in its development is to find room for a certain amount of pancreatic tissue rather than to have this in a definite, conventional shape.

This is one of the vital facts that modern anatomy is emphasizing. For these studies we need many observations. If we show nothing but the range of variation we have done the clinician a real service.

THE ORIGIN OF OXALIC ACID FROM PROTEIN AND PROTEIN DERIVATIVES.¹

BY ARTHUR E. AUSTIN, M.D., BOSTON.

THE question as to whether oxalic acid is a metabolic product or is only due to the elimination of that taken in the food when found in urine and feces, has become more and more a matter of importance during the last few years. Helen Baldwin in an excellent article² has given a very valuable reference to the investigations made by others, and has also apparently established the origin of oxalic acid from the fermentation of carbohydrates without having been able to establish what fungus or organism appears to be the originator of this product. Nevertheless, this effort of hers is a step in the right direction, and has offered me a great deal of assistance in the attempt which I have made in elucidation of this problem. In addition to the references given by her there have also appeared the investigations of H. Luthje,³ from the abstract of which⁴ we learn that in metabolic examinations on dogs, he has been unable to show any connection between the amount of oxalic acid eliminated during fasting and during feeding upon large amounts of sugar, fat and horse flesh; nor was the amount of oxalic acid eliminated from a diet of thyroid gland and nuclein distinctly increased.

During the last year investigations have been made by Salkowski,⁵ who has demonstrated upon dogs no particular increase in the elimination of oxalic acid, in mixed diet over that in hunger, or from feeding upon eukasin, which is a preparation of casein. Further, F. Lommel⁶ has demonstrated that, while the greater part of the oxalic acid is the result of metabolic processes, a diet, rich in albumins, gave no special increase in the elimination of oxalic acid. He also concludes that the oxalic acid in the urine and feces forms only a small part of that which is ingested; in other words, a great portion of it is decomposed in the body. He found that food rich in nuclein

¹ Read by invitation before the Massachusetts Medical Society, June 12, 1901.

² *Journal of Experimental Medicine*, vol. v, No. 1.

³ *Zeitschr. f. klin. Med.*, xxxv, 271-282.

⁴ *Jahrb. f. Ther.-Chem.*, xxviii, 584.

⁵ *Berlin. klin. Woch.*, xxxvii, 20.

⁶ *Centrbl. f. d. Med. Wissenschaft.*, 1899, No. 16.

gives an increase in the amount of both oxalic and uric acid eliminated. Encouraged by these results to follow up this subject a little more closely, experiments were made with digestions of different forms of albuminous materials, excluding the fermentative processes by means of thymol solution. Parallel experiments were also made with similar solutions of albuminous material, encouraging fermentation as much as possible, both by excluding the thymol and by infecting the solutions with fecal matter. This was done, notwithstanding the fact that Salkowski and Leube, in their work on the examination of urine, state distinctly that oxalic acid has never been produced from albuminous material by means of digestions. In this connection efforts were also made by means of heating albuminous material with barium hydrate at a temperature of 150° for periods of 8 hours and over, to produce oxalic acid from the same. The detailed results of these experiments appear as follows: •

(1) One gm. of casein and one-half gm. barium hydrate were heated in a closed sealed tube for 8 hours, then the substance was extracted with boiling alcohol, acidified with HCl, three times, the alcoholic extracts united, filtered, evaporated to dryness, taken up with distilled water, decolorized with animal charcoal, filtered, precipitated with CaCl_2 , then neutralized with ammonia and weakly acidified with acetic acid. This was allowed to stand for several days, but no oxalate of calcium was found.

(2) The same experiment was performed with 5 gm. casein, 5 gm. peptone, 5 gm. gelatin, 5 gm. egg albumin, but always with negative results.

(3) One gm. of peptone, 1 gm. albumin, 2 gr. pepsin, 50 mg. HCl, were digested in a brood oven 2 days, then removed and subjected to the previous process for the extraction of oxalic acid, but none could be found. A control test was made with the same ingredients, except the pepsin, which was inoculated with a small portion of feces. The extraction was made as before, but again with negative results.

(4) Five gm. of egg albumin, 2 gm. pancreatin, 100 cc. 3% solution of sodium carbonate were digested for a week, and, as a control, the same solution less the pancreatin, infected with feces, was digested for the same period. Both were extracted as before, but no oxalic acid was found.

(5) Six gm. boiled white of egg, 800 cc. 3% sodium carbonate solution and 1 gm. pepsin were digested for 10 days, and a similar control with the same ingredients without pepsin, but infected with feces, was digested for the same period and then again extracted, but also with negative results.

(6) Ten gm. casein, 1 gm. pancreatin, 200 cc. 3% sodium carbonate solution were digested for 2 days and controlled with similar ingredients less the pancreatin, infected with feces, which were digested for the same period; then both were extracted, but again with negative results.

(7) Ten gm. of gelatin, 1 gm. pancreatin, 500 cc. 3% sodium carbonate solution were digested

for a period of 6 days and controlled with the same ingredients less pancreatin, infected with feces, digested for the same period, when both were extracted. It was again impossible to find any evidences of oxalic acid in the extract. The impossibility of obtaining oxalic acid from gelatin seems especially surprising, since this substance from its molecule containing a large carbohydrate group would seem to explain the successful efforts made in obtaining this substance from sugars. Perhaps the proper organism was not introduced, and, until that is determined, we can never be sure that oxalic will or will not be formed.

It was evident that all these substances had undergone thorough decomposition, as proved by the presence of ammonia where barium hydrate was used, of peptones in the digestive products, and indol in most of those which had undergone bacterial decomposition; yet no oxalic acid was found in any. It is possible that the method was too crude for the detection of such small quantities, yet it is one recommended in toxicological examinations. The method of Bischoff was also employed in some of these examinations, in order to exclude the possibility of calcium carbonate being present, which was frequently found and which simulates the oxalate of calcium very closely in its oval forms. This method consists in dissolving the colored residue produced by the first precipitation with calcium chloride and ammonia, which fails to dissolve by the addition of small quantities of acetic acid. This can be readily accomplished by sedimenting this residue with the centrifuge, and then digesting it in 30% acetic acid after washing two or three times with water. The remnant is then thrown upon a filter, washed once more with water, and then dissolved upon the filter with hot 25% HCl, and after cooling the filtrate is again neutralized with ammonia. Even in cases where this method was employed the results were invariably negative.

(8) The next attempt was made with a much more complex substance—brain matter—and 100 gm. of evenly divided calves' brain were digested with 500 cc. 3% sodium carbonate solution, 5 gm. pancreatin, with a drop or two of thymol for 5 days. It was then extracted in the above-mentioned manner with the Bischoff modification, and positive results were reached; both oval and quadrate prisms with four-sided pyramidal ends were found and proved to be oxalate of calcium crystals, both by their insolubility in acetic acid, as well as by the absence of carbonic acid, which excludes calcium carbonate.

As a control test, 100 gm. of calves' brain, 500 cc. 3% sodium carbonate, 5 gm. pancreatin, inoculated with fresh feces, were digested in a brood oven for 5 days, and then extracted in the usual manner. Again, oxalate of calcium crystals were found, both oval and octahedral, which were verified in the above manner. Of course there remains only the possibility that the oxalic acid was preformed in the brain substance, since Salkowski found in 1 kg. of calves' liver respectively, 10.66 and 8.73 mgm. of oxalic acid,

and in a kg. of ox liver 12 mgm. oxalic acid, less in muscles and none in pancreas. To prove this possibility 1 kg. of pigs' brain finely chopped was cooked out repeatedly with water, with the addition of enough acetic acid to coagulate the albumin, and the concentrated watery extracts were manipulated according to the newer method of Salkowski, which is as follows:

Two hundred cc. of the fluid, to which 20 cc. of hydrochloric acid, specific gravity 1.12, have been added, is shaken three consecutive times with ether alcohol 1 to 10, and then the alcoholic-etheral extracts evaporated to a small volume; 15 to 20 cc. of water added, when it is again evaporated with the addition of water, if needed, to render it clear, reduced to 20 cc., whereupon it is allowed to cool and filtered clear. The precipitate is washed lightly with water and the filtrate neutralized lightly with ammonia, the acetic acid added until it is weakly acid, and then 1 to 2 cc. of 10% calcium chloride added. By this method, which appears very satisfactory with Salkowski, there was obtained oxalic acid from the fresh well-washed brain substance. In the second attempt, in which a quantitative estimation was made, 8.51 mgm. of oxalic were found in 1 kg. of the brain matter. Since this substance is so almost universally found and in such varied tissues, it is very probable, perhaps almost demonstrated, that it is a metabolic product. This is further substantiated by the fact, as demonstrated by Salkowski and others, that even after 14 days of absolute fasting this acid can still be found in the urine; and furthermore, that on account of the insolubility of the calcium salt, the form that the acid must assume after entering the intestine, absorption must be very difficult, apart from the stomach, while the short stay of the food in this organ still further reduces the possibility of its absorption. Assuming, then, that it is a metabolic product, and can be found, as in this instance, in the brain, we have to consider some of the various substances of which the brain is composed, by means of the retrograde metamorphosis, of which it is possible that oxalic acid may be derived. Some of these which were examined were lecithin, glycecoll, nuclein, mucin, stearin, tyrosin and uric acid. There is also a group of protagonists which I hope at no distant day to investigate, and which form a specially hopeful field on account of the carbohydrate group which their molecule contains, and which is so marked that already the estimation of protogen in nerve tissue has been made by the strength of their reducing power when converted to sugar by cooking with acid. A detailed account of these experiments is given briefly as follows:

(10) Fifty mgm. of glycecoll and 200 mgm. of ammonium carbonate were heated in a closed tube at 150° for 8 hours. The resulting product was digested for 24 hours with water and enough hydrochloric acid to make it slightly acid to litmus, then filtered, washed, neutralized slightly with acetic acid, a small quantity of calcium chloride solution added to ensure an excess of calcium,

and then half the quantity of alcohol added; a slight modification of the method of Dunlop, but no crystals of oxalate of calcium were found.

(11) Five hundred mgm. of stearic acid and 1 gm. of ammonium carbonate were heated in a closed tube at 150° for 8 hours, and the product extracted in the same way, but no oxalic acid was found.

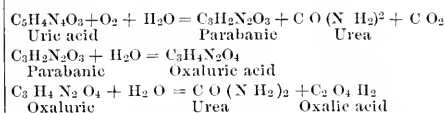
(12) One hundred mgm. tyrosin and 1 gm. barium hydrate were heated in a closed tube 8 hours at 150° and extracted in the same way, but no oxalic acid was found.

(13) One hundred mgm. nuclein and 1 gm. barium hydrate were heated and extracted in the same way. Crystals were found, both round and oval, which were evidently calcium carbonate, since they were soluble in acetic acid with effervescence.

(14) One hundred mgm. lecithin and 1 gm. barium hydrate were heated and extracted in the same way. No oxalate crystals were found, but crystalline needles, which were probably stearic acid.

(15) One hundred mgm. uric acid and 1 gm. barium hydrate were heated and extracted, and numerous well-formed crystals of calcium oxalate were found.

(16) One hundred mgm. mucin from bile were treated in the same manner, but with negative results. As is readily seen, all these results were negative with the exception of uric acid (15), a result which shows the close association between uric and oxalic acids, probably through the intermediary product known as oxaluric acid, and brought about by a combination of the processes of oxidation and hydration, as shown by the following formula:



It is noticeable that during this reaction two molecules of urea are given off. As the process of hydration seemed most actively employed in the meagre results already obtained, all of these products were submitted to mixed fermentation, in hopes that the activity of the ferment organisms might accomplish what other chemical means had failed to do, as follows:

(17) One hundred gm. each of lecithin, uric acid, glycecoll, mucin, nuclein, tyrosin and stearic acid were suspended in 50 cc. water, each in its own flask without stopper, and placed in the brood oven at a temperature of 38°-40° for 23 days, when all were removed and examined under the microscope for any changes that may have occurred; no change was found in any except the nuclein, which showed numerous yeast cells, and the glycecoll, which showed a mass of mycelium.

Each of these solutions was then alkalized slightly with sodium carbonate and again placed in the oven for 21 days, when they were all extracted by the modified method of Dunlop. The

nuclein, lecithin, mucin, tyrosin and stearic acid showed negative results, while the glycocholic and uric acid both showed beautiful crystals of calcium oxalate, whose origin was, of necessity, from these substances, and which were verified by their insolubility in acetic acid. These experiments, repeated with these two substances, showed the same results. If, then, this conversion of uric acid to oxalic could take place by bacterial decomposition in pure solution, it was to be anticipated that the same action would take place in urine, where both were present, if allowed to decompose, and an explanation would be offered of the well-known increase of the calcium oxalate crystals in old urine, an occurrence hitherto attributed to the conversion of acid phosphate, the natural solvent of this substance, to the neutral and alkaline phosphates which have not this power, and the consequent precipitation of the oxalate. This could explain a precipitation, but never an increase, while an increase would naturally explain a precipitation in a previously saturated solution. Furthermore, Huppert, in his "Harnanalyse," page 321, says that oxaluric acid may undoubtedly arise from the action of micro-organisms on uric acid, while oxalic acid may be obtained by splitting the oxaluric acid by boiling, but gives no evidence to substantiate the former statement. Here we have been able to carry this evolution still farther, and to say that micro-organisms can also split off the oxalic acid without the aid of cooking. The series of experiments which follows was based upon the fact that if the uric acid and oxalic acid were estimated quantitatively in a urine while fresh, and then they were subsequently estimated in the same urine after it had undergone fermentation, the comparative amounts of these two substances found would verify or disprove this assumption; accordingly, from several litres of fresh, well-mixed urine, two portions of 500 cc. each were taken for the oxalic acid estimation and two portions of 150 cc. for the determination of the uric acid. For the former, the method of Salkowski, extraction by ether and calculation from the CaO formed was employed, and for the latter, the method of Woerner, precipitation by ammonium chloride and estimation of its nitrogen by Kjeldahl, from which the uric acid was calculated. The remainder of the urine was placed in the brood oven in an unstoppered bottle, and after a period of from 5 to 7 days removed, cooled to temperature of the room, well mixed, and again portions of the same amount taken for two more parallel determinations of each acid. The results of these experiments, 6 in number, are best shown in a table which follows.

Considering the average amounts of uric acid, we find a diminution respectively of from 26.25 to 9.87 mgm.; from 45.36 to 32.76 mgm.; from 61.47 to 5.25 mgm.; from 62.79 to 41.48, and from 29.1 to 25.2 mgm. In 1 case only was there no diminution. The oxalic was increased on averaging parallel results from 9.6 to 12.05 mgm.; from 9.64 to 12.53 mgm.; from 3.37 to 8.99 mgm.;

from 8.67 to 13.17 mgm.; from 3.04 to 5.14 mgm.; and from 5.46 to 9.925 mgm. in the same urine. No constant ratio can be discovered between the increase in oxalic and the loss in uric acid, but since, if this transformation takes place according to the formula given above, two molecules of urea result as side products, it is easy to see the difficulty arising from a close adherence to the formula demand in increase. A more desirable way would be to estimate the increase in urea, were it not that in a decomposing urine the urea is also converted into ammonium carbonate as soon as formed, with loss of the ammonia by evaporation.

FRESH URINE.		SAME URINE DECOMPOSED.			
Mgm.	Mgm.	Period.	Mgm.	Mgm.	
Uric { 1-25.2 2-27.3	Oxalic { 1-9.96 2-9.32	5 days	Uric { 1-10.29 2- 9.45	Oxalic { 1-12.21 2-12.85	
Uric { 1-45.36 2-45.36	Oxalic { 1-3.21 2-3.53	4 days	Uric { 1-32.76 2-32.76	Oxalic { 1- 8.99 2- 8.99	
Uric { 1-69.09 2-61.3	Oxalic { 1-8.67 2-8.67	4 days	Uric { 1-64.28 2-69.3	Oxalic { 1-13.17 2-Lost	
Uric { 1-61.47 2-Lost	Oxalic { 1-2.88 2-3.21	5 days	Uric { 1- 4.2 2- 6.3	Oxalic { 1- 5.14 2-Lost	
Uric { 1-58.38 2-67.2	Oxalic { 1-5.46 2-Lost	2 days	Uric { 1-41.48 2-Lost	Oxalic { 1- 9.64 2-10.21	
Uric -29.4	Oxalic -9.64	5 days	Uric -25.2	Oxalic -12.05	

For instance, in the first experiment the formula demand for oxalic acid from a loss of 16.38 mgm. uric acid would be 8.77 mgm. oxalic; that is, multiplied by the factor .5357, if all were converted to the latter, while we actually find but 2.9 mgm.; but when we remember that parabanic and oxaluric acids are formed as intermediate products, and, though both present, resist the method of extraction used for oxalic acid and thereby escape estimation, we can easily see why no constant relation between the loss of uric and the gain in oxalic acid can be expected. From the transformation of uric acid to oxalic, it is, perhaps, allowable to advance their common origin from the same substances, a supposition which has already found supporters in those who have found a common increase in diabetes mellitus, severe jaundice, etc., and also those like Lommel, who from experiments in metabolism have demonstrated that foods rich in nucleins produce a common increase in both these; nor can it be denied that this forms a still further demonstration of the fact that oxalic acid is a metabolic product. To return now to glycocholic, which was also found to be transformed, partially, at least, by micro-organisms, into oxalic acid, we find that this has a close relation to gelatin, from which it was obtained by Braconnot, by the process of cooking with sulphuric acid, and by Nencki from decomposition in pancreatic digestion. Furthermore, Schultzen and Nencki, as well as Salkowski, discovered that partially, at least, glycocholic was converted to urea when fed to animals, and von Kuieriem to uric acid when fed to birds; but neither attempted to demonstrate what becomes of the remainder, though Lommel discovered an increase in the oxalic acid eliminated when animals are fed upon gelatin.

Karl Spiro⁷ has also shown that the glycocoll is not confined to gelatin, but can be obtained from fibrin, hemoglobin and globulin by cooking them with sulphuric acid in an autoclave (but he was not able to obtain it from casein), thus demonstrating that glycocoll is a much more common constituent of the albumin molecule than generally supposed. In order to clear up some of these obscurities, a female Newfoundland dog, weighing 16.1 kg., was placed for 6 days upon a diet of dog bread of known weight and nitrogen content, catheterized three times a day, and each 3 days urine worked for oxalic acid by Salkowski's method for urea by the method of Mörner and Sjöqvist, and for total nitrogen by Kjeldahl, of which two parallel estimations were always made. The feces were also collected in three-day periods, dried with the aid of alcohol, pulverized, passed through a fine sieve, weighed, two estimations of nitrogen made of the same, and the remainder extracted by 1% alcoholic solution of hydrochloric acid with the aid of a cooler, converted to a watery solution, and the oxalic acid estimated by the method of Salkowski. Then there followed, under the same conditions, 6 days' feeding with dog bread and increasing amounts of gelatin, and finally three days of dog bread with hypodermic injections of glycocoll; a small portion of every cake in every box, containing about 400 gm. in groups of six boxes, was taken, the whole pulverized, and two portions of about 1 gm. each of the mixed mass were employed for estimation of the nitrogen by Kjeldahl. The nitrogen of the gelatin was estimated, while the nitrogen of the glycocoll was calculated from the formula, since this was obtained from Merck, and such a course seemed justified. The results are best expressed in tabular form which follows, and then certain features will be discussed in their turn. The urine was placed on ice as soon as drawn, with a drop of thymol solution, and the dog was given water ad libitum. A day was allowed to elapse after each period before the next was begun, and after gelatin and glycocoll periods, urine and feces were collected for twenty-four hours after last feeding or injection; 397 gm. of dogs' bread, consisting of portions of all the cakes used, worked for oxalic acid, showed only a few crystals, too few to weigh. (See table.)

One very noticeable fact was that coincident with the gelatin and glycocoll feeding, there appeared in the urine a body which reduced both Fehling and Nylander solution slowly, was a left turner in the polariscope to the extent of .2 of 1% in a urine of 1,072 and 1,220 cc. in amount, gave a Tollens reaction, was not fermentable, nor would it form an osazone. This body can be no other than paired glycuronic acid, for upon cooking this body with 1% sulphuric acid, it first became inactive in the polariscope and then a right turner. While not dextrose, still it must be allied, and as it occurred coincident with a decided increase in oxalic acid (32 to 43 and 70 mgm.), it must show some connection in these two meta-

bolic anomalies, a fact long suspected but never absolutely proven. This condition is such as is seen in diabetes mellitus, where with great loss of sugar in the urine, there is usually increased oxalic acid eliminated. This can have been due only to the gelatin and glycocoll, for before and after these substances no such body was found, but it persisted for 48 hours after the cessation of the glycocoll. It is also worth while to note the ratio of urea nitrogen to total nitrogen, which amounts in the first period to 89.63%; in the second, 85.71%; third, 96.27%; fourth, 91.05%; fifth, 89.45%, since it demonstrates that neither glycuronic nor oxalic acid can pair to any great extent with ammonia, else the urea nitrogen in the latter periods would be diminished. The increase of oxalic acid, after feeding upon gelatin, cannot admit of a doubt, nor can the fact that this acid must be formed apart from the intestinal tract, since one would expect that nascent oxalic acid, so to speak, freed in the intestine, would from the presence of calcium cause a large increase in the feces of oxalic acid, a supposition flatly contradicted by the results, an increase only of from 1.6 to 5.1 and 3.5 mgm. Nor can it be said that elimination of oxalic acid to any great extent takes place by means of the intestinal mucous membrane, as is true of many other metabolic products, nitrogenous matter for instance being eliminated during the entire period in death from fasting.

INGESTED.						ELIMINATED.			
Bread	Total N.	Gelatin	Total N.	Glycocoll	Total N.	Urine	Urea	Oxale	
1,095.37	24.319					Urine 820	11,594	22,238	.01544
						Feces 90	5.22		.0016
							16.814		.02904
1,572.53	45.105					Urine 565	11,027	21,347	.03119
						Feces 90	5.22		.0016
							16.847		.03277
1,279	38.945	120	7.644			Urine 1,072	24,162	49,826	.04367
			46.589			Feces 157	9.506		.00367
							33.668		.04367
875	20.46	400	25.48			Urine 1,220	32,452	63,269	.06583
			45.94			Feces 97.2	5.529		.00514
							37.981		.0709
1,421	48.339			2.706	.000	Urine 810	16,046	30,601	.03644
					48.339	Feces 156.7	7.942		.00353
							23.988		.03997
1,368	44.049					Feces 127.9	10.206		.00289

The dog's weight at beginning of each period was respectively 16.1, 16.1, 15.875; 4th period beginning 16.162, close 16.523; 5th beginning 16.20, close 15.97 kilos.

The rapid rise in both urea and oxalic acid while feeding with gelatin and glycocoll shows that while the nitrogenous group in the molecule is converted to the form of urea, the carbohydrate group appears as oxalic acid. In addition, this must have been absorbed and conversion have taken place by means of the cell, since it is a process, partially at least, of oxidation, which is the function of the cell. This fact is probably

⁷ Zeit. f. phys. Chemie, pp. 28-185.

not only true of gelatin, but also of other proteins which, as before stated, Karl Spiro has shown to contain glyceoll, but in a lesser degree, because they contain less of this substance. Of course we know that glyceoll pairs with benzoic acid to form hippuric acid, and when no glyceoll is provided, Hugo Wiener⁸ has shown that rabbits have a reserve supply of this substance equal to .3276-.3496 gm. per kg. weight. Conversely when no benzoic acid is present, it is evident that the glyceoll is chiefly eliminated as oxalic acid. This reserve can come from no other source than the breaking down of the albumin molecule containing glyceoll, and if oxalic acid comes from the same, we have in the former a measure of this decomposition, so that oxaluria, so called, which of course must be demonstrated only by quantitative analysis and not by mere precipitation, accompanied by various nervous manifestations, may have some basis in fact, not as a cause of these manifestations, but as a result and measure. Finally we may justly draw the following conclusions:

(1) That oxalic acid is derived from the carbohydrate group in albumins, presumably through the intervention of glyceoll by a process of splitting, through which the remainder is converted to urea, a vital process though imitated by strong oxidizing agents.

(2) Oxalic acid may also be derived from uric acid by fermentative action and oxidizing agents, and perhaps also by vital processes.

(3) That oxalic acid, present in many organs of the body, practically absent in the feces of animals fed on nonoxalic acid containing foods, yet ever present in the urine after long periods of fasting, may rightly be called a metabolic product and rightfully take its place with acetone, lactic, acetoacetic and oxybutyric acids as a measure of abnormal retrograde metamorphosis.

Clinical Department.

BILE IN THE ABDOMINAL CAVITY.

BY JOHN F. THOMPSON, M.D., PORTLAND, ME.,
Surgeon to Maine General Hospital.

The following case is reported as illustrating the tolerance of the peritoneum under adverse circumstances:

On July 24, 1900, Mr. N. of Chesterville, Me., was thrown from a cart, striking across the top of a stone wall. As an immediate effect, he sustained severe bruises in various parts of the body and fracture of six or seven ribs on the right side. He was attended soon after the accident by Dr. Brown of Livermore, who administered stimulants hypodermatically and otherwise.

Two or three days after this Dr. Brown found increasing dullness in both flanks. By the eleventh day there was evidently a large fluid accumulation in the abdominal cavity. Aspiration secured five

quarts of what was apparently pure bile. In the subsequent three weeks the patient was aspirated seven or eight times, each time several quarts of bile being removed. The temperature during this time varied from 99° F. to 101° F., pulse feeble and rapid.

In response to a telegram from Drs. Head and Makepeace, I went to Chesterville Aug. 26. I learned, in addition, that there had been progressive emaciation, bile-laden urine, some degree of jaundice and severe abdominal pain. The patient's condition as I found it, showed the following: Temperature 101.5°, pulse 130; emaciation, some vomiting, considerable distension of abdomen with dullness on percussion; mental condition good. I advised immediate operation with drainage, additional features to be added if conditions found demanded it.

The incision was made above the umbilicus and to the right of the median line. The abdominal cavity contained four quarts (estimated) of bile, which was evacuated. The intestines had been crowded up against the liver, and were strongly adherent to that organ and various other structures in that region.

The general appearance of the inside of the cavity was that of underdone beef. So extensive and strong were they that no attempt was made to break up the adhesions. A drainage tube and supplementary gauze drainage were inserted.

During the subsequent few weeks the patient made good progress. At intervals of two or three days the flow of bile would cease, followed by severe colic, which was relieved by the re-establishment of the flow. The sinus gradually closed, the feces became normal in color, and the patient made a good recovery. He is now doing his share of the farm work. I regret that I am unable to state the exact point from which the bile came. Probably one of the fractured ribs injured the liver, or it may be that the injury to that organ was direct. I have been unable to find similar instances in the literature of the Boston Medical Library.

Reports of Societies.

BRITISH CONGRESS ON TUBERCULOSIS.

HELD IN LONDON, JULY 22-26, 1901.

FIRST DAY.—OPENING MEETING.

The opening meeting of the congress was held in St. James Hall, Piccadilly. H. R. H. the Duke of Cambridge, the president of the congress, presided, and after the secretary had read the report of the work to be undertaken by the congress, he welcomed the delegates and declared the congress open, by the command and in the name of the king. The Marquis of Lansdowne welcomed the representatives in the name of His Britannic Majesty's Government, and the lord mayor welcomed them in the name of the citizens of London. After Lord Lister had spoken on

⁸ *Archiv. f. experiment. pathol. und pharmakol.*, xl, 313-325.

behalf of the medical profession of Great Britain, the representative delegates of foreign countries were presented in turn to H. R. H. and addressed the meeting. The first presented was Professor Osler, representing the United States of America, who commented upon the fact that the present was one of the few delegations from America to England which was not for the purpose of acquiring rights under a trust. Bunyan was right in describing consumption as the "captain of the men of death"; recently, however, the captain had been reduced to a lieutenant, and he trusted would shortly be reduced to the ranks, though it was almost impossible to hope that the lieutenant would be drummed out of the army. Among the other foreign delegates Professor Brouardel represented France and Professor von Leyden Germany. After the delegates had spoken, a vote of thanks by the Earl of Derby, seconded by Sir William Broadbent, to the Duke of Cambridge, was passed by acclamation, and his reply brought the meeting to a close.

The second general meeting of the congress on tuberculosis was held at St. James Hall, Piccadilly, on Tuesday, the 23d inst. Lord Lister, the chairman, introduced Professor Koch, Berlin, who delivered his address upon "The Combating of Tuberculosis in the Light of the Experience that has been Gained in the Successful Combating of Other Infectious Diseases."¹

Short addresses were given by Lord Lister, Professor Nocard, Alfort, Professor Bang, Copenhagen, and Professor Sims Woodhead, Cambridge, who all agreed that Professor Koch was not justified in drawing the conclusion which he did from the experiments which he had made.

SECTION I.—STATE AND MUNICIPAL.

SECOND DAY.

The first session of the State and Municipal Section took place at St. George's Hall at 9.30 A.M. It was presided over by the RT. HON. SIR HERBERT MAXWELL, Bart., who gave a short address on taking the chair. He said that he hoped the delegates would regard him as a link between the machinery of government in the country and the scientific workers. That it had often been said that the legislature was backward in promoting sanitary legislation of a compulsory character, but that it might be pleaded as an excuse that the legislature could not retrace its steps, if wrong, so that great care had to be taken. He then warmly welcomed the foreign delegates, alluding to the enthusiastic reception given to the delegates at the Berlin congress a short time ago. He said that in science there were no frontiers separating nations; that all men of science were brothers and fellow workers.

PROFESSOR JANEWAY then read a paper contributed by Dr. Biggs of New York, who was unfortunately unable to be present, dealing with notification of tuberculosis as existing in New York and various cities in the United States.

¹ See this Journal of Aug. 1, 1901, for full report of this address.

From this it would appear that sanitary regulations on this subject had existed at New York and in some other states since 1893. The State of New York was the first to enforce a scheme of compulsory notification. Later, the State of Michigan and the cities of Buffalo and Philadelphia had followed the example, but in other places the notification was only voluntary. It might be taken that tuberculosis was preventable, contagious, and not hereditary, and with regard to preventive measures, the following were most important; namely, careful attention to meat and milk, educating the public with regard to the harm arising from bad habits, such as indiscriminate spitting, and the need of careful attention to the sputum of consumptives and the careful disinfection of houses wherein patients had died of consumption. The compulsory notification of tubercle had not been complete. Physicians had only been invited to give information as to patients suffering from tubercle, such information to be treated as confidential, but it was compulsory to notify in public institutions, and inspectors were then sent to make inquiries in all cases where death occurred from tubercle, and if it came to the notice of the authorities, steps were taken to disinfect the premises where the death occurred. The authorities also, free of charge, examined by their medical officers the sputum of patients if submitted to them by the doctor in attendance. After this regulation was introduced, during the first year 4,000 samples of sputum were examined, the second year over 5,000, and the number went up in a few years to 8,000. Dr. Biggs had made a report to the authorities as to the want of suitable institutions for treating poor tubercular patients, and as to the necessity for such; that tuberculosis ought to be put on the same basis with the exanthemata. In 1897 it was resolved by the Board of Health of New York that tuberculosis is a dangerous and contagious disease, and that every physician should report to the Sanitary Bureau in writing, as to patients suffering from that disease within a week of being called in. A sum of \$60,000 was also appropriated to the care of poor tubercular patients, to afford them better treatment. The notification chiefly applied to pulmonary tuberculosis as the most contagious. The law is not strictly enforced with regard to the notification of private patients by physicians, and it cannot therefore be said that the regulations are strictly compulsory, but public opinion is gradually diminishing the number of cases not notified. In consequence of these various measures, and the better treatment of patients, there had been a reduction of 30% in the mortality arising from tubercular diseases.

PROFESSOR OSLER moved a vote of thanks to Dr. Biggs for the excellent paper. He said that the Board of Health of New York had the greatest difficulty in resisting Tammany, in their endeavor to carry out sanitary reforms. Their success in spite of this had been wonderful, and formed an object-lesson as showing what could be done in spite of opposition.

ALDERMAN McDUGALL next read a paper on
THE WORKING OF THE VOLUNTARY NOTIFICATION
OF PHTHISIS IN THE CITY OF MANCHESTER.

The reader said that the notification of tuberculosis at Manchester was at first restricted to public institutions, but in 1900 the practitioners of the city were invited to notify.

The objects of the notification were to be: (1) That the medical assistants should visit the homes of cases and instruct the household in the precautionary measures to be adopted, leaving with them printed instructions; (2) that they should determine what measures of disinfection were required; (3) that they should make inquiries into the exposure to infection of individual cases from relatives, workmates, friends, etc., into their occupations and places of work, the various houses which they had inhabited, their physique, personal habits, and so forth; in fact, into every circumstance which might be supposed to bear on the modes of infection; (4) to sustain a supervision over infected households, ascertain change of address, and see that personal precautions and household cleanliness were maintained, and to get necessary measures of disinfection carried out from time to time; (5) to provide for the required measures of disinfection being executed; (6) to assist in getting bacteriological examinations of sputum in suitable cases; (7) to collect information regarding households which might serve as a basis for hospital provision.

Articles of clothing were disinfected by steam, rooms by washing with soap, or solution of chloride of lime, and lime whitening ceilings.

The following figures will give an idea as to the work done: The number of cases notified from September, 1899, to the end of March, 1901, has been 2,338. Of these, 1,710 were from public institutions and 628 by private practitioners, and during the time the number of deaths registered from phthisis has been 1,729. The total number of houses disinfected between March 31, 1900, and March 31, 1901, has been 2,306. In addition to the work of cleansing and disinfection, a great store of facts has been collected illustrating the sources of infection and the places which have served as centres of diffusion. A large number of facts have also been collected which illustrate the need for a municipal hospital, in addition to the poor law union hospitals and those maintained by private enterprise.

At this point Sir J. Crichton Browne took the chair, Sir H. Maxwell being compelled to leave.

Dr. M. HOLMBOM, director of the medical service in Norway, next read a paper on the

NOTIFICATION OF TUBERCULOUS DISEASES IN
NORWAY.

The reader said that the notification was restricted to tuberculous disease of the lungs, of the skin, and of the urinary system, when it could be diagnosed with certainty. After death from tubercle, under the health code this fact had to be reported to the authorities, and disinfection of

the premises was carried out by them. Many rural districts had followed the example of the urban authorities. Special attention was given to the cleansing of houses and the destruction of excreta, and the board of health will enforce obedience to sanitary orders. In his opinion compulsory notification was absolutely necessary to give the state the means of taking steps to enforce sanitary regulations, although the municipal authorities ought to exercise their powers with discretion. The law has been too short a time in force in Norway to allow any definite statement to be made with regard to its effects; but no complaint against inconveniences resulting from compulsory notification has yet come to the notice of the directorate of the medical service.

Dr. KROFF of New York then spoke as a pupil of Dr. Biggs and Professor Janeway, in criticism of some of the foregoing papers. He said he approved of everything said by Dr. Biggs on compulsory notification, provided the sanitary inspector had the power of isolating poor patients in a public sanitarium. Secondly, sufficient means must be supplied from public sources for the family when the bread-winner was thus removed. As to voluntary notification this was good, but if the burden on friends was increased by it, he would protest against it. At a conference connected with tenement houses at New York, it was shown how terrible an incidence of tubercle there was at such places, and he considered the greatest blot on the sanitary administration of New York was the failure to carry out sanitary regulations in these buildings.

COUNCILLOR HERBERT ALDERSON, M.B., Kensington, said his experience of voluntary notification was that it was not successful, nor could the circulation of sanitary pamphlets dealing with the subject be relied upon. He thought all disinfection should be free of charge, but the payment of a fee to medical practitioners for notification was very necessary, as such cases mostly occurred among the poor. Another reason why notification should be compulsory, was that it forced all medical men to act in the same manner with regard to notification, and prevented a practitioner from currying favor with those of the public who desired to avoid this step, to the detriment of more public-spirited practitioners. He thought also that all cases of patients with tuberculous diseases leaving the infirmaries as cured should be reported to the medical officer of health, who might investigate their subsequent condition, as they were extremely liable to relapse. The July number of *Tuberculosis* gave very valuable suggestions as to the steps to be taken for disinfection after deaths from phthisis.

Dr. ROBERTSON, Sheffield, read a paper on

INFLUENCE OF HOUSING AND AGGREGATION ON THE
PREVALENCE OF TUBERCULOSIS AND THE POSSI-
BILITY OF IMPROVING OUR PRESENT CONDITIONS
IN THIS RESPECT.

The reader said that he proposed to confine himself to the methods employed at Sheffield for

the voluntary notification of tuberculosis. For this the usual fees of two shillings sixpence and one shilling were paid to medical practitioners, and the sanitary inspector called and left a pamphlet of instructions at the houses of those notified. He thought that these instructions were very generally carried out, and that the inspector's visit had a very good effect upon the public, from an educational point of view. He objected to tubercle being limited to cases where bacilli were found. He thought that busy practitioners had not time to go into the work of advising patients upon sanitary points, and therefore plenty of sanitary inspectors were urgently required, but it was an advantage for some of these to be medical practitioners. It had been said that visits of inspection were resented by the public. He thought this was untrue, as in his experience he had only heard of one case of objection. Difficulties, however, arose in dealing with workshops and with cleansing them. The owners objected, and would often ask why they had been selected, out of all the other owners of such places. This resulted in their being left alone in most cases, in spite of sanitary deficiencies. The condition of houses was better in every respect now than 50 years ago, and there has been an enormous improvement in the conditions under which a large proportion of the laboring classes work.

DR. COOPER PATTIN, Norwich, said that the voluntary notification was good, but he preferred to supplement it by other means. After deaths from tubercle he always carried out disinfection, and he had been able to get 95% of houses where such deaths had occurred disinfected. He always asked his inspectors to inquire what sickness was present in houses when visits were made for other purposes. He said that a lady inspector was about to be appointed, and he hoped to get further information through her, as she could gain much information from the women of the household. He thought it inadvisable to limit tubercle too much to pulmonary diseases; all forms of tubercle ought to be notified; in many cases pulmonary tubercle was altogether secondary. He thought it useless to advocate compulsory notification unless prepared to find sanatoria for patients, and that it must not be forgotten that in dealing with tuberculosis we were dealing with a disease not of a virulent type of contagion, but of a long-continued one. More assistance was wanted from the Local Government Board. His committee were willing to schedule tubercle, but he believed the above-mentioned board would not sanction it. He was pleased to learn from Dr. Biggs that advanced Anglo-Saxon democracies did not scruple to interfere with the liberty of the subject upon sanitary grounds.

DR. STONE, Boston Board of Health, gave the result of work in Boston in this particular. Last year the Board of Health included notification of tubercle and disinfection of premises after death among their sanitary regulations. There were public institutions for the pauper class in existence, but nonpaupers did not like to go there;

forceful removals were, however, occasionally made. There used to be a difficulty in getting cases of the exanthems to submit to removal, but opposition in such had long ago subsided, and he shortly hoped to have a municipal hospital for tubercle.

DR. HOFFMAN said that in the notification scheme nothing had been laid down as to dealing with early forms of tubercle as seen in consumptive types, such as are often found when health examinations were made for the public services and for insurance companies. A large proportion are invariably rejected on account of suspicion of tubercle. It had occurred to him that something should be done to reach this class, as the best results of treatment are obtained at an early stage.

PROFESSOR RUOTA, Perugia, spoke on the subject of

COMPULSORY AND NONCOMPULSORY NOTIFICATION.

He said there was a great natural difference between diseases such as smallpox and tubercle. While the law might compel the notification of the former, it did not follow that it should do so in the case of the latter. Again, the forms of tubercle were so different and varied so greatly. A great English sanitarian, Sir Richard Thorne Thorne, had said that the question was extremely complicated, and that it would be necessary to trust a good deal to the power of the medical practitioner to advise, although he (the speaker) had heard that morning with astonishment that the doctor had no time to advise. He could not understand this, for it would often happen that when called to a patient with tubercle the doctor could do very little in the way of treatment, but he might give invaluable advice. In Italy a law had been passed that the notification of pulmonary consumption should be compulsory in a few cases; for example, where it had occurred in schools, prisons, convents, etc., and he approved of this. Also it was compulsory to notify where there had been a death.

DR. REYNOLDS, Chicago, said that he regretted that he had come too late to hear Dr. Biggs' paper. At Chicago they had not come to the conclusion that it was right to insist on the notification of tubercle. They believed there that it was the duty of the government to educate the public in this respect. They had a hospital for the tuberculous poor, and he thought the education of the public was best brought about by the daily visits of doctors, by the public press, and by medical men giving lectures at public institutes. Sometimes on Sundays in liberal churches at Chicago medical men occupied the pulpits with advantage.

DR. NEWSHOLME, Brighton, said that the question of notification had advanced very considerably, and that the principle of notification in some form or other was now very generally recognized. The dispute now was only as between compulsory and voluntary notification. He believed that the former gave much more satisfac-

tory results, as it helped to follow cases who were often changing their addresses. An ethical difficulty in the medical profession was also got over by making the notification compulsory, as many doctors considered that it was wrong to divulge a professional confidence unless under compulsion. At Brighton voluntary notification had worked fairly well. Since 1893 an arrangement had been made for examining the sputum for practitioners in doubtful cases. In framing a resolution to put before the section, it was necessary to take care that it should be in terms that could be accepted unanimously. He begged leave to submit the following resolution:

That the voluntary notification of cases of phthisis attended with tubercular expectoration, and the increased preventive action which it has rendered practicable, have been attended by a promising measure of success; and that the extension of voluntary notification should be encouraged in all districts in which efficient sanitary administration renders it practicable to adopt the consequential measures.

DR. LITTLEJOHN, Edinburg, seconded this resolution. He said that personally he approved of compulsory notification, but he thought the public required further education. At Edinburg there were a large number of poor and many tenement houses, and it was vain to think they would ever be able to get rid of them, but much might be done to render them more sanitary. Means should be found of isolating cases of tubercle occurring there in public hospitals, so that members of the family and other inhabitants might safely follow their avocations.

SIR JOHN COCKBURN, M.A., South Australia, deprecated the wording of the resolution as tending to imply that the section was specially in favor of voluntary notification. He thought that no resolution should be passed to discourage compulsory notification, as he hoped that eventually compulsory notification would be general.

The chairman after consulting with Dr. Newsholme, suggested that the word "voluntary" should be struck out in the clause "extension of voluntary notification should be," etc.

With this alteration the resolution was put to the meeting, and unanimously adopted.

The section then proceeded to the question of the

PREVENTION OF TUBERCULOSIS DURING CHILDHOOD.

DR. LEON PETIT, Paris, read a short paper dealing with the establishment of dispensaries for children throughout Paris. Till then there had been a great lack of hospital accommodation for young patients suffering from tuberculous diseases. These institutions were often situated at so great a distance from their homes as to render attendance there very difficult. Much good work had been done by these dispensaries. During 1900-1901 at three of them there had been 30,000 consultations, and 17,000 children had been treated. The mothers were always strongly recommended to suckle their own children; and in some districts great success had been attained in

putting a stop to deplorable habits in the bringing up of infants.

Dr. S. A. KNORR, New York, read a paper on the

STATE AND INDIVIDUAL PROPHYLAXIS OF TUBERCULOSIS DURING CHILDHOOD, AND THE NEED OF CHILDREN'S SANATORIA.

He said that the child of today will be the man of tomorrow, and we must not forget this, but endeavor to cure as many scrofulous children as possible. Direct bacillar transmission from mother to child is most infrequent; it almost invariably comes from without, although a susceptibility may be inherited. The prevalence of tubercle in childhood is very great, and is often contracted by contagion, so that consumptives ought to be kept away from children. Even at birth the careless midwife may infect the child by applying her mouth to that of the infant to inflate the lungs. Tubercular mothers will often put spoons containing food for their children in their own mouths before feeding them. Infection from kissing is also not unknown. Infection also arises from the application of the mouth to the prepuce after the operation of circumcision. Children should also be prevented from crawling on the floor in the dust, which may often harbor bacilli, and the infant is only too prone to suck his dust-polluted fingers. There should be a regular struggle against the risks of tubercle from the time of birth, and printed directions should be in the hands of all having charge of children. The kissing of children, domestic animals or pets, ought not to be encouraged. Expectoration near the playgrounds and places where children congregate should be punished as a misdemeanor. Lady school teachers ought not to be allowed to wear trailing dresses. No teachers or children with early symptoms of tubercle should be allowed to remain at a school, and all the inmates should be examined several times a year for symptoms. Overcrowded tenements, syphilis and alcoholism tend to the production of tubercle; as also the employment of children under 14 years of age in factories for 10 hours a day. The giving to poor children at public schools of a periodic sandwich or glass of milk would often ward off the onset of phthisis.

The chairman then informed the meeting that M. Raoul Bompard, who had promised a paper entitled "Les Colonies Scolaires Françaises," and Dr. Baradat, Cannes, who had promised one entitled "La Tuberculose et l'Education Moderne de la Jeunesse," were unable to be present, but desired that their papers might be published in the "Transactions" of the congress.

The chairman then adjourned the section to 9.30 A.M., Wednesday, July 24.

THIRD DAY.

THE INFLUENCE OF HOUSING AND AGGREGATION.

Sir Herbert Maxwell occupied the chair.

The chairman introduced Dr. HAROLD COATES, senior assistant to the medical officer of health for Manchester, and said a few words as to the pro-

gressive position of public sanitation in that city. Dr. Coates read a paper entitled

AN INVESTIGATION INTO THE PRESENCE OF INFECTIVE MATERIAL IN DWELLINGS OCCUPIED BY CONSUMPTIVE PERSONS.

The reader said that it was 11 years since Cornet published the result of his investigations into the infectivity of the dust found in the dwellings of consumptives in Berlin, and up to now no work of a similar character had been done in England. The establishment of a scheme of voluntary notification of phthisis in 1899 had presented a favorable opportunity for taking up the investigation, and although the plan of the investigation he had adopted differed somewhat from that of Cornet, the methods of experimentation were in the main similar. Dust was collected from situations in which dust from the atmosphere had settled naturally, and where there would be no likelihood of contamination with expectoration or by infected articles. Samples of dust were taken from each house, from the floors, skirting boards, walls, shelves, mantelpieces, etc. On arrival at the laboratory the dust was well rubbed up with sterilized water, and the mixture filtered through sterilized muslin, so as to remove coarse particles which might block up the needle of the hypodermic syringe used for inoculation. A portion of this mixture was then injected into guinea pigs, and it was noted as to the number of cases in which the animal developed symptoms of tuberculosis. Dust taken from the following houses was experimented on: (1) Infected houses in a dirty condition. Twenty-three houses of this class were examined. In 66% the presence of virulent tubercle bacilli was proved. The effects of fresh air and sunlight on the vitality of the tubercle bacillus is well known, and it was possible to deduce from these experiments that even in the dirtiest houses there was evidence of beneficial effects from light and air. (2) Clean out infected houses. Ten houses of this class were examined; two samples of dust were taken from each house, and each sample was used to inoculate one guinea pig.

It was found that even in the cleanest of houses infectious dust could be found in 50% of cases when the phthisical occupant used his pocket handkerchief or the floor as a receptacle for sputum. Five specimens of dust were collected from the walls at various elevations of the waiting-room of the out-patient department of the hospital for consumption at Manchester. This waiting-room is a lofty, well-lighted and well-ventilated hall, and used by 180 patients every morning; the result of the experiments was negative. Five samples of dust were examined from the waiting-room of one of the large general hospitals, but there also the results were negative. Two samples, however, taken from the general waiting-room at a railway station, both produced tuberculosis.

The subject of the disinfection of tubercle-infected houses was next considered. In the

reader's opinion the process recommended by Professor Délepine was the best. This consisted of the use of a solution of chlorinated lime of the strength of 1½ ounces to the gallon. The walls, ceiling and floor were washed over with this solution several times, also any articles of furniture admitting of such treatment. Articles of clothing, bedding, etc., were disinfected by the steam disinfecter. In houses which are in a clean condition and where there has been no direct soiling of the walls or floor with sputum, the chlorinated lime method was not considered necessary, and the method recommended by Esmarch was practised. The wall paper was rubbed with crumbs of bread or dough; floors, painted walls and woodwork washed with soap and water, and ceilings lime-washed. This method, however, was useless in cases where the paper was directly soiled with sputum; for, owing to the mucus which it contained, the dried sputum stuck tenaciously to the paper, in spite of repeated rubbing with dough. He had obtained good preparations showing abundance of tubercle bacilli, from pieces of wall-paper which had been soiled with sputum and cleaned with dough.

PROFESSOR VON SCHRÖTTER, Vienna, said he wished to speak of a matter of importance relating to the infection of tubercle. It was most necessary to get rid of all the sputum of tubercular patients. He thought it ought to be burnt. At Vienna his patients used a special receptacle for spitting into; he exhibited a specimen; it was made of glass, with metal coverings at each end, which could be taken off, and thus allow of easy cleansing. It was very necessary that such receptacles should be obtainable cheaply. The cost of the one he showed was about a shilling. Patients in bed used spittoons of papier-maché, and combustible matters were mixed with the contents, which were thrown on the fire.

DR. ROBERTSON, Sheffield, read a paper on

BY WHAT MEANS CAN A HIGHER STANDARD OF LIGHTING AND CLEANLINESS BE ATTAINED IN HOUSEHOLDS, FACTORIES, ETC., AND WHAT LEGISLATION, IF ANY, IS REQUIRED TO RENDER THESE ADVANTAGES AVAILABLE.

The reader said that there was reason to suppose that no portion of the human race was immune from the infection of tubercle. In many cases a history of phthisis could be found in the family (about 33%), pointing to an inherited tendency. The number, therefore, of persons requiring to be safeguarded was very large. In his opinion, to strengthen the power of resistance of the patient was the best crusade against tubercle, and would give better results than the endeavor to destroy all sputum.

The following questions were suggested: (1) What part does environment play? (2) Can proper environment ward off or arrest disease? There was no doubt much more might be done than had hitherto been thought possible. In this country there had been a reduction of mortality in tubercle of 50% in the last 50 years. Good

sanitary measures were no doubt the cause of this, but there was still room for much improvement. He deprecated the use of colored glass in the windows of houses where light was already deficient. This was too common. No attention was given to the cleaning of windows in factories; owners would often resent the suggestion, but a standard of light in workshops and factories ought to be insisted on by the legislature. The knowledge that delicate consumptives could be successfully treated in the open air had educated the public to have less fear of opening their windows, so that there was better ventilation generally. The legal standard of air space was the same under all circumstances; this was not reasonable. For if 250 cubic feet per head were sufficient in the case of some occupations, it did not follow that it was enough in others. The local authorities had power to see that the walls and ceilings in factories were lime-washed, but the floors were too frequently left uncleaned for months at a time. The thorough cleaning of floors ought to be enforced.

The Chairman said that listening to some of the papers just read he had been struck by the evils arising from deficient sunlight and ventilation; it reminded him of the Italian proverb, that "Where the sun does not come, the doctor does."

Dr. RUFENACHT WALTERS, London, said he did not propose to read his paper, but that he would like to say a few words upon the subject raised by Professor Schrötter. He knew of a cheaper spittoon than that suggested by the latter. He was in the habit of recommending a galvanized iron mug. He folded up in this a piece of butter-paper, and later added a little sawdust for burning the contents. In Dr. Robertson's paper reference was not specially made to the amount of ventilation. He observed that many of the shops in London were being built with plate-glass windows that could not open. This was surely wrong. He was aware that a shopkeeper would not care to admit into his premises air laden with smuts to spoil his goods, so that the consumption of smoke in the metropolis had an important bearing upon this.

Dr. ANTONIO ESPINA Y CAPO, Madrid, read a paper entitled

THE BEST SPITTOONS TO EMPLOY ARE THOSE COMPOSED OF "HYGIENIC PAPER," THE PAPER TO BE BURNED IMMEDIATELY AFTER EXPECTORATION.

The reader said that by training all people to use the spittoon, it was possible in some degree to limit the infection from sputum, but the difficulties connected with obtaining these spittoons, with their subsequent sterilization, induced him to present this report to the British congress in the hope that it would expedite the solution of the problem. He discussed two kinds of spittoons: (1) pocket spittoons; (2) those to be placed wherever two persons congregated. For the first he advocated the use of hygienic paper instead of the traditional handkerchief, which we

carried permanently in our pockets. The destruction of this paper is so easy that a match alone is necessary to incinerate it. With regard to spittoons for two or more persons, they should be constructed of a substance easily destroyed by fire and of a material sufficiently cheap to admit of their being replaced every day.

Mr. GARLAND, general post-office, London, said he wished to allude to what he considered a neglected field of operations, and to bring under their notice the question of sanitary measures where there was a large aggregation of employés, as in a public department such as the post-office. They mostly consisted of selected lives, and their number exceeded 160,000. He regretted to say that some of the most obvious sanitary precautions were not adopted: no spittoons were to be seen at post-offices; the dust was not properly removed, and the post-office buildings required more frequent disinfection. In the French post-office some good regulations have been issued recently for cleansing the floors, walls, etc., and providing spittoons. A useful notice, too, has been attached to all the post-offices, pointing out the risks of tuberculosis, and giving instructions as to the proper sanitary conduct of their officers.

Dr. VOLCKMAN, Norway, said that a combustible spitting-pot fitting into a metal receptacle was adopted in the hospitals in Norway. He thought this was a small point, but might be valuable.

PROFESSOR RIOTA, Perugia, said he wished to make special allusion to the subject of the housing of the people and all the means taken for the destruction of the bacilli. He asked if all this would be necessary if the ventilation was perfect. Would there then be much danger from the bacilli? The mucous membrane of the bronchial tract was furnished with epithelium, which protected from chance bacilli, and healthy people, even in hospitals, rarely took the bacilli into their system. It must be very difficult to destroy all bacilli, but much more attention might be given to ventilation, as bad air tended to make the natural protective agency supplied by nature to protect the individual, inefficient. He insisted on the necessity of keeping windows open in sleeping-rooms; he instanced the wretched housing of his countrymen in rural districts, but said that the incidence of tubercle in them was far less than in the better houses situated in towns, owing to the much freer ventilation and life in the open air.

Dr. ARTHUR RANSOME, F.R.S., said he did not propose to keep the meeting long, and would hand his paper to the secretary. He insisted on the necessity of passing a resolution; he proposed the following:

That the Council of the National Association for the Prevention of Tuberculosis be requested to urge upon the employers of labor and upon the owners of factories the necessity of free ventilation in their workshops and factories.

The resolution was seconded.

A delegate objected to this resolution because it made no reference to ventilation of houses,

which had also been under discussion during the morning.

SIR HENRY LITTLEJOHN thought the resolution useless, as the employers of labor and factory owners would pay no attention to it, and he suggested the municipalities should be included with them.

Another delegate thought the meeting should make some suggestion as to the way in which this ventilation might be brought about.

After some discussion the resolution was carried.

DR. SYKES, St. Pancras, said he feared most of these conferences ended in pious opinions. As an executive officer he wished to carry out the opinion of experts, but he had not the power. They were a company of experts, and they ought to speak out definitely, or else it was useless for them to come together. Often acts of parliament ordered regulations "as far as adequate" or "sufficient," the "adequacy" or "sufficiency" was according to the opinion of the magistrate, who often knew little or nothing of the matter. Open-air treatment was necessary for the prevention of, as well as the cure of, tubercle, but no definition of overcrowding existed in the English law, except in by-laws registered under municipal regulations. Here a *minimum* of space is laid down, but this has to be applied whatever the condition of the occupiers of the room. There ought to be a clear definition as to what space was necessary to prevent the number occupying the room being a "nuisance." There was no definition of window space except in cellar dwellings.

He begged to propose the following resolutions:

(1) That in the opinion of this section the following conditions of dwelling-rooms should be dealt with as nuisances: (a) Any dwelling-room used for sleeping, so overcrowded as to be injurious or dangerous to the health of the inmates, whether or not members of the same family. That is to say, in which each inmate over 10 years of age is provided with less than 400 cubic feet of air space, and each inmate under 10 years of age with less than half this amount.

(2) Any dwelling-room not having one or more windows opening directly into the external air, with a total area clear of the sash panes equal to at least one-tenth of the floor area of the room, and so constructed that one-half at least of each window of the room can be opened, and the opening in each case extend to the top of the window.

MR. HALL, F.R.I.B.A., said he thought the resolutions would tend to cause too great disturbance in existing relations, as a large number of rooms now in use would not answer to them, and with regard to new buildings, he thought that the limit fixed was too low, and would tend to have a retrograde effect.

SIR HENRY LITTLEJOHN, Edinburgh, proposed the following resolution:

That this section is of the opinion that the light and ventilation of workshops and factories is insufficient, and that the Home Office be requested to appoint a committee to inquire into the existing conditions with a view to fixing standards.

That legislation is also required with the object of securing the periodic cleansing by disinfection of factories and workshops, and also that the Local Government Board take similar action in regard to dwelling-houses.

DR. ROBERTSON seconded this.

DR. CHALMERS, Glasgow, said that Dr. Sykes fixed two standards; he had given a cubic space standard, and that was sufficient, as it would fix the height of the ceiling.

DR. HIME, Bradford, objected that Dr. Sykes' motion was really before the meeting, and that Sir Henry Littlejohn was out of order. He disagreed with both. He said that in his experience the magistrates did not ask for the measurements of the room, but as to whether it was suitable for a human habitation. The carrying out of Dr. Sykes' resolutions would be absolutely impracticable; there would be nowhere to put those displaced.

DR. NIVEN said there were two distinct resolutions before the meeting, and they could not be considered together. In factories the conditions were different to those in houses. Dr. Sykes' resolutions were very complicated, and would increase the present complications. Cleansing was more important than overcrowding, with regard to tubercle.

DR. SYDNEY MARSDEN, medical officer of health, Birkenhead, said Dr. Sykes had put before them some of the great difficulties of the medical officer of health. He had pointed out the necessity of fixing some standard; what that standard should be was for the legislature to decide. The difficulty of dealing with existing houses was the reason why a standard ought to be fixed. He disagreed with Dr. Hime as to the use of appeals to magistrates; he had always found them very inefficient. Tenement houses of the most unsanitary character were being built, which it was impossible to deal with. He thought that Dr. Sykes' resolutions were very clear and ought to be well supported.

DR. CAULDWELL SMITH, Glasgow, described certain procedure employed in Glasgow to prevent overcrowding.

The resolutions of Dr. Sykes were then put, and were declared by the chairman to be lost.

Sir Henry Littlejohn's resolution was then proposed.

DR. NIMES said that in Yorkshire the lighting of factories was very good and left nothing to be desired, so that there was no necessity for the resolution. Factories were often open to all the winds of heaven; there was surely no need for ventilation there.

A delegate from Leeds, a factory proprietor, also protested against the resolution, and said that his factory, where he employed 1,700 workmen, was thoroughly cleansed and possessed all sanitary requirements. He very much deprecated some of the remarks that had been made by Sir Henry Littlejohn with regard to factory owners generally.

The resolution was then put by the chairman and declared to be lost.

CONTROL OF MEAT SUPPLIES.

MR. SHIRLEY F. MURPHY, London, commenced to read a paper entitled

WHAT ADMINISTRATIVE MEASURES ARE NECESSARY FOR THE PREVENTION OF THE SALE TO THE PUBLIC OF TUBERCULOUS MEAT?

The reader said he had been asked to open a discussion at this congress on the administrative measures that were necessary for preventing the sale to the public of tuberculous meat, and it was obvious that no new material could be submitted to the meeting.

He then entered upon a review of the procedures adopted in this country for restraining the sale of diseased meat, of the prevalence of tubercle in cattle, and of the difficulty of inspecting all meat brought into the market, as at the present time there was no need for the owner of an animal presenting signs of disease to have it slaughtered under conditions that would ensure its inspection. After having read a portion of his paper, as the time was very limited for discussion of the subject, and the paper was printed and in the hands of the members, it was decided to take it as read.

COUNCILLOR O'NEILL, M.D., Belfast, referred to meat inspection at Belfast. For eight years he had had to fight the butchers, but by studying the means employed on the continent, and from the teaching of Mr. Shirley Murphy, he had gained good hints as to what ought to be done to carry out proper meat inspection. In this he had been backed up by his profession. He did not agree with Dr. Koch as to bovine tuberculosis. He was strongly of the opinion that tubercular meat was not fit for human consumption. There was an abattoir in Belfast where every animal was examined before being slaughtered, and at the market the meat was always examined when killed outside the borough. All meat killed outside the city must be brought for inspection before being exposed for sale, and was stamped by the inspector on the request of the owner.

DR. COGGAN asked whether Dr. O'Neill had ever seen tubercular meat give rise to human tuberculosis.

DR. O'NEILL could not give any particular case where this result could be proved, but he was firmly convinced that tubercle might be acquired in that way.

SIR CHARLES CAMERON, Dublin, said he had great pleasure in supporting Mr. Shirley Murphy's resolution, which appeared at the end of his paper. The resolution was as follows:

That in the opinion of this section the meat of all animals intended for human food should be inspected before being sold for that purpose; and that in all urban districts, and in all rural districts, as far as possible, such animals should be slaughtered in public slaughter-houses, so as to ensure efficient inspection.

He thought at present there was not sufficient inspection in many towns, especially where there were no abattoirs. At Dublin there was a public abattoir, but there were also forty private slaughter-

houses. These interfered with getting a uniform and sufficient inspection. He said he had known of an animal suffering from pleuropneumonia, where in the carcass after death the lungs of a healthy animal were substituted for the diseased organs, and the fraud was only detected by the temperature of the lungs being below that of the carcass. In public abattoirs this could not take place; the carcasses of animals had been known to be brought into Dublin in a hearse, to disguise the fact from the authorities. He thought a skilled veterinary surgeon was of great service to a sanitary department for attending to this work. There ought to be a systematic examination of all animals, and private slaughter-houses ought to be got rid of by giving equitable compensation to the owners.

DR. HIME said he agreed with Dr. O'Neill on one point; he had a very great respect for Dr. Koch, who laid the foundation of our knowledge of tubercle; he thought, therefore, that Dr. Koch's opinion deserved respect. On the continent every government had passed decrees that animals only suffering from local tuberculosis might be slaughtered for food. In this country the same provisions, after the matter had been considered by a royal commission, had been generally adopted. A large amount of meat must be destroyed if all tuberculous animals were rejected. He objected to a medical officer of health ordering the destruction of the whole carcass if the animal was only locally affected by tubercle. Every doctor knew that tubercle was originally only a local affection, and only in cases of general tuberculosis would harm be likely to arise from the use of unaffected parts of the animal.

DR. MARSDEN, Birkenhead, said that medical officers of health were meeting under a cloud today with regard to tubercular meat. It seemed that Dr. Koch had thrown a bomb in their midst which, whether right or wrong, was likely to impair their influence with sanitary authorities. He did not think that they ought to change their procedure. He knew no medical officer of health who ordered the destruction of an animal on account of a trace of tubercle. Public abattoirs were urgently required, and there was no question as to their being necessary both in urban and rural districts, but then came the question of compensation. A difficulty often arose in inspecting carcasses when the offal and other contents of the same had been removed, as it was then often very difficult to diagnose tubercle. He did not believe that the difference between general and localized tubercle was of much use for distinguishing between good and bad meat. He had known the case to be called localized tubercle when every gland in the carcass had been found diseased.

A sanitary inspector of Grimsby asked if the lungs were diseased, whether Dr. Marsden would allow the flesh to be used, if otherwise healthy.

DR. MARSDEN was understood to say that he would.

DR. PORTER, Shropshire, pointed out the necessity of following out stereotyped rules in the examination of meat, or else the magistrates refused

to convict. He protested against the difficulties medical officers of health had put upon them by the uncertainty of some of the clauses of the Public Health Act. He thought that no claim for compensation should be allowed against officers unless they should have been proved to have acted with culpable ignorance and neglect.

The chairman then said that the time was up and that it was necessary to adjourn the meeting, but that it might interest those present to know that he had just received a communication stating that Dr. Koch admitted that his new tuberculin had the same reaction with human as with bovine tubercle.

The meeting then adjourned to Thursday morning.
(To be continued.)

Recent Literature.

Diseases of the Nervous System. By H. OPPENHEIM, M.D., Professor at the University of Berlin. Authorized translation by EDWARD E. MAYER, A.M., M.D. First American from the second revised and enlarged German edition. Pp. 899, with 293 illustrations. Philadelphia and London: J. B. Lippincott Co. 1900.

The treatise of Oppenheim has been recognized ever since its first appearance in 1894 as one of the best of the single volume treatises on diseases of the nervous system,—clear, concise, practical, and filled with the results of the rich personal experience and sound learning of one of the ablest of the younger German neurologists. It is to be regretted that we have had to wait so long for an English translation. The translator has condensed the work somewhat, but has omitted nothing essential. The style of the English translation is hardly to be praised, and it is furthermore marred by various perversions of generally accepted words which are at present in fashion, especially in the neighborhood of Philadelphia; but on the whole the author's meaning is fairly well given, and the translation will prove of value to all who are unable to read German, by making available one of the leading German works on neurology.

Hypnotism and Suggestion in Therapeutics, Education and Reform. By R. OSGOOD MASON, A.M., M.D. Pp. viii, 344. New York: Henry Holt & Co. 1901.

Many of the chapters in this volume have previously appeared in various magazines. The author rehearses some of the famous cases of double consciousness, and emphasizes the value of hypnotism as a therapeutic and educational agent, as illustrated by cases from his own practice. The work contains nothing new, and the writer's standpoint is somewhat too credulous and enthusiastic.

ACCORDING to the latest government statistics, each physician in the United States has 655 persons to look to for his support.—*Philadelphia Medical Journal.*

THE BOSTON Medical and Surgical Journal.

THURSDAY, AUGUST 15, 1901.

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RESTRICTION OF ANIMAL TUBERCULOSIS.

As we have before suggested, it is clear that Koch's somewhat radical statements regarding human and bovine tuberculosis will prove an added stimulus to investigation of the part diseased animals play in the extension of the affection to man. As the first excitement cools, it will no doubt appear that Koch's statements were not so radical as the world has been given to believe, and on the other hand that the violent opposition aroused was the natural outcome of what seemed like a rude and dictatorial overthrow of a generally accepted scientific fact. Whether he is right or wrong remains to be proved, as he candidly enough admits. In the meantime, while in no sense advocating hasty and unverified judgments in matters of such vital importance, we are inclined to attach a certain weight to the following point of view editorially expressed in the *Medical Press*: "Professor Koch deserves credit for having had the courage to proclaim such heterodox views, and whatever conclusion we may ultimately come to with regard to their accuracy, he will have rendered the immense service of having called attention to the vastly greater importance as a factor in the dissemination of tuberculosis of man to man infection. In our anxiety to stamp out alimentary tuberculosis it may be that we were on the point of going off on a false scent, false in the sense of attaching thereto an importance in excess of its merits. This congress will be memorable in the history of the movement in that the rudder has been shifted and we have been invited to rectify an error of direction."

However much weight Koch may have in influencing opinion on the subject of tuberculosis, it is already evident that it is not sufficient to cause any material relaxation on the part of health authorities in their watchfulness over the disease as it appears in animals. In the present wholly

unsettled state of the question this is undoubtedly the proper attitude to assume, and for various reasons. In the first place leaving man wholly out of the discussion, it is desirable for the sake of the lower animals themselves that every precaution be taken to eradicate the disease. It is a well-established fact that tuberculosis spreads very rapidly among animals kept together in stables, so that from the point of view of prophylaxis it becomes necessary to inspect critically and kill those that are diseased. Whether or not the affection is actually hereditary must be regarded as a side issue, for in either case the deterioration of the herd is inevitable. The custom of feeding skimmed tuberculous milk to other animals is also a prolific cause of the spread of the disease, and this again is almost inevitable when tuberculous cattle are allowed to live. For these reasons, therefore, cattle inspection should continue with unremitted zeal, to the end that our farm animals be rendered as free as possible from the disease, the stock improved, and the consequences of contagion minimized. Such arguments have a strong, practical bearing, and are certainly not urged purely for aesthetic reasons.

Another point which should not be forgotten is raised by Frothingham, Dinwiddie and others, that there is a possibility of a prolonged change of environment leading to alterations in the tubercle bacillus which may materially change its virulence. In this connection Novard's experiment is of interest, in which human bacilli in collodion capsules were placed in the abdominal cavities of fowls. In some instances the capsules were allowed to remain several months, and finally on recovering the organism from the capsules it was found to have assumed the avian type. A similar experiment made by Pearson on a bull has demonstrated a very marked change in the organisms. Further experimentation is, of course, needed along this line, and here again the difficulty of experimentation becomes very great, but it is at least a fair assumption that possibly bovine bacilli introduced into the intestinal tract of man may in time alter their form and virulence. Extensive as the work has already been there is still a broad field for research on this question of the variability of the bacillus under changed environments and its associated alterations in virulence.

We have previously in this column referred to the work of Theobald Smith as demonstrating the fact that human tuberculosis is not readily transmissible to animals. A further noteworthy piece of work in this direction was done by Frothingham in 1895 and 1896, in the inoculation of calves with pure cultures of the human tubercle bacilli obtained from the liver of a child, and also inoculation of human sputum. The results

of these experiments were identical with those later described by other observers, and finally by Koch in his recent address. It is therefore fair to assume the correctness of the view that human tuberculosis is not transmissible to animals, a matter about which it is unlikely there will be further dispute. However probable or possible the other proposition may be—that bovine tuberculosis is equally innocuous to man, there is, as yet, absolutely no reason for relaxation of vigilance in the work which the various boards supervising the diseases of cattle are engaged in. These boards for many years have been endeavoring to improve the sanitary conditions and general hygiene of stables, and that anything should interfere with this good work is an idea not to be tolerated. Even admitting that the danger to man from tuberculous cattle has been exaggerated, we see no reason why a work which is good in itself and of great value to the community at large should not be carried out with the same thoroughness as heretofore; we are, furthermore, confident that this will be done, uninfluenced by any revelations which the future may have in store for us.

A NOTEWORTHY LEGAL RULING.

THERE seems to be no likelihood that physicians will be relieved of the necessity of appearing in court as time goes on. On the contrary, with the constantly increasing number of cases of litigation in which a physician's opinion of the extent of injury is required, it appears probable that more and more men will be drawn into this sort of medical work. This is not to be regretted, provided physicians enter upon the work in the right spirit and with the definite intention of elevating the character of medical expert testimony. That this is not always the case is, unfortunately, a matter of somewhat common observation. A few unprincipled persons go much further than their numbers warrant in bringing discredit upon what should be, and in many instances is, one of the highest duties a physician is ever called upon to perform.

That physicians in general will be protected by the courts, in regard to the extent and character of their testimony, is illustrated by the following case recently reported: A physician employed by a New York Railway Company saw a plaintiff, who was a boy, immediately after an accident involving the company. The physician volunteered his services and attended the boy temporarily, and later, several days after the accident, saw him again at the hospital, to which he had been taken for further treatment. The physician then drew from the plaintiff certain facts regarding the acci-

dent, which the Railway Company later at the trial attempted to introduce as testimony. The Appellate Division of the New York Supreme Court very properly ruled that such testimony could not be allowed, and on objection being raised by representatives of the company, made the following important ruling:

The surgeon, while thus attending to the boy to stop the flow of blood, occupied to the boy the relation of physician; and when the witness subsequently went into the hospital, after the amputation of the boy's leg, and asked him questions as to the accident, the boy was justified in treating him as a physician who had attended him. His going to the hospital, having no previous acquaintance with the boy, no interest in the case except in his professional capacity, and attempting to obtain from him declarations as to the accident, was unauthorized and impertinent.

In further comment the Court said:

Declarations made by the person thus severely injured, made to a physician under such circumstances, would certainly be privileged. Except as a physician he had no business in the hospital. He did not inform the boy that he came as a representative of the defendant, and for the purpose of extracting from him an admission which would tend to relieve the defendant from liability. Under such circumstances I think the boy was justified in considering a person who thus addressed him as a physician, and who answered his questions freely and frankly, without considering that his answers would be used against him as admissions.

Similar conditions to those outlined above are constantly arising. The pity of the situation is that there are physicians, many of them presumably reputable, who are willing to offer testimony gained in such a manner, for partisan reasons. Such a ruling as this of a prominent New York Court should serve as an encouragement on the one hand that the courts will not permit imposition on professional privileges, and on the other, as a warning against the loose and unprofessional methods of certain men who are posing as unprejudiced expert witnesses.

A somewhat similar and wholly reprehensible procedure came to our notice not long ago, in which a physician presented as evidence in court the confidential opinion of a colleague whom he had called in consultation irrespective, as the consultant thought, of legal complications. Such conduct is wholly unworthy of men who claim a position of respect in their profession, and humiliating as it may be, it is nevertheless salutary to have the lesson brought home to us by such a ruling as this of the New York Supreme Court.

MEDICAL NOTES.

AWARD OF NOBEL PRIZES.—Two of the prizes created under the will of Alfred Nobel, the Swedish engineer and chemist, are to be awarded respectively to Professor Finzen of Denmark, for

discovering the light treatment of lupus, and Professor Pavloff, the Russian physiologist, for his researches on nutrition.

AWARD OF THE STEWART PRIZE.—The council of the British Medical Association has awarded the Stewart prize to Dr. Patrick Manson, for his work on the malarial parasite. The prize is awarded biennially for researches regarding the origin, spread and prevention of epidemic disease.

GIFT TO INDIANAPOLIS MEDICAL LIBRARY.—Dr. J. Ewing Mears of Philadelphia has presented the George W. Mears Memorial Medical Library of Indianapolis with 4,000 volumes of medical works. The library was established as a memorial to his father.

BOSTON.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon Aug. 14, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 25, scarlatina 21, measles 23, typhoid fever 16.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Aug. 10 was 194, as against 233 the corresponding week last year, showing a decrease of 39 deaths, and making the death-rate for the week 17.6. The deaths from consumption were 20; pneumonia 7; whooping cough 0; heart disease 9; bronchitis 2; marasmus 9. There were 10 deaths from violent causes. The number of children who died under 1 year was 77; under 5 years, 95; persons more than 60 years, 26; deaths in public institutions, 61.

NEW YORK.

HEALTH REPORT FOR JULY.—The weekly reports of the Health Department for July give a mortality which represents an annual death-rate in the city of 25.91, against 17.46 in June and 24.39 in July, 1900. The reason for this marked increase is found in the extreme and protracted heat of the latter part of June and first few days of July. As previously mentioned in the JOURNAL, there were no less than 989 deaths attributed to the direct effects of heat (all given as sunstroke in the Health Department reports) in the week ending July 6, and these, with the deaths from other diseases aggravated by the heat, brought the death-rate for that week up to the unprecedented figure of 40.82. It is noticeable that the highest death-rate for the week in any of the boroughs was in the rural district of Richmond (Staten Island); namely, 43.15. Next comes the borough of Manhattan with 42.14, then Brooklyn with 40.48, then the Bronx with 37.11, and finally,

Queens (comprising all of the sections of the city situated on Long Island not included in the borough of Brooklyn) with 32.36. Among the affections in which the mortality seems to have been markedly increased by the extreme heat were diseases of the nervous system, in which the deaths in the week ending July 6 numbered 228, against 88 in the week following; cardiac diseases with 127 deaths, against 63 in the week following, and cancer with 71 deaths, against 40 in the week following. The deaths from diarrheal diseases also were naturally greatly augmented by the hot weather, the mortality from this cause reaching 319 in the week ending July 6. This mortality, however, was far exceeded later in the month, the deaths from diarrheal diseases amounting to 545 in the week ending July. This is in accordance with the fact annually observed, that the death-rate from this cause reaches its culminating point for the year about the end of July. Among the diseases which showed a decreased mortality in July as compared with June were the following: The weekly average of deaths from diphtheria and croup declined from 45.75 to 23.25, scarlet fever from 33.5 to 23.75, pneumonia from 89 to 54.5, phthisis from 149.75 to 143.5, and bronchitis from 19.75 to 15.25. Among the diseases which showed an increased mortality (in addition to those already referred to) were the following: The weekly average of deaths from typhoid fever increased from 6.25 to 11.5, whooping cough from 4.5 to 8, and smallpox from 15.5 to 19.75. The deaths from smallpox, however, were much fewer in the latter part of the month than in the earlier. Thus, while in the week ending July 13 they reached 33, in the week ending July 27 there were but 9 deaths from this cause. The disease now really seems to be on the wane, and during the first week in August, for the first time since November last, 24 hours elapsed without a single case of the disease being reported.

MALARIA AT FORDHAM HEIGHTS.—At Fordham Heights, in the borough of the Bronx, which has always had the reputation of being a very healthful section, there is at present quite a severe epidemic of malarial fever, and it is also stated that the mosquitoes have been more numerous and troublesome there this season than ever before. Among those who have been seriously attacked with the disease are reported several of the gardeners and attendants at the Fordham Hospital, belonging to the Municipal Department of Charities, which is situated on very high ground, but within reach of mosquitoes from marshy regions of the borough.

THE SKENE PUBLIC LIBRARY AT GRIFFIN'S CORNERS.—The late Dr. A. J. C. Skene of Brooklyn, N. Y., donated the land, and planned to erect a

public library at Griffin's Corners in the Catskills, where he was in the habit of spending his summer vacations. After his death it was found that the state of his affairs did not warrant the expenditure, and it is now announced that Mr. Andrew Carnegie has offered to build the library at an expense of \$5,000, and has expressly stipulated that it shall bear the name of Dr. Skene.

Correspondence.

[From our Special Correspondent.]

SOME MEDICAL ASPECTS OF THE PAN-AMERICAN EXPOSITION.

AN excellent exhibit is also made here with respect to the tenement-house problem. A part of this exhibit consists of three large models, as follows:

(1) This model shows a block of existing tenement houses in New York City as it stood on Jan. 1, 1900. This block is bounded by Chrystie, Forsyth, Canal and Bayard streets, and is stated not to be the worst in the city, but merely typical of the poorer districts. It includes 39 tenement houses, containing 605 different apartments, which afforded shelter to 2,781 persons. Of these, 2,315 were reported as being over 5 years of age. There are 1,588 different rooms, and but 264 water-closets in the block. There is not a single bath in the block, and but 40 apartments are supplied with hot water. There are 441 dark rooms, which have no ventilation to the outer air and no light or air except that derived from other rooms. In addition, 635 other rooms receive their supply of light and air from dark and narrow air-shafts. During the previous 5 years 32 cases of tuberculosis had been reported from this block, and during the same period 665 different applications for charitable relief have come from this block. The gross rentals from the block amounted to \$113,964 per annum.

(2) This model shows a block of typical tenement houses built in accordance with the laws in force in New York on Jan. 1, 1901, showing almost the entire block occupied by these buildings. Each tenement house in this block contains accommodations for 4 families on each floor, in 14 rooms; making 22 families in each building and 704 families in the block; or a total of 4,000 persons in the block. The new tenement-house law just passed prevents the erection of such buildings in the future.

(3) This model shows an entire city block of model tenements, with large courts for light and air, as approved by the Tenement-house Committee of the Charities Society of New York.

Another portion of the exhibit consists of swinging frames containing photographs illustrating tenement-house conditions in the United States.—In New York, Boston, Baltimore, Cincinnati, San Francisco and other cities. These show the small, dark, narrow, unventilated air-shafts, the evils of lodgers in the tenements, unsanitary "back-to-back" rear buildings, playgrounds in tenement districts, street scenes in tenement districts, etc. This section closes with a number of photographs illustrating model tenement houses as erected in New York and Brooklyn, and also different model small houses, most of which have been built by employers for their employees. That model houses, such as have been erected, are a paying investment is shown in connection with photographs of the Washington Sanitary Improvement Company's houses at Washington, D. C., which pay 5% or more on the investment, and in connection with the photographs of model houses at Hopedale, Mass., and Willimantic, Conn., where spacious, light and pretty houses, with lawns and flower-gardens, can be rented by workmen at as low as \$1.03 per week.

In the adjoining booth an exhibit is made with reference to hospitals and hospital construction, sanitaria and public charitable institutions. A large model in this exhibit represents a fully equipped ward in the Presbyterian Hospital, New York; another shows a ward in the St. Mary's Hospital for Children, New York. Johns Hopkins Hospital and various hospitals of New York, Boston and other cities are illustrated by plans and photographs, as are various insane asylums, industrial schools, reformatories, etc. Both these exhibits are extremely interesting and well worthy of careful study. They will undoubtedly attract much attention from the members of the American Public Health Association, which holds its annual meeting in Buffalo early in September.

Exhibits of ambulances are made in the East Ordnance Building and also in the Machinery and Transportation Building, in which latter building the medical man will probably find much to interest him in the display of automobiles, carriages, harness and bicycles. In nearly all the large Exposition buildings booths have been fitted up by an optical company for the fitting and sale of glasses. This company, which has secured sole rights for this purpose from the Exposition authorities, appears to be doing a rushing business with visitors from the rural districts, though there have been some complaints with respect to the business methods it has employed to secure customers.

As a whole, the sanitary condition of the Exposition is better than might have been expected, considering the aggregation here of such large numbers of Indians, Esquimaux, native Africans and other primitive peoples of the most rudimentary sanitary instincts. This is entirely due to the indefatigable efforts of the Exposition sanitary officer, Dr. Nelson Wilson of Buffalo, who is fortunately endowed with ample executive power to secure compliance with his directions. The Exposition grounds are well sewered and drained, and an excellent corps of street cleaners and scavengers maintains a high degree of neatness and cleanliness. In no part of the grounds will the eye or nose be offended. Some weeks ago there was some complaint with reference to the water-closet accommodations provided, and particularly to the small charge made by the Exposition authorities for the use of certain closets and the use of soap and towels. A number of additional closets were immediately thrown open to the general public, and there has been no further complaint with reference to this matter. A positive fault still unremedied, however, consists in the fact that some of the water-closets in some of the main buildings are poorly ventilated, and unpleasant odors are sometimes drafted into the buildings. The buildings themselves are cool and well ventilated, with the single exception of the Art Building. The latter apparently has no facilities whatever for ventilation, and the interior atmosphere is so close, stagnant and hot as to greatly detract from the popularity of this important exhibit and reduce its attendance. There is no valid reason for the existence of such a condition, and this defect should be promptly remedied. Until this is done, medical visitors to the Exposition should take care to make their visits to the Art Building early in the day, before the heat and crowds have vitiated the confined air.

* * * *

COLLECTIVE INVESTIGATION OF THE INFLUENCE OF THE SILVER-NITRATE INJECTIONS ON PHTHISIS.

1829 SPRUCE STREET,
PHILADELPHIA, PA., Aug. 15, 1901.

TO THE MEMBERS OF THE MEDICAL PROFESSION: In 1892 the undersigned began a collective investigation of the action of cold in the treatment of acute pneumonia, and there is reason for believing that this procedure, which resulted in gathering 400 cases of this disease thus treated, with a death-rate not quite 5%, was an important factor in calling attention to the utility of that treatment, and in introducing it to the pro-

fession of this country. That research was based on the conviction that no remedy can be called truly successful until it has passed the exacting crucible of clinical experience, and it is now proposed to apply the same ordeal to the silver-injection treatment of phthisis, which, in a large hospital, dispensary and private practice, reaching over a period of three years, and during which time many thousands of injections were administered, has given me greater satisfaction than any other method that I have ever employed. In keeping with the above-expressed feeling a cordial invitation is hereby extended to those members of the profession who have the inclination and opportunity to investigate this method of treating phthisis, and to whom a reprint on the subject, with full information and blanks to report cases, will be cheerfully sent on application.

THOMAS J. MAVS, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUG. 3, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrhœal diseases.	Diphtheria and croup.	
New York . .	3,437,202	1,602	861	49.76	6.92	7.81	34.29	16.84	—
Chicago . .	1,698,575	—	—	—	—	—	—	—	—
Philadelphia .	1,293,697	474	194	32.38	2.77	2.34	10.43	2.34	—
St. Louis . .	575,238	—	—	—	—	—	—	—	—
Baltimore . .	508,367	235	112	36.55	2.97	4.67	26.35	.42	—
Cleveland . .	381,708	—	—	—	—	—	—	—	—
Buffalo . .	302,387	—	—	—	—	—	—	—	—
Cincinnati . .	325,902	—	—	—	—	—	—	—	—
Pittsburg . .	321,616	145	64	19.32	5.52	5.52	5.52	2.07	—
Cleveland . .	275,718	—	—	—	—	—	—	—	—
Milwaukee . .	285,315	—	—	—	—	—	—	—	—
Providence . .	175,597	72	35	40.31	9.73	—	86.18	—	—
Boston . .	569,892	210	99	42.22	4.75	4.8	27.37	.48	—
Worcester . .	118,421	47	16	34.08	2.13	—	21.30	—	—
Fall River . .	104,863	59	41	59.50	—	3.40	49.20	—	—
Lowell . .	94,969	39	20	35.84	5.12	—	28.16	—	—
Cambridge . .	91,886	29	17	48.55	6.90	—	31.05	—	—
Lynn . .	68,513	15	6	33.33	6.66	—	6.66	—	—
Lawrence . .	62,559	26	16	57.75	—	—	46.20	3.85	—
New Bedford .	62,442	32	19	46.80	—	6.24	34.32	—	—
Springfield .	62,059	15	8	26.66	6.66	—	26.66	—	—
Somerville . .	61,643	—	—	—	—	—	—	—	—
Holyoke . .	45,712	17	12	41.16	5.88	—	41.16	—	—
Brockton . .	40,063	—	—	—	—	—	—	—	—
Haverhill . .	37,175	14	6	14.28	—	—	7.14	7.14	—
Salem . .	35,866	10	4	30.00	—	10.00	—	—	—
Chelsea . .	34,072	7	5	—	—	—	—	—	—
Malden . .	33,064	8	4	25.00	—	—	12.50	—	—
Newton . .	33,567	5	5	60.00	—	—	20.00	—	—
Fitchburg . .	31,531	6	5	—	—	—	—	—	—
Taunton . .	31,036	8	3	25.00	—	—	—	—	—
Gloucester . .	26,121	4	2	—	—	—	—	—	—
Everett . .	24,530	9	4	—	—	—	—	—	—
North Adams .	24,200	6	1	16.67	—	—	16.67	—	—
Quincy . .	23,899	5	3	60.00	—	—	60.00	—	—
Waltham . .	23,481	5	2	60.00	—	—	20.00	—	—
Pittsfield . .	21,706	—	—	—	—	—	—	—	—
Brookline . .	19,838	—	—	—	—	—	—	—	—
Chicopee . .	19,167	14	8	50.00	—	14.00	28.00	—	—
Medford . .	18,244	—	—	—	—	—	—	—	—
Newburyport .	14,478	3	40	—	—	—	20.00	—	—
Melrose . .	12,862	—	—	—	—	—	—	—	—

Deaths reported 3,222; under five years of age, 1,576; principal infectious diseases (smallpox, measles, scarlet fever, diphtheria and croup, cerebrospinal meningitis, diarrhœal diseases, whooping cough, erysipelas, fevers and consumption) 1,396; acute lung diseases 116; consumption 288; scarlet fever 18; erysipelas 2; typhoid fever 42; whooping cough 26; measles 23; cerebrospinal meningitis 13; smallpox 14.

From whooping cough, New York 8, Philadelphia 15, Pittsburg 1, Cambridge 1, Chicopee 1. From cerebrospinal meningitis, New York 7, Philadelphia 2, Baltimore 1, Worcester 1, Lynn 2. From scarlet fever, New York 11, Philadelphia 2, Boston 4, Salem 1. From typhoid fever, New York 13, Philadelphia 11, Baltimore 3, Pittsburg 8, Boston 1, Lawrence 1, Fall River 2, Salem 1, Chicopee 1. From smallpox, New York 14.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,443,026, for the week ending July 20 the death-rate was 17.9. Deaths reported 3,927; acute diseases of the respiratory organs (London)

135, whooping cough 49, diphtheria 62, measles 103, fever 35, scarlet fever 32.

The death-rate ranged from 7.7 in Croydon to 20.5 in Liverpool; Birkenhead 29.1, Birmingham 17.2, Blackburn 22.5, Bolton 17.3, Bradford 14.1, Brighton 8.4, Bristol 13.4, Burnley 17.7, Cardiff 12.0, Derby 15.2, Gateshead 20.8, Hull 12.9, Huddersfield 14.8, Hull 11.9, Leeds 21.9, Leicester 12.5, London 16.2, Manchester 20.9, Newcastle-on-Tyne 19.3, Norwich 14.0, Nottingham 18.9, Oldham 15.6, Plymouth 15.0, Portsmouth 14.1, Preston 21.2, Salford 18.4, Sheffield 29.1, Sunderland 15.6, Swansea 16.5, West Ham 17.8, Wolverhampton 14.9.

METEOROLOGICAL RECORD

For the week ending Aug. 3, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer	Relative humidity.		Direction of wind.		Velocity of wind.		Weather		Rainfall in inches.					
	Daily mean.	Daily mean.	Maximum.	Minimum.	8:00 A.M.	8:00 P.M.	Daily mean.	8:00 A.M.	8:00 P.M.	8:00 A.M.		8:00 P.M.	8:00 P.M.	Rainfall in inches.		
Aug. 24	29.96	67	72	62	75	82	79	S	W	S	W	10	13	O	O	T.
" 25	29.92	62	66	59	69	83	82	N	W	S	E	12	6	O	O	1.81
" 26	29.79	74	85	62	91	72	80	S	W	S	W	12	9	O	O	F.
" 27	29.76	75	87	62	91	68	77	S	W	S	W	11	8	C	O	O.
" 28	29.82	73	81	63	82	59	60	S	W	S	W	11	8	C	O	C.
" 29	29.93	75	81	63	82	61	64	S	W	S	W	8	10	C	O	C.
" 30	29.93	72	80	62	86	61	64	S	W	S	W	12	7	R	O	T.
" 31	29.97	72	80	64	84	64	67	S	W	S	W	12	7	R	O	T.
Aug. 1	29.97	78	63		77											1.82

* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threatening; N, snow. † Indicates trace of rainfall.
 ‡ Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING AUG. 3, 1901.

J. W. BANKS, surgeon. Detached from the "Vermont" and ordered to the Asiatic Station, Aug. 16.

F. A. ANDERSON, assistant surgeon. Detached from the Naval Hospital, New York, and ordered to the Asiatic Station, Aug. 16.

S. H. GRIFFITH, surgeon. Relieved as recruiting officer at Buffalo, N. Y., and ordered to continue other duties.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JULY 25, 1901.

BANKS, C. E., surgeon. Granted leave of absence for 3 days from July 25, 1901.

FERRELL, C. T., surgeon. Bureau order of July 17, 1901, relieving Surgeon P. C. Bain from duty at Galveston, Texas, and directing him to report to medical officer in command at Boston, Mass., for duty, revoked; and directed to report to Surgeon G. W. Stoner, Immigration Depot, New York, for duty. July 23, 1901.

McINTOSH, W. P., surgeon. Leave of absence for 1 day under paragraph 178 of the regulations.

FERRY, T. B., surgeon. To proceed to Martinsburg, Va., for special temporary duty. July 29, 1901.

Cobb, J. O., passed assistant surgeon. Granted leave of absence for 30 days from July 24. July 22, 1901.

THOMAS, A. R., passed assistant surgeon. Granted leave of absence for 30 days from Aug. 15. July 29, 1901.

HASTINGS, HILL, assistant surgeon. Two months leave of absence granted by Department letter of June 28, amended so that said leave shall be from July 20 instead of July 15. July 29.

FOSTER, M. H., assistant surgeon. Granted leave of absence for 14 days from Aug. 8. July 23, 1901.

McLAUGHLIN, A. J., assistant surgeon. Granted leave of absence for 7 days under paragraph 178 of the regulations.

GLOVER, M. W., assistant surgeon. Bureau order of July 17, 1901, relieving Assistant Surgeon Glover from duty at Boston, Mass., and directing him to report to Surgeon

G. W. Stoner, Immigration Depot, New York, for duty, suspended. July 19, 1901.

LONG, J. D., assistant surgeon. Granted leave of absence for 7 days under paragraph 178 of the regulations.

RIEKA, P. G., acting assistant surgeon. Granted leave of absence for 1 month from July 14. July 20, 1901.

LUCAS, W. A., interne. Granted leave of absence for 2 weeks from July 25, on account of sickness. July 24, 1901.

LYDER, L. W., hospital steward. Granted leave of absence for 15 days from Aug. 5. July 24, 1901.

APPOINTMENT.

A. H. BARK appointed interne in the Marine Hospital service for duty at Fort Staaton, N. M. July 22, 1901.

FOR THE SEVEN DAYS ENDING AUG. 1, 1901.

IRWIN, FAIRFAX, surgeon. Granted leave of absence for 21 days from Aug. 7. July 18, 1901.

Cobb, J. O., passed assistant surgeon. Bureau letter of July 22, 1901, granting Passed Assistant Surgeon Cobb leave of absence for 30 days from July 24, amended so that said leave shall be effective July 25. July 23, 1901.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Camp Fontainebleau and adjacent coast towns as inspector. July 29, 1901.

GREENE, J. B., passed assistant surgeon. Relieved from temporary duty at Washington, D. C., and directed to proceed to New York (Stapleton) and report to medical officer in command for duty and assignment to quarters, relieving Assistant Surgeon Taliaferro Clark, July 29, 1901.

CLARK, TALIAFERRO, assistant surgeon. Upon being relieved by Passed Assistant Surgeon J. B. Greene, to proceed to Immigration Depot, New York, N. Y., and report to Surgeon G. W. Stoner, for duty, relieving Assistant Surgeon J. D. Long. July 29, 1901.

KORR, W. A., assistant surgeon. Granted leave of absence for 1 month from Aug. 12. July 29, 1901.

LONG, J. D., assistant surgeon. Upon being relieved by Assistant Surgeon Taliaferro Clark, to proceed to Manila, P. I., and report to chief quarantine officer for duty July 29, 1901. Granted leave of absence for 2 days. July 30, 1901.

BEAN, L. C., acting assistant surgeon. Granted leave of absence for 30 days from Aug. 2. July 29, 1901.

FLAHERTY, B. V., acting assistant surgeon. Granted leave of absence for 15 days from Aug. 12. July 31, 1901.

MARTIN, H. McD., acting assistant surgeon. Granted leave of absence for 30 days from Aug. 1. July 31.

O'GORMAN, T. V., hospital steward. Granted leave of absence for 60 days on account of sickness, to take effect on date of departure from station. July 26, 1901.

RECENT DEATH.

DR. JAMES V. KENDALL, one of the oldest and most prominent physicians of Central New York, died at his home, at Baldwinsville, Onondaga County, on Aug. 5, at the age of 83. During the Civil War he was surgeon of the Forty-ninth Regiment, N. Y. Volunteers, and in 1869 was a member of the State Legislature.

BOOKS AND PAMPHLETS RECEIVED.

Some Thoughts on the Ethics of Medical Journalism. By Burnside Foster, M.D., St. Paul, Minn. Reprint. 1901.

Transactions. American Congress of Tuberculosis. In Joint Session with the Medico-Legal Society. Illustrated. Reprint. 1901.

The Diseases of the Respiratory Organs, Acute and Chronic. By William F. Waugh, A.M., M.D. Chicago: G. P. Englehard & Co. 1901.

An Investigation of a Pathogenic Microbe Applied to the Destruction of Rats. By M. J. Rosenau, Passed Assistant Surgeon, Director Hygienic Laboratory, U. S. Marine Hospital Service, Washington, D. C. Reprint. 1901.

Practice of Medicine. By Eminent Medical Specialists and Authorities. Edited by George Alexander Gibson, M.D., D.Sc., F.R.C.P.E. Vol. I and Vol. II. Philadelphia: J. B. Lippincott Co.; Edinburgh and London: Young & Pentland. 1901.

International Clinics. A Quarterly of Clinical Lectures and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and other topics of interest to students and practitioners, by leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A.M., M.D. Vol. II. Eleventh Series. 1901. Illustrated. Philadelphia: J. B. Lippincott Co. 1901.

Address.

ADDRESS IN SURGERY.¹

SOME SURGICAL LESSONS FROM THE CAMPAIGN IN SOUTH AFRICA.

BY SIR WILLIAM THOMSON, C.B., M.D., F.R.C.S.I.,

Honorary Surgeon to His Majesty the King in Ireland; to His Excellency the Lord Lieutenant, K.G.; Surgeon to the Richmond Hospital, Dublin.

MR. PRESIDENT AND GENTLEMEN: The request of the Council of the Association, that I should undertake the duty of delivering the address in surgery at this meeting, confers upon me a great honor, which I fully appreciate, and for which I hasten to express my cordial acknowledgments. But it also brings with it a responsibility so heavy that I am filled with anxiety. It is a difficult thing to follow, even at a long interval, the distinguished men who have preceded me in this high office. I remember, too, that but a few years ago my old teacher and colleague, Sir William Stokes, occupied this position, and captivated his audience by a vivid eloquence, which was all his own. Today we have to speak of him as one of the many who, going out in the service of their country, have paid the immortal tribute of their patriotism in South Africa, and like tired children, have lain down "to take their fill of deep and liquid rest."

In the discharge of the duty which I have assumed, I hope it will not be out of place if I, a civilian, venture to occupy your attention with some points in connection with the surgical aspects of the war. For the first time in our history the country has been largely represented by civilian surgeons in a great campaign. In the Crimean War a few were so employed, but in the present case civil aid has not been only casual or occasional. Many hundreds of surgeons have left their peaceful practice at home, and volunteered for service in the field to help their brethren of the Royal Army Medical Corps. They have had the opportunity of seeing what active service is, and the results of it; have tasted to the full its discomforts and horrors. They have had entirely novel experiences. They have been taken from the placidities of home life and thrown into the bloody turmoil of war, looking with unaccustomed eyes upon scenes which often thrilled and never ceased to interest.

THE EFFECT OF MODERN SMALLBORE FIRE.

For nearly 50 years Great Britain had not met a white-faced foe, and the weapons of war had been entirely revolutionized. The smoothbore musket with its round bullet had been succeeded by rifles of large calibre; these in turn had given place to the Snider and Martini, to be followed by rifles of small calibre and great range, and of these our own experience was one-sided, for even in our late Indian campaigns they had hardly ever been used against us.

¹ Read before the annual meeting of the British Medical Association at Cheltenham, July-August, 1901.—By the courtesy of the British Medical Journal.

The knowledge of the effects of these weapons from their use by both sets of combatants was limited to the war between the United States and Spain. But in the Cuban campaign there were no great masses of troops engaged, and the casualties were comparatively few. Thus we entered upon the war in South Africa without any comprehensive idea of what the surgical results would be in a conflict between two forces, each armed with the smallbore rifle. It was said that with the rapid discharge of which these arms are capable—supplemented by the magazine—no troops could escape destruction. Indeed, the world is still without experience of what would happen with great bodies of men handled according to European methods, as in the Franco-German War; but these methods did not exist in South Africa. The Boer rarely appeared in the open, and then only in small numbers. His plan was to seize some kopjes, with a secure line of retreat, to entrench himself and await the attack. From these positions the ground usually stretched away in a flat plain, without a tree or a boulder, and with sometimes only a small ant hill here and there to give protection to the assailants. The conditions, then, were: An unseen enemy well entrenched in a commanding position; a large body of troops advancing and exposed to view; an object upon which thousands of sharpshooters were pouring fire. The rifle began its work at a couple of thousand yards; aim became more sure as the intervening distance decreased, until sometimes fire was delivered into our soldiers at one hundred yards or less, as they made the final rush.

One would naturally expect as a result of all this a terrific mortality. It is true that we have lost heavily, but certainly not more heavily than the enemy. Yet, if we look to proportional effects, and compare these with those of campaigns in which the weapons were of cruder form and of less range and penetrating power, we see that there is not the difference which was anticipated in the amount of damage inflicted. In the American Civil War of 40 years ago the killed were 17.97% of those hit, or 1 man killed for every 4.56 wounded. In the recent war in Cuba, where the Manser rifle was used against the United States troops, the killed were only 11.9 to 88.1 wounded, in each hundred—a very considerable decrease as compared with the results of the old rifle.

When the total casualties of Belmont, Graspan, Modder River and Magersfontein are grouped, we have 17.24 killed in every hundred struck, almost identical with the return from the American Civil War. The latest figures bring our losses up to June 30, and show that, of 22,646 hit, 4,355 were killed. In other words, 14.8 were killed to 85.2 wounded, a return higher than that of the Cuban War, but lower than that of the Civil War. The figures do not include those men who died subsequently from wounds, but simply give the immediate results of battle. The subsequent mortality returns, when they are available, will probably not vary much from these ratios.

I have not taken care to separate the effect of shell fire from that of the rifle, for the reason that the former did comparatively little physical damage. The war was essentially a war of small arms; and so far it would seem as if all the improvements in them have not added to their immediate destructiveness; but this conclusion would not be entirely justifiable. The weapons are more accurate and of greater range than have been employed before. But given the same conditions of closer quarters and the formation of troops as formerly, opposed men, armed with breech loaders and using magazines, must inflict terrible damage. We have had some instances of the result in this campaign. What has happened is that we have learned to diminish the effect of the fire by making considerable intervals between the men, so that there is much less damage from loose, unaimed firing than if the enemy had huge blocks of human beings for targets. If we add to this the fact that firing begins at a range of 2,000 or 1,500 yards; that the very light bullet is subject to the deflection caused by varying densities of atmosphere and force of wind, all conducing to inaccuracy of shooting, we have some reasons why the efficiency of modern rifle fire under certain conditions has so happily disappointed our anticipations.

THE EFFECT OF THE SMALLBORE BULLET.

When, however, we come to consider the nature of the wounds inflicted by the two classes of weapons, the difference is very great, and this depends mainly upon the character of the bullet employed. The old flintlock had a ball nearly $\frac{3}{8}$ of an inch in diameter, the Minie rifle of the Crimean War one of $\frac{5}{16}$, the Enfield of $\frac{5}{16}$, the Martini-Henry of $\frac{3}{16}$, the modern smallbore represented by the Lee-Metford is about $\frac{3}{16}$, and the Mauser is a decimal smaller. The bullets in the first group were all of lead, and elongated, with the exception of that of the old musket; the bullets of the second group, however, which may be likened to $1\frac{1}{4}$ inch of ordinary lead pencil, are encased in a hard cupro-nickel case, somewhat pointed, polished and absolutely smooth.

The vast majority of wounds received in South Africa were caused by these bullets. It is certain that the enemy used other varieties; sometimes the soft-nosed sporting bullet, which, having an end of exposed lead, spread out on impact and inflicted a lacerated wound. Explosive bullets for big game have been found on prisoners, and the old Martini rifles were used with considerable freedom. In other instances the mantles were split at the top so that they expanded on impact. But it was not always possible to identify the effects as due to a missile contrary to the usages of civilized war.

There is a popular belief that an elongated bullet must hit its object practically at right angles if that object is upright when presented to the line of fire. But between the discharge of the bullet and its arrival at the mark a great many things may happen. It is often deflected in its flight, or it may be turned by clothing or

other substances, and make its impact at all sorts of angles, causing large wounds. Sometimes the Mauser bullet has turned completely round and entered base forward. But a great number strike the ground or a stone, and become much more formidable in their effects. This ricochet produced many kinds of deformities in the bullet; the case was often torn off wholly or in part, and, when the primary contact occurred close to the body, spattered the skin about the principal wound with small fragments of the cupro-nickel mantle. Now and again the exposed lead mushroomed and produced ghastly lacerations. But the result of a bullet striking soft parts sideways after a ricochet often made it difficult to believe that it had not contained a bursting charge. I was able to observe the effect of a Lee-Metford bullet on one of our own men. A soldier accidentally discharged his rifle at a distance of ten paces. The bullet ricocheted and struck the victim on the inside of the thigh posterior to the femoral vessels. The entrance was more than an inch in diameter, the exit at the outer side was a wound $2\frac{1}{2}$ inches in diameter, with great loss of substance. Here there was no doubt as to the weapon or the ammunition employed. The soft structures alone were injured, but they presented the appearance that one would expect as the result of some powerful local explosive.

WOUNDS OF SOFT PARTS.

The campaign in South Africa has presented many surprises. Perhaps none is greater than the large proportion of wounded who have recovered. Even severe wounds have responded to treatment in a manner which has surprised everyone having experience of surgical injuries. These happy results were due in the first place to the character of the bullet. The wound was in ordinary cases exceedingly small at both apertures, and the tendency was to close immediately. There was usually little hemorrhage, and the openings were quickly sealed by exudation. This was an important first step. The pointed end of the bullet made the area of primary collision with the surface struck quite minute, and being covered in a hard mantle, it acted like a steel wedge driven with great velocity through the soft parts, rather cleaving than tearing its passage onwards. It appeared to contuse the walls of the channel sufficiently to prevent considerable oozing, and not to lacerate or destroy. One of my patients, a man of the Eleventh Hussars, was shot transversely through the cartilages of the nose. The very margins of the alae alone remained to keep the outline of the perforations unbroken. If the bullet exercised a destructive force appreciably beyond the channel which it made, the edges of the alae must have died, so thin were they; but they never showed any tendency to necrose, and the wounds were healed in three days.

But even in long flesh wounds in the extremities the same rapidity of repair was noticed. Here again the character of the injury influenced the result, for the walls of the track did not remain

rigid, leaving a permeable tunnel. As soon as the passage had been accomplished the walls fell together, and thus further helped in the exclusion of air and the risks of sepsis.

Various suggestions have been made, but have not been sustained, that asepsis has been secured by the heat generated in the bullet itself—heat which it has been claimed is sufficient to destroy any pathogenic organisms. Cartridges carried in handoliers were always exposed to contamination, but I have no doubt that the bullet received a thorough cleansing in the rifle. It was, of course, slightly larger than the bore, and was forced to take the turn of the rifling by the explosion. The result was a certain polishing of the outer surface under immense pressure, and the after sources of contamination could only be found in passage through the air, the man's clothes and his skin. Practically, penetration was effected by a piece of clean, very hard metal. Of course, there is no doubt that germs did gain access even under such circumstances, but in how many cases, even in operations under elaborate precautions, are they entirely absent? Unless the conditions which make them potent exist, they give no trouble.

The second cause was the early application of the first dressing. This was not always done by the surgeon. Very frequently the wounded man was able to attend to his own wants in this particular. Sometimes dressings had been lost and a piece of old linen or window blind did duty. In spite of these, however, and of skin ingrained with dirt, the early closing of the apertures no doubt helped to avert mischief. But in the case of the extremities the bandages were of special importance in fixing the track of the wounds, in securing apposition of the walls, and in keeping the parts in that immobile condition which was of so much importance.

The third cause was the climate. The temperature was high, the atmosphere very dry and particularly free from germs hostile to the surgeon's work. The general elevation of the plains in the northern part of Cape Colony through Orange River Colony and on to the Transvaal varied from 4,000 to 6,000 feet higher by nearly 2,000 feet than any mountain in the United Kingdom. The conditions, therefore, were exceedingly favorable. The intensely dry atmosphere quickly transformed oozing blood into crusts, and so helped on the healing in a wonderful way. In a moister climate the results probably would not have been as good, and we should have had to deal with a greatly increased number of cases of suppuration.

WOUNDS OF BONES.

So far we have been considering the effect of the smallbore bullet upon soft parts. Let me go a step further and discuss the damage done to bones, and the rate of mortality which followed. The subject is important, because in this as in all wars injuries of the upper and lower extremities outnumber, many times over, those of any other part of the body. I will take a convenient illustration—the American Civil War. The total

number of wounded treated in the Northern hospitals was 245,800; 71,594 were wounds of parts excluding the extremities; wounds of the upper extremities were 87,793; of the lower 86,413. These produced fractures of bones in 32,992 and 27,274 respectively, or a total of 60,266. Injuries of bones, then, hold the first place in number, and hitherto they have been followed by an appalling mortality.

It is in the damage inflicted upon these structures that we find the strongest evidence of the power of the smallbore. As the improvement in the rifle developed, there was also an alteration in the shape of the bullet, which became elongated, and during these changes the character of the injuries to bones became correspondingly severe.

The velocity at which the modern bullet travels as it leaves the muzzle may be taken as about 2,000 feet a second, but during the flight this rate is gradually reduced owing to well-recognized causes. It is obvious that if the bullet, within a few hundred yards after it has been fired, strikes a bone, it does so with crushing force, and that the severity of the injury decreases just in proportion to the distance which intervenes between the rifle and the object struck. In other words, the greater the velocity the greater the destruction when the bullet is suddenly obstructed by striking the shaft of a bone. Without entering into a discussion of the so-called explosive force produced on impact, what we find is that the bone is much comminuted, and that fragments are carried some distance onwards in the soft parts as the bullet travels. But as the velocity lessens the effects are not so destructive; the bone is broken, sometimes into a few pieces, at the point at which it is struck, and sometimes the fracture has no subsidiary fragments. Occasionally a case is met with in which the velocity has been just enough to break the bone, but not to carry the bullet through the limb after the collision.

The behavior of the bullet in the cancellous structure of the ends of bones differed from what I have just described. In the older forms of conical bullets with low velocity there was much tendency to lodge in these structures, but in this campaign the injury was chiefly a complete perforation. The different structure of the ends of bones as compared with the shafts accounted for this. The cancellous tissue presented a more or less elastic obstacle to the bullet and yielded to the impact; but in the case of the shaft the hardness of the parts struck offered considerable resistance, and much of the force of impact was expended in breaking the denser obstruction into minute pieces.

AMPUTATIONS THROUGH THE THIGH.

In the campaigns of 40 or 50 years ago few injuries were more fatal than gunshot fractures of the femur, and the doctrine which had been laid down by earlier writers, that amputation should be immediately performed, still largely influenced practice. The flesh wounds were much more

severe. Principles of cleanliness had not yet been formulated; the wounds always suppurated, and the result was a compound and comminuted fracture, which often developed the worst forms of sepsis. It was to avoid these almost inevitable results that amputation was advised, for it got rid of a lacerated wound and fragments of bone and gave for a time a hope of safety. Nevertheless, the mortality was appalling. Here are a few figures.

RESULTS OF AMPUTATION OF THIGH IN GUNSHOT FRACTURES.

	Cases.	Recovered.	Died.	Percentage of Mortality.
Crimean War.....	2,748	227	2,603	73.5
American War (North).....	6,229	2,839	3,310	53.8
Franco-German War (German)....	798	243	514	65.6
" " " (French).....	3,794	342	3,452	90.9

Out of a further group of 9,017 cases, 83% died.

But the results of conservative treatment did not show to much more advantage in the Crimea and the United States. I give the figures in the same campaigns by way of strict comparison:

RESULTS OF CONSERVATIVE TREATMENT IN GUNSHOT FRACTURES OF THE THIGH.

	Cases.	Recovered.	Died.	Percentage of Mortality.
Crimean War... ..	555	153	402	72.4
American War (North).....	3,467	1,689	1,984	49.9
Franco-German War (German)....	811	530	283	38.7
" " " (French).....	896	811	85	9.4

¹ Result unknown in 94 cases.

Nevertheless there was an improvement. The historians of the American Civil War hailed as victory the return which showed a mortality of 49.9 in conservative practice as compared with 53.8 for amputation. It was a gain of nearly 4% for the treatment which aimed at saving the limb. Then came the Franco-German War nearly 10 years later, and the lessons from America bore fruit. There was still a large number of surgeons, whose opinion was valued, who believed in immediate amputation, but even these yielded to the force of experience, and conservation as against amputation won by a difference of 26.9%. The experience of France was remarkable, as only 85 or 9.4% are reported to have died without amputation; but the number given is so small that I am not prepared to accept it as representing the surgery of the period. Still, the lesson remains

that in those campaigns when the revolt against amputation began the result was with the progressives.

But if we turn to the recent Cuban War we have a further gratifying experience. Surgeon-General Sternberg reports that during the 2 years, 1898-1899, 82 cases of gunshot fracture of the femur were reported, 6 of which were treated by primary amputation and 2 by resection, the remaining 74 cases being treated by conservative methods, not because the conditions were not favorable for the performance of primary operations, but because of a conviction that under present methods of treatment the limb could be preserved without materially adding to the danger of life. The limb was lost through surgical intervention in only 7.3% of the cases. Of fracture of the upper third there were 32 cases, of which 5 were fatal under conservative methods; of the middle third, 27 cases and 3 deaths; of the lower third, 23 cases and 1 death. A general mortality of 10.8%. This record of compound fractures of the femur in the field is a splendid one.

I am not able to lay before you like figures from the campaign in South Africa. They have not yet been completely analyzed, and partial results are apt to leave false impressions. Nevertheless, I think I may say that in no war have the number of amputations been so few, the number of limbs saved so many, or the mortality from such operations so small. Amputation of limbs was quite the exception, and was only done when the case was otherwise beyond hope. For the lessons of modern surgery, the vast possibilities of recovery which the teaching of Lister had put within the grasp of every practitioner of the art in the world, had already proved that the nearer we could approach to natural conditions the greater the safety for the patients. Therefore when a bone was broken by a bullet, and there was no other lesion but the track made through unimportant soft parts, the indication was to apply an antiseptic dressing at once, to secure as much immobility as possible, and to have the patient sent to a place where rest and more deliberate attention could be had.

EXAMINATION OF WOUNDS.

The treatment of these cases in the first stage has led to some difference of views among surgeons; but I am satisfied that reason and experience point in one direction only. It has been recommended that fragments of bone which have been detached from the shaft ought to be removed, and the limb then secured in splints. I am strongly of opinion that local examination ought not to be carried out unless the surgeon should be driven to it by developments. The fact that bone is broken can be elicited quite easily by the methods which we employ in a simple fracture. Of what value in treatment on the field is it to learn whether there are 4 or 40 fragments? What should we learn by passing in probes or fingers, except that there was fracture

and that there were many pieces? To do this we should enlarge the wound considerably, introduce things that, probably, were not aseptic, disturb adhesions that were already in progress, break down clots, and generally do the things which were the very worst for the patient. It is surprising what little trouble many fragments apparently separated from sources of vitality may give. If they do necrose later on they can be dealt with under safe conditions. But I am quite sure that, with rare exceptions, the wrong thing to do on the battle field in a recent wound by a bullet involving fracture of a bone is to explore it with probes, or to enlarge it for the passage of a finger and the removal of fragments.

WOUNDS OF JOINTS.

One of the interesting features of the surgery of the campaign was the injury done to joints. In a majority of cases the bone was more or less injured, but in 3 out of 5 cases of perforation of the knee-joint under my own care there was no apparent involvement of bone. These cases did very well, pursued an aseptic course, and recovered with good movement. Even suppuration did not demand more severe measures than incision and drainage. I have seen a bullet traverse the two malleoli and the astragalus with perfect movement remaining. In the case of a naval officer the head of a pom-pom entered the astragalus and practically destroyed it, all that remained being the dense walls. There was a fracture of the tibia as well, and the limb would certainly have been amputated under the old rules; but I succeeded in saving the foot, although with a stiff joint, and he is still in the service. Excisions, again, were rare; and amputations were only performed on the field when vital parts were involved, or there was terrible destruction by a shell, which was an event of infrequent occurrence.

I have specially referred to injuries of the knee-joint, because I wish to indicate how satisfactory our experience of them has been in this campaign as compared with that of 40 years ago. Then the doctrine was that whenever the knee-joint was penetrated by a bullet, whether the bone was fractured or not, the limb should be amputated, and the sooner the better. This view existed not only before the American War, but was emphasized by the experience then acquired. In the Crimea, out of 138 cases, 45 recovered and 93 died, or 67.3%. In all but 3 of these there was fracture, of which the recoveries were 43 and the deaths 92. In the American War there were 793 cases, of which 402 recovered and 376 died, or 48%. In 659 instances there was fracture, of which 309 recovered and 350 died.

The proportion of cases in which bone was involved in wounds of the knee in the present campaign will perhaps be found to be somewhat less. But there can be no doubt that in spite of such a serious complication the cases did extremely well. The excisions must have been very few, for I did not see or hear of any. The simple perforations were attended by some blood effusion and, in my

own experience, trivial synovitis, and in these cases treatment by carefully occluding the openings and keeping the limb at rest was generally sufficient to secure safety and early restoration of normal movement.

PENETRATING WOUNDS OF THE ABDOMEN.

But the problem which most exercised the minds of surgeons in South Africa was the treatment of penetrating wounds of the abdomen. These had always been marked by the highest mortality in war. In the Crimea 92.5% of the British so injured died; 91.3% of the French. Here was a field in which there was plenty of scope for improvement. In the interval between that great campaign and the present, far-reaching changes had taken place in the practice of surgery. It had been shown in civil practice that it was possible to deal with almost all kinds of pathological conditions within the abdomen. In our own country the surgery of this region had reached such a high level of security that many believed that the successes of the civil hospitals could be extended to the field of war, and that at all events the mortality would be diminished very effectively. The late Marion Sims had strenuously pleaded that these cases ought to be submitted to operation, because therein lay greater hope for the patient; and there were few surgeons who went to South Africa who did not hold the same view. In a few months, however, they abandoned that position, after experience of the actualities of war, and the almost uniformly fatal results which followed—if they did not depend upon—interference.

I think the causes of this were not far to seek. In civil life a patient so wounded is quickly brought into the best position for operation, with all the appliances at hand which are almost essential to success. In warfare a wounded man may occasionally reach the field hospital within a short time, but when the casualties count into hundreds and thousands delay may extend into 12 and, in some cases, 24 hours, before he is even rescued. Now if there is an injury which should be treated promptly it is a lesion of the intestine; but the conditions in which operation should be done, if there is to be hope of success, are not to be found in a field hospital. The equipment is not sufficient or efficient, water is usually bad,—in South Africa it was loaded with earth from which no filters could free it; it could not be boiled in sufficient quantity,—and what we understand as the toilet of the abdomen was out of the question.

There were, as I have hinted, two periods in which the surgical attitude towards these cases were quite different. In the early days many abdomens were opened, but probably all the recoveries after operation may be counted on the fingers of the hand. This depressing result has corroborated the experiences of surgeons elsewhere. In the Tirah campaign 5 cases of laparotomy were reported, but they all died. In the late Cuban War Senn says that the 4 operation cases of which he personally knew all died.

Surgeon-General Sternberg of the U. S. Army reports officially that in the 2 years 1898-1899 they had 116 perforating wounds of the abdomen, of which 81, or 70%, were fatal, and that of 10 cases in which laparotomy was performed 9 died. In South Africa I have known of a series of 9 cases with 1 recovery. Dr. J. E. Neale, civil surgeon, has, however, reported² a case of a man wounded at Frere; 15 inches of the intestine were resected, and the patient never had a bad symptom.

But, as I have said, while the whole experience of operations was almost uniformly disappointing even in the most skilled hands, it was observed that many men with wounds of the abdomen did not present any alarming symptoms at all, and that many of them quickly recovered. Mr. Watson Cheyne gives his impression, derived at Cape Town, that only 20% of the abdominal cases had died; but this, of course, did not account for that large number killed outright, or for those who lingered for a few days and died before they could be transferred to the base. We are not yet in a position to deal with exact figures, because they are not procurable, but I think it will be found that the proportion of deaths was far in excess of this. Indeed, Mr. Cheyne's subsequent experience at the front induced him to regard the death-rate as much higher. He reports 27 cases, of which 18 died (2 after operation); Mr. Cheate 10 cases, of which 9 died. From the Philippine War Dr. Robinson has published figures which show 45 cases, with a mortality of 48.9%. But of these 8 were killed, or died within 24 hours. The interesting fact brought out, however, is that of 30 cases which were not operated upon 10 only died, showing in this group a mortality of but 33.3%.

These cases include all kinds of internal injuries, many of them necessarily mortal from hemorrhage, as in wounds of large vessels. But if we limit our inquiry to wounds of the intestines we are still met by serious difficulties in settling the question of operation. Apart from the initial one of the unsuitable surroundings of the field hospital and the insecurity which must attend opening of the abdomen there, we must first try to determine whether the bowel has been wounded at all. If we accept the evidence of the apertures of entrance or of exit, there generally appears to be no doubt that the bullet has passed direct between the two points, and it seems impossible that the bowel has escaped perforation. But there is abundant evidence, both recent and remote, that bullets and even sharp weapons have traversed the abdomen, not only without fatal results, but without symptoms of perforation of the intestine. I shall not trouble you with any other instance than that given by Mr. Cheate, and reported by Mr. Makins in his admirable book on "Surgical Experiences of the War." There the bullet passed through the cecum and the sigmoid flexure, but the intervening small intestine presented no indication of the slightest injury. Even

upon this one case it may be affirmed that a bullet can traverse the abdomen without wounding the intestine. I have seen or treated many cases in which the track of the bullet made it almost a certainty that it passed through the bowel, and in which the patient presented absolutely no symptoms up to his discharge from hospital. Now here we have another problem. Are we justified in opening the abdomen in such a case as soon as we see it, with no other evidence than two external openings and a belief that the bowel cannot have escaped? There can be no doubt, I think, that after a prolonged search for wounds in the intestine which did not exist the patient's chances of recovery would be much on the wrong side.

But I go further and take the cases in which there is actually a wound of the intestine. Is it possible for recovery to take place? I am quite satisfied that in very many instances of this injury from the Manser or Lee-Metford bullet the patients survived. Some of them had bloody stools and other symptoms which made plain the nature of the lesion. Many reasons have been given for these remarkable escapes. Probably they have depended in the first place on the angle of the impact of the bullet. A more or less direct hit would make a very small opening, which was immediately closed into a slit by contraction, and in some degree blocked by mucous membrane. The openings may have been further secured by pressure against an adjacent intestine, as suggested by Sir Frederick Treves, and kept secure until finally healed. But if we go back to Mr. Cheate's case, we find there was no extravasation from the cecum and no inflammation about the aperture, which had shaped itself into a minute slit. If, however, the bullet struck at a smaller angle, it would probably make multiple oval openings, with such loss of substance as to lead to extravasation and rapid infection of the peritoneum.

I have tried to show that there are cases in which there is no perforation, although we may suspect it, and cases in which wounds occur which may run a safe course, and in which operation would only lead to greater risks.

There remains the group in which the wound does allow of extravasation, and in which from various signs and symptoms we are able to recognize the condition. These cases as they stand are almost, but not quite, certain to die. Can we do anything to diminish this tendency?

I revert to the difficulty of operating upon them in a field hospital, and yet to send them back to a stationary hospital is almost hopeless. They ought to be operated upon at once, but they are sent away with an infected peritoneum which becomes worse each hour. What chance is there for successful interference at the journey's end, when the patient is exhausted by pain and exposure, and has been jolted in an ox wagon for a couple of days? Yet if operation is to be done quickly there must be some better equipment of field hospitals and more suitable preparations for this special work, for it is tedious and exacting, and it demands expert hands and sound knowledge; but every foresight will

² British Medical Journal, 1900, 1, 601.

be nullified by the pressure of a severe engagement, where there are many men to be attended to. When every one is working at high pressure night and day, there is no time for the prolonged operations on the abdomen, unless it is possible to set apart one surgeon to deal with such cases only.

On the whole, then, considering the difficulty of diagnosis in many instances at the outset, the fact that intestines may be found unwounded, and if wounded may be occluded by natural processes if not interfered with, it seems to me that in war as we stand at present the man whose abdomen is perforated by a smallbore bullet has a better chance of life without operation than with it, bearing in mind the circumstances on the field under which laparotomy must be performed. That is an opinion which I think most surgeons came to when experience had ripened after the early months of the campaign.

Although the judgment may be a little humiliating, it is one which must for the present be accepted.

LODGED BULLETS.

The war has developed once again the discussion upon the removal of bullets. Formerly, with the low velocity, the proportion of lodged bullets was much larger than it is now. Some surgeons are of opinion that the missile ought to be searched for and removed at as early a moment as possible. I think the practice in ordinary circumstances unjustifiable. If the nature of the wound enables us to reach the bullet without trouble, or if it has lodged under the skin and can be reached by a simple incision, it may be removed. But, remembering the character of the wounds made by the Mauser, in most cases enlarging the apertures, or a search with probes or other instruments, may mean a suppurating instead of a non-suppurating track. It has been said in justification that the bullet may become displaced, and give rise to troublesome after-effects. If these should occur the cause can then be dealt with, but a bullet may lie buried with impunity throughout a long life. Therefore, except under special circumstances, which are sufficiently obvious, nothing should be done beyond trying to occlude the wound and to secure it from contamination.

PROGRESS MADE BY MILITARY SURGERY.

I should have liked to speak of several other forms of injury, all of them full of interest, and of the great advantages given by the use of the x-ray apparatus, but the limits of time require that I should confine my remarks to some salient facts only. The war is still in progress, and it will take a considerable time after its conclusion before we can make an effective summing up, but even thus far we have materials for conclusions which are not likely to be modified. We have seen a marvelous proportion of recoveries from severe wounds, and we have been able to rejoice at the great reduction of suppurating cases and the practical absence of such infective diseases as

tetanus, erysipelas, pyemia and hospital gangrene. This great difference in the records of today as compared with those of older and more bloody wars does not depend mainly upon the alteration in the bullet used. That, as we have seen, can do fearful things to a dense obstacle, and add to its power for mischief by the laceration caused by bony fragments which it scatters on impact. To some extent the smallness of the canal made by it helps towards recovery. But, above all, the results are due to the treatment of the wounds by the surgeon, and the operation of those great principles which have developed under the splendid genius of Lord Lister. He has made possible the unquestionable triumph of conservative treatment. Honored as he is throughout the whole world, proud as we all are to claim him as a compatriot, his most enduring monument will be in the multitudes whom he has been the means of saving from pain and death, and in the direction which he has given to scientific surgery for all time.

When the recoveries from wounds in this war are made up and analyzed, it will be seen what a tremendous progress has been made in protecting the injured from disaster, even in the face of all the difficulties of the battlefield. For, while in the general and stationary hospitals the precaution necessary in modern surgery can be observed, it is, after all, at the initial stage that safety from sepsis is to be secured. "The fate of the wounded rests in the hands of the one who applies the first dressing," wrote Von Nussbaum, and the truth of this assertion has been proved every day.

War is at all times full of horrors, but as it is waged today it is less terrible than before. In the recent Spanish-American conflict the mortality among the wounded dropped from the 12.96% of the Civil War to 6.64,—a reduction of nearly one-half,—a result in part, no doubt, due to the smaller bullet employed, but more certainly to the improved methods which have been established in the practice of surgery.

Our profession has taken its full share in the work in South Africa, and whether as officers of the Royal Army Medical Corps or as civil surgeons, all have worked ceaselessly in ministering to the sick and wounded. They have not flinched in danger on the field, and they have vied with their combatant fellows in deeds of valor. Six medical officers have been killed, 9 have died of disease, 12 have been wounded, 3 civil surgeons have been killed, 11 have died of disease, and 5 have been wounded. Of all branches, including orderlies and nurses, nearly 400 medical helpers have fallen victims to their labors. It is a noble record of devotion. We must always glory in it; but so also must we delight to know that the true spirit of patriotism is still with us, and that so many of our profession have been ready to show, by rendering up their lives, that "A country's a thing men should die for, at need."

A SPANISH TRANSLATION OF A BOOK ON MOSQUITOES.—It is said that Dr. L. O. Howard's book on mosquitoes is to be translated into Spanish.

Original Articles.

TREATMENT OF DELIRIUM TREMENS.¹

BY J. FRANK FERRY, M.D., BOSTON.

DELIRIUM TREMENS, which you have chosen for discussion tonight, is, of course, of interest; but still, in view of the fact that in fairly strong subjects recovery ought to occur in almost, if not quite, all uncomplicated cases, if properly managed, it scarcely approaches the kindred and far more difficult subject of drug habit in which I am especially interested, and about which there is so much of greater importance that I could say.

My experience with delirium tremens commenced during the War of the Rebellion, while I was aboard the United States receiving ship *Ohio*, and about a month before the serving of grog in our navy was stopped. During that month, although the most of the enlisted men were very heavy drinkers, and brought on board in a badly shattered state—doubtless thanks to their grog—the number of those who succumbed to the so-called “horrors” was comparatively small; but suddenly deprived of alcohol after spees such as only old salts could perpetrate, many who were subsequently shipped speedily became victims of the worst forms of delirium.

From those early cases it was soon apparent that the liability to delirium tremens is greatly increased by the sudden and complete withdrawal of alcohol. But this cannot justify the quite popular notion that attacks can always be averted by alcohol alone. In the treatment of severe cases it is quite indispensable, and intelligently given, in proper quantities and at the right times, it will certainly often prevent threatened attacks; but medicinal agents are generally imperative.

Other influences concerned in the causation are not plainly defined. It is easy to believe, however, that the steady drinker is a more frequent victim of delirium tremens than he who goes on spees, unless, of course, they are of very long duration. Loss of sleep and failure to take proper nourishment are also evidently influential. Indeed, when the latter fault exists the liability of delirium appears to be far greater than where the appetite has been good and properly satisfied.

The tolerance of alcohol may also be much increased by certain habits. For instance, he who is habituated to the use of morphine can almost always take enormous quantities of alcohol and yet seemingly escape injury. In truth I have met many such victims who consumed more than a quart of whiskey daily for many months without exhibiting any signs whatsoever of intoxication, or that the stimulant was doing them harm.

The character of the delirium I have, of course, found at times considerably, some victims manifesting at times a disposition to injure themselves, some also to injure others, while now and then the type is low and muttering. The first case of

the former I ever saw cut his throat from ear to ear and deluged me with his blood while he was standing scarcely two feet away. A patient representing the second class I took from a hotel in this city some 20 years ago. Reaching the unfortunate's room I found him standing over his wife about to brain her with a heavy monkey-wrench, which had already started on the downward course when I stayed his hand.

Glancing at the symptomatology, my experience has failed to develop any signs which can rightly be considered indicative, with absolute certainty, of approaching delirium tremens. Exceeding nervousness is suggestive, but by no means positive; although it is safe to assume that occurring in a hard drinker, if it be not soon controlled, delirium tremens is quite sure to set in. And yet one of the worst cases we have had to treat at Milton—that of almost a giant who had played centre on his university eleven—the delirium commenced in the middle of the night after a quiet day, the greater part of which had been passed in reading “Richard Carvel.”

The nearest approach to a sure premonitory symptom that I have noted has appeared in the eyes. For nearly, if not quite, 24 hours before delirium commences, as a rule, the pupils are either more or less continuously dilated, or they dilate at frequent intervals, and more widely and steadily as the attack approaches.

Coming to the treatment of delirium tremens, I have failed to find the sovereign remedy, if there be one. Indeed, I know of no drug or combination of drugs which can rightly be held as suitable to all cases. At the Blue Hills Sanitarium during the last year we have had quite a number of cases, but no two have been sufficiently alike to warrant the use of precisely the same agents, and of course we have been obliged to modify the treatment of each case to meet individual peculiarities. At this institution the delirium has lasted over 24 hours in but one instance, and that was our only fatal case; but considering that double pneumonia set in during the first day, it is only fair to attribute death to the lung trouble.

As we have had good success with alcoholic habits, a hasty glance at our methods may be pardonable.

In the beginning will say that for the first two or three days the way of the victim of alcohol who is being treated for his habit is quite rocky, and we would make it as easy for him as possible; and for that reason, if for no other, he is generally allowed reasonable quantities of the liquor to which he has been accustomed. Indeed, I consider it a positively inhuman practice to suddenly and completely withdraw alcohol from those who have been drinking long and hard.

All who come to us to be cured of the habit are for three or four days under a treatment which is applied with religious exactitude. They are put upon a liquid diet as nutritious as they can bear, and every two hours during the day they must take a goodly quantity of nourishment. While in mild cases we stop at once the alcohol, in those

¹ Read before the Boston Society for Medical Improvement, Monday, April 1, 1901.

that are severe, seldom is it finally withdrawn before the third day; and now and then not until the fourth or even the fifth day. But the quantity is steadily lessened after entrance, and usually if a quart of whiskey has been the daily portion, we allow a pint of it the first day, eight ounces the second, four ounces the third, and, if any, only one drink on the fourth. As substitutes for alcohol we are accustomed to employ ammonia, camphor, hyoscyamus, valerian, capsicum, ginger and the like. In mixtures, the compositions of which are varied as necessary to meet peculiarities, these substitutes are given every hour, and under their use the desire and need of alcohol soon disappears. The danger of delirium tremens is also speedily averted.

As the heart very generally shows signs of distress, we find it necessary to sustain, steady and strengthen it with strychnia and nitroglycerin, and possibly digitalis, strophanthus, sparteine or cactus grand. When it is excessive and constant, we treat the trembling of the muscles, and have had the best success with small doses of opium, repeated every second hour during the daytime, for from 24 to 48 hours. And the only effect that we have thus far noted has been to greatly lessen, if not control, the one symptom for which we gave it. During the first day the alcoholic patient is usually quite comfortable and inclined to doze off at times; and occasionally he will sleep that night without assistance; but generally we find it necessary to give sulphonal, trional, chloralamid, hedonal, or other agents of the same class. The second day is his worst, and he is then quite sure to be very tremulous and nervous. It is now that delirium tremens generally sets in, although I have known its coming to have been delayed until the third day.

The first sign of trouble detected, our one purpose is to quiet and get the patient to sleep as soon as possible, for we know from experience that if he can only sleep 6 or 8 hours his delirium will be "a thing of the past."

Of the many popular remedies I believe that chloral hydrate, alone or combined with the bromide of potassium, holds first place. And I think rightly, for in our hands at Milton no other drug has approached it in efficacy. But it is not alike applicable to all cases; and while it may be safe in a very large proportion, if administered cautiously, there are certainly no small number in which its use would be exceedingly hazardous. In my opinion, because of its depressing effect upon that organ, a weak heart is the most common condition in which it is plainly contra-indicated. That existing and chloral given, death is liable to occur suddenly, and within 10 or 15 minutes.

There are, perhaps, other conditions which render chloral unsafe, but I think that if the heart is fairly strong this drug may generally be used, provided proper care is invariably exhibited. We have been accustomed to combine it with the bromide of potassium, and in all new cases commence with not over 8 gr. of the doubtful ingredient. Watching its effects very closely,

and no disturbing signs noted, we then increase the dose, but always with a due regard for the baneful possibilities, and never do we venture to use very large doses. Small doses, at intervals of from 15 to 30 minutes, has been our invariable rule.

But while chloral acts well in most cases, now and then—but only rarely, however—it proves absolutely inert. In fact, we have given it—guardedly, of course—to some patients for hours without any appreciable effect whatsoever. Chloral failing, we have used chloralamid, paraldehyde and various other hypnotics, but with scarcely any better effect. With hyosine hydrobromate, however, we have been more successful, but this is not a popular agent with us, for it is certainly capable of injury; and although doses as large as $\frac{1}{16}$ gr. are recommended by some, we should hesitate to administer hypodermically more than $\frac{1}{32}$ gr. to a new subject, for under some conditions I think it might so seriously obstruct the breathing that the end would surely come unless artificial respiration were kept up, and likely oxygen resorted to.

A much safer and far more effectual remedy is musk. Unfortunately, its cost is prohibitive, but in desperate cases that of course ought not to be seriously considered.

While many delirious patients will take medicines by the mouth, some cannot be persuaded to do so, and all drugging must be done hypodermically.

The list of agents of value which can be so administered is short, and I think the most serviceable are apomorphia, hyosine and morphine. Intelligently used, the first often acts admirably, and may be considered fairly safe. But, manifestly, it is easily pushed too far, when great distress for the time being and serious depression afterward are sure to result. From many reports to us made by patients who had been inmates of the various so-called "cures," I believe this to be the popular remedy in the most of such places; and its peculiar effects have caused its use to be termed the "knock-out treatment." It would certainly seem rightly named, for all of its victims whom we have seen have testified that they suffered from it for weeks and months, while but few recovered without special treatment of long duration. To hyosine I have already briefly alluded. The effects of morphia are not constant. In most cases it is quieting; but seldom indeed is it possible to produce sleep by this means alone if restricted to safe doses.

The delirious patient at last asleep he must not be disturbed, although he may not rouse up for 12 or 15 hours. That "sleep is nature's sweet restorer" was never better demonstrated than in delirium tremens, for the victim awakes "in his right mind." Insisting that he be kept as quiet as possible after awaking, but that his treatment by means of the alcoholic substitutes and heart tonics be renewed, and the nourishment be pushed to its utmost, at the end of 24 hours he is literally a new man.

I consider delirium tremens one of the easiest of the apparently grave affections to manage, and when uncomplicated and intelligently treated, recovery ought to occur within 48 hours, and the victim be not only out of bed but below stairs and out of doors if the weather permits.

A word as to the general management of violent cases. Sufferers from such attacks are oftentimes very discerning, and able to promptly detect if one is afraid of them. They are also, as a rule, quite ready to take advantage where they can intimidate. Therefore he who assumes their care should be ever cool, firm and fearless. When he can do so he should humor the patients while under delusions, and in so far as possible avoid discussions and arguments, or attempts to persuade or dissuade. If a sufferer sees bugs crawling along the walls or on the bed-clothing, the attendant should *not* try to convince him that he is mistaken, but, instead, should at once go through the motions of removing and destroying the offending insects. If he rushes to the window and appears to see a runaway, over which he becomes intensely excited, it should be followed for a moment in its imaginary course, and then he be assured that the horse has been stopped without having done any injury.

But while most patients can be successfully managed in this way, occasionally one is encountered who is extremely obstinate and utterly insensible to persuasion. His class generally requires the iron rod, unless most favorably situated. If, however, he can be made afraid of his caretaker, the chances are good that he will be quite obedient, but scarcely otherwise. When it becomes necessary to restrain him, and all other means have failed, it is advisable always to have help enough to do it successfully; for if he should get the best of the struggle he will likely be more difficult to manage thereafter.

At Milton we invariably exhaust all mild measures before we employ drastic; holding it extremely unfortunate for ourselves, as well as the patient, when we are obliged to resort to force. One attendant after another is called in to try to quiet and control the sufferer, and the most influential remains with him. As a rule one only at a time is allowed in the sick-room, for more might still further excite the delirious patient; and he talks quite constantly, for the purpose of engaging the unfortunate's attention. Once force is used with him he becomes much more violent, and this is why we never resort to it until the last moment; and I am happy in being able to state that only in a single instance have we been obliged to bind the patient. That, however, was in our early experience, and before we were so well equipped with protective means. We have now rooms fairly suitable for violent patients, in which they can move about at will, the windows being barred, the doors secured, etc. And so confident are we that we can successfully control every case by mild means, we shall be content with those we have. But if ever disappointed, I intend to have a small one-room build-

ing specially constructed, with windows beyond reach, walls and floors padded, bed fastened to the floor, etc.

Making, as we are at Milton, a specialty of alcoholic cases, I feel that our responsibility is unusually great, and that we scarcely have a right to resort to the strait-jacket, or like means of restraint, when we know full well that the instant they are applied the sufferer's case is far more serious and his chances of recovery greatly lessened. But still, in the absence of suitable quarters, no matter how much assistance there be at hand, with the most of very violent patients who try to break through the windows, etc., sooner or later it will be absolutely necessary to fasten them to their beds. All must know how this is commonly done, therefore merely a glance at the operation. Lying upon his back, a spread-eagle is made of the unfortunate. Near the right rail of the bed his right hand and foot are lashed by the means of sheets rolled or twisted into ropes, and on the opposite side his other hand and foot are likewise secured. This done, one more sheet is so adjusted across his chest that he cannot rise to a sitting position. He is now perfectly powerless, but his fastenings will irritate him, and he will tug at them constantly, until literally exhausted, or at last sleep comes to his relief.

ON THE EFFECT OF ALCOHOL.¹

BY H. G. BEYER, M.D., U. S. NAVY.

I THINK that I should have very little original matter in regard to the treatment of delirium tremens, for I think the navy, since I entered the service about 26 years ago, has grown a great deal better than it was, and if I should say I have treated a dozen cases of delirium tremens, I think I would not exaggerate. Perhaps I have forgotten a few, but that is about the number of cases I have had. I remember very well when I first entered that the sailors in the old sailing vessels we had at that time were given to drinking a great deal more than now. I think the navy has improved immensely since then. I have seen in San Francisco, shortly after entering the service, several dozen sailors chained together, driven down the street like a flock of sheep. But those times have disappeared, and the sailor is getting rapidly to be a very well-behaved man. Formerly a pretty large percentage of the officers in the service were given to drink, but this is all stopped.

Whatever doubt there may remain up to this time as regards the therapeutic and dietetic value of alcohol, its physiological action seems to have become better recognized than it was even a few years since.

Whatever pathological changes the long-continued use of alcohol may entail, its immediate effect seems to be characterized by two distinct stages; namely: (1) stimulating, (2) paralyzing.

¹Read before the Boston Society for Medical Improvement, April 1, 1901.

Moreover, it seems to become clearer from day to day that this effect, which it exerts upon every organ and tissue within its reach, is produced through the nervous system rather than through its direct action upon those organs and tissues.

The latest physiological experiments with alcohol on muscular tissue, for instance, by Scheffer, have again brought out these two phases in its action very clearly. His ergographic experiments showed that alcohol has a stimulating influence both upon the unfatigued, as well as upon the fatigued, muscle, as is shown by the increased amount of work done by both when alcohol is administered. The effect was most marked on fatigued muscle when alcohol was given about 15 minutes before the first observations were made. If 30 minutes had elapsed before beginning the experiment, the decrease in the working ability and the amount of work done were very marked indeed. It would seem, therefore, that the influence of alcohol upon muscle is not merely due to its causing a diminished feeling of fatigue. Experiments upon frogs confirmed the results of the ergographic experiments made upon man. If curare was employed, alcohol showed no effect upon the muscular contractions when direct muscular stimulation was employed.

This fact would show conclusively that the influence of alcohol is exerted through the nervous system and, in the case of muscle especially, through the peripheral motor nerve endings. This double influence of alcohol, at first stimulating, and then quickly paralyzing different tissues and organs of the body, seems to be the leading characteristic in its action. The question as to whether alcohol is a food or not has within the last few years again engaged the attention of some of the best physiological chemists. Everyone knows that alcohol is a poison, but the question was and is still, has it any nutritive properties as well as toxic properties? The employment of alcohol in medicine for its sustaining qualities dates from the time when it was first found that a portion of it is oxidized or burned within the human organism, hence it was thought that it must act the part of a food. Liebig thought its value as a food consisted simply in that it delayed hunger and the feeling of fatigue, but that effect is not necessarily an effect of a food at all, because it would entail the final physical bankruptcy of the body itself. It is certainly not easily understood why a certain substance should under certain circumstances act as a food, and under others as a well-recognized protoplasmic poison. It has been asserted that alcohol diminishes the excretion of urea; this property being also possessed by the fats and carbohydrates, it was surely thought that this fact would prove its food value; but according to Kassowitz, a few years later Romeyn showed conclusively that alcohol did not produce a diminution of the excretion of urea, but on the contrary, its administration gave rise to a large increase. The same results were afterwards obtained by Weiske and Fleischig. Chittenden obtained practically the same results. He noticed

a largely-increased secretion of urea, especially during the period following the administration of alcohol. Von Noorden had results similar to those obtained by Chittenden. Miura, experimenting upon himself, and substituting the caloric equivalent of fats and carbohydrates in his diet by alcohol, experienced a largely-increased secretion of urea. From all the above experiments we must conclude that alcohol has no nutritive value, and that, on the contrary, it causes an abnormal destruction of the protoplasmic constituents of the body. A nutritive substance, however, is one which has not only a certain caloric value, but also a reconstructive value. The destroyed parts in the living body must be built up again, but of alcohol it must be said that the best physiologists have conclusively shown that it is a protoplasmic irritant leading to its destruction but not to its construction. When we introduce into the living body proteids, fats and carbohydrates, we thereby prevent the waste of that body by helping to build up the parts that undergo constant usage, as well as by preventing the destruction of the proteids. In the case of alcohol we introduce a substance which destroys the protoplasmic molecule pure and simple; the indications therefore are that we can no longer administer the toxin produced by the bacillus of fermentation in order to sustain the lives of our fever patients. We cannot consistently introduce a protoplasmic poison with the hope of preventing the already increased destruction of protoplasm going on in cases of fever.

According to experiments by Professor Atwater, alcohol in very small quantities acts as a food. All that amount of alcohol which does not act as such—is not oxidized within the body—is excreted by the lungs, the skin and kidneys. When we find alcohol in the urine, which is easily recovered by distilling and oxidizing by potassium bichromate and sulphuric acid, we may be sure more than the required amount was taken.

Dr. Woodruff of the army, in the article entitled "The Soldier in the Tropics, His Food, Alcohol and Acclimatization," published in the *Philadelphia Medical Journal*, April 7, 1900, expresses himself decidedly in favor of serving out alcohol to the troops in hot climates. He says: "A general order from the headquarters of the army of July 2, 1898, states that the history of other armies has demonstrated that in hot climates abstinence from the use of intoxicating drink is essential to continued health and efficiency. From my school books I could have sworn to the correctness of this statement. Personal experience in the treatment of cases in Manila makes me sure of the very opposite. I would change the sentence to read: 'Experience has demonstrated that in a hot climate the moderate use of intoxicating drink is essential to continued health and efficiency.'"

Dr. Woodruff, without doubt, made this statement from personal conviction of the truth of the matter. His experience, however, was in my estimation much too short to entitle him to draw

from it such a sweeping generalization. When a question involves either the ruin or the making of a whole army, we ought — at least in our capacity as medical counselors — to be much more circumspect than he seems to have been on that occasion.

From my experience with sailors in the tropics, I have never seen any reason whatsoever for recommending alcoholic drinks to be served out in regular rations. I have reduced alcohol to the rank of a drug, and have prescribed it only for its temporary stimulant effect in cases of extreme fatigue. In strict accordance with this action I have sometimes, under extraordinary circumstances, in the tropics given one ounce of whiskey to each man of the engine and fire-room force, after standing a most trying and fatiguing four hours' watch in compartments in which the temperature ranged from 135°-165°F., not speaking of the moisture which reigned there. This was done only for a few days at a time, and when the heat and the humidity of the outside atmosphere were such as to give rise to a particularly unbearable condition in the engine and fire-rooms inside, and when steam had to be kept up on all the boilers, but even here I have never been convinced that it did any substantial good, and that the euphoric effect which it produced was not all the good that was done. One ounce of whiskey twice in 24 hours is, however, so small a quantity that I am sure not much harm could have resulted from its administration.

Admiral Sampson, when in command of the *San Francisco* several years since, stopped the beer which came on board regularly for the men about their mealtime. For a time there was, of course, great discontent. Six months later the men had become so thoroughly convinced of the good effect of this order, that they came to the mast and thanked him for having given it.

The temperance movement in the navy, the establishment of coffee houses near navy yards, is productive of an immense amount of good. Let it go on.

In a recent number of the *Archives for Ships and Tropical Hygiene*, we have come across an article by Surg.-Maj. M. Fiebig, telling us of his experience in the way of canteen reform in the Netherlands Army in Java, Sumatra and Batavia. For the past 30 years this army had been unable to subdue a very brave tribe in Northern Sumatra — the people of Atjeh — who, inspired by their Mohammedan priests, had made an invasion of their territory up to this date impossible. The new governor of Atjeh, Lieut.-Gen. J. B. Van Hentsz, having long since recognized the baleful influence of alcohol upon soldiers in the tropics, and, acting upon the advice of Dr. Fiebig, abolished the alcohol ration which had been served out to all soldiers of the Malay race and to the coolies; he also reduced the alcohol ration of the European soldiers to a minimum. In place of this alcohol ration drinks free from all alcohol were served out. Shortly after this it became necessary for an army of five battalions of infantry and 2,300 coolies to move to the north coast

of Atjeh to try once again and subdue the rebellious tribes. The expedition included Pidić, Passangan and Edi on the north coast of Atjeh, and lasted five months. During this expedition no alcohol was allowed in the camps, and the soldiers received money instead of their alcohol ration. The endurance of the soldiers as well as of the officers during the long marches through a difficult country was soon noticed to improve remarkably, in spite of the fact that the expedition lasted five months, that their operations were done under a tropical sun in a country full of malaria. The expedition was a complete success. Both the press and the officers of the expedition, as well as the soldiers, recognized the fact, and testified thereto, that the surprising success with which they had met was in great part due to the moderation, amounting to almost total abstinence, with which they had indulged in alcoholic beverages. The endurance which this small army had shown had never been equalled in the history of tropical warfare, and had up to that time been believed impossible on the part of most of the highest military officers in the Netherlands Indian Army.

THE MANAGEMENT OF DELIRIUM TREMENS, WITH THE REPORT OF A CASE.

By V. A. ELSWORTH, M.D., BOSTON.

Physician to the Washingtonian Home, Boston.

The symptoms and pathology of delirium tremens are too familiar and well understood by all to make it necessary for me to even refer to them at this time, so will proceed at once and give you briefly my treatment and method of caring for and managing these cases. In all well-developed cases of delirium I have the patient placed in a room made strong and secure, for the safety of themselves and others, the room being plainly ceiled and unpadded, as experience has taught me that padded walls are no more protection to the patient than unpadded ones, and are not nearly so easily kept clean, being a rendezvous for vermin and filth. The room should contain no furniture and should be well ventilated, good ventilation being very essential. The muscular movements of the patient should be absolutely untrammelled, as the preservation of nerve force is best accomplished by allowing perfect freedom. Anything that has a tendency to depress the heart's action or use up nerve energy should be avoided as far as possible. It is of the greatest importance to keep up the patient's strength by the administration of nourishing and easily assimilated food. Milk is my favorite nourishment, either malted or plain, warm or cold, just as the patient will take it best. I always give abundantly of cold water. Care should be taken to see that the lower bowel is thoroughly emptied, for the reason that these patients usually neglect themselves and are apt to be constipated, sometimes obstinately so. Capsicum and nuxvomica

Read before the Boston Society for Medical Improvement, April 11, 1901.

acts nicely, stimulating the secretions, especially the kidney. The nuxvomica tones and directly braces the disordered nerves.

There are two things to be avoided in the treatment of delirium tremens. In my judgment hypnotics and alcohol should never be given in any form. I am led to believe that any drug given to produce sleep in active delirium is attended with great danger, the effect being to depress the heart's action rather than to produce sleep. Alcohol should be prohibited, as it acts as a depressant rather than a stimulant, and continues the toxic condition. In my experience with over 500 cases never has one been put into a strait-jacket or hampered in any way, nor has one been allowed one drop of alcohol after being placed under my care. Out of these 500 cases I am proud to report only 2 deaths, and these were cases that had been kept and cared for at home as long as possible, and they were almost in a state of collapse when I first saw them. I attribute my success (1) to the perfect freedom I allow the patients; that is, in not hampering their movements in the least; (2) in keeping the room thoroughly ventilated, giving freely of cold water and good nourishment at short intervals, and last but not least, in allowing no alcohol whatever.

The abortive form of delirium tremens may be of considerable frequency, although it is not often seen in institution work.

There is a time, if seen early, when sleep can be produced by the administration of some hypnotic like paraldehyde without danger to the patient, and many times the delirium aborted. I wish to say that I consider paraldehyde the best remedy to produce sleep in alcoholism of any I have ever tried, and accompanied with the least danger. In active delirium, if I find the heart lagging, I give frequent and small doses of digitalis. I also find that cold shower baths are attended with good results in calming the excitement, especially if the patient is strong and able to bear it, and is free from any enfeebled heart action.

The case which I wish to report is one which I believe to be of not common occurrence; at least, I have never seen a case of such prolonged delirium reported, and this is the only one in my experience that I have been called upon to treat. This young man belonged in Lawrence, Mass., aged 35 years, of strong, healthy physique; had been drinking constantly for several months. He was brought to me in January, 1898, suffering with delirium. The previous November he was taken suddenly at his home with what the attending physician recognized as delirium tremens. A line of treatment was followed out which is common in these cases; namely, strapping the patient to the bed, using strong hypnotics, giving whiskey with the view of stimulating the heart's action, etc. At times the patient was so raving that it took four attendants to control him and keep him from doing himself injury. At the end of six weeks, there being no improvement, the attending physicians said to the father, "We think your son

is hopelessly insane, and advise his removal to an asylum." The father replied: "This, my only son, insane! I cannot have him placed in the madhouse. Is there no other place I can take him, where they make a specialty of diseases caused by the use of alcohol?"

After getting a full history of the treatment of his case from the physician who brought him, I consented to take him, but could give but little encouragement, as the length of time that had elapsed since he was taken seemed to preclude the idea of mental recovery. However, I advised leaving him for a time at least. He was placed in a room twelve feet square, containing nothing but a mattress upon the floor. He was carefully watched night and day, and given good milk as nourishment at frequent intervals. He had plenty of fresh air and an abundance of cold water to drink and occasional doses of nitroglycerine and digitalis. He had no hypnotics and no alcohol in any form. He continued to rave furiously, with the exception of short intervals of sleep, for nine days. At the end of this time he awoke from a sleep rational and continued to improve until, at the end of four weeks, he was discharged as cured.

He was heard from a few months ago. At that time he was in good health and had drank nothing since leaving. Before he was placed under my care he had been given from four to six ounces of whiskey daily. A small amount to be sure, but enough to continue the toxic effect already established. If this line of treatment had been continued, I am confident the case would have passed into a stage where mental recovery would have been impossible.

Clinical Department.

MYOMECTOMIES FOR FIBROIDS DURING THE CHILD-BEARING PERIOD.¹

BY W. H. BAKER, M.D., BOSTON.

Mrs. S. was admitted to the Free Hospital for Women on March 5 of the present year; was 35 years of age; had been twice married, having lived with her second husband for the five years previous. She had no children, but had aborted once, a year after her first marriage. Menstruation began at twelve years of age, and occurred regularly until five years before her admission to the hospital. For the past year she had been very irregular, menstruation occurring each two to three weeks and lasting a full week, very profuse, being greatly debilitated with each menstrual period, and failing to recover her strength before the onset of the next period. Some leucorrhœal discharge for several years. Her principal complaints on entrance being from excessive flowing, severe headaches and general mental depression.

On examination I found the pelvis quite well filled with an enlarged uterus and a subperitoneal

¹ Read before the Boston Society for Medical Improvement, April 1, 1901.

fibroid growing from the posterior surface of the uterus. The probe passed into the uterine cavity forward $3\frac{1}{2}$ inches, where with a little manipulation it passed over a rounded mass which bled easily, and which was evidently another fibroid, of submucous variety, in the uterine cavity.

March 12. After a thorough curetting of the uterine cavity myomectomy was performed through a central abdominal incision in the median line, and a subperitoneal fibroid was first removed, which proved to be made up of several individual fibroids, making quite a multiple mass. Incision was then made through the anterior uterine wall from the os internum to the fundus, and the submucous fibroid enucleated. A strip of iodoform gauze was then carried from the interior of the uterus through the cervical canal and out into the vagina, its upper portion being left in the uterine cavity. This was to insure free drainage from any portions of the disintegrating capsule through the natural passages. The incision having been closed with chromicized catgut, several smaller fibroids, eight in number, interstitial in character, which could be easily felt in various portions of the uterine wall, were cut down upon and shelled out. The abdominal incision was closed in layers.

She was sitting up on the fourteenth day and was discharged March 31, with an internal measurement of the uterus of $2\frac{3}{4}$ inches.

In reviewing the above case I would suggest the following:

(1) The importance of performing myomectomies in preference to hysterectomies, in most of the cases of fibroids during the child-bearing period.

(2) Even though the patient and her friends may prefer a total hysterectomy for various reasons, principally among which are the facts of the extreme suffering of the patient or the great loss of blood, which make them desirous of absolutely putting an end to the menstrual process, it is generally better surgery to remove the cause of the suffering, and leave the uterus and ovaries in a state which may be of great future usefulness and certainly able to perform their normal functions.

(3) The greater length of time necessary to perform several myomectomies in any given case is usually more than overbalanced by the complete insurance of the integrity of the organs involved.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR R. K. STONE, M.D., SECRETARY.

REGULAR meeting, April 1, 1901, Dr. E. H. BRADFORD in the chair.

DR. V. A. ELLSWORTH of the Washingtonian Home read a paper on

THE MANAGEMENT OF DELIRIUM TREMENS, WITH REPORT OF A CASE.¹

DR. J. FRANK PERRY, Blue Hills Sanitarium, read a paper entitled

TREATMENT OF DELIRIUM TREMENS.²

DR. OWEN COPP: There are certain general considerations in relation to the drink habit upon which I would like to say a few words. I do not know that anything need be said in regard to the importance of this subject, but I was interested the other day to look over the results of the investigation by the Bureau of Statistics of Labor in relation to the influence of the liquor traffic upon pauperism, insanity and crime. It was the method of the investigator to interview all persons who had been committed or passed before the courts during a twelve months' period. Some 3,000 cases of pauperism were investigated. It was found that about 40% of them had been brought into that condition by the direct use of alcoholics and some 5% by their use by parents or guardian. In round numbers 45% of the paupers were such because of alcoholics. Some 26,000 convictions were investigated. More than 17,000 were for drunkenness; 2% or 3% more for drunkenness and other offences. Of the 8,000 or more convictions for crimes other than drunkenness more than 50% of the persons were under the influence of liquor at the time the intent to commit the crime was formed. In about 84% of all convictions the use of alcoholics led to the condition which caused the commission of the crime. Coming to the investigation of the cases of insanity, it was found that about 25% of the commitments of the insane were directly due to their use by the patient. I find in looking over the admissions to the institutions for the last year that the assigned cause of insanity was intemperance in more than 15% of the cases, and that more than 10% of them were affected with alcoholic insanity.

Now, if we take into consideration that of these three classes there are at the present time more than 20,000 who are fully supported by the State or by the cities and towns, and that at least 50% of them owe their downfall to this particular cause, and then include the expense of police, courts and partial support of many others, you see there is a very large financial burden being borne on this account. If we add the remote consequences according to the laws of heredity, resulting in degeneracy of mind and body, certainly we are impressed with the very great importance of the subject, and we also feel that the public has a right, for its own protection and for the benefit of the individual, to interfere.

Now, as to the measures of relief there is great difficulty. In the first place in the treatment of the habit in very many cases, and perhaps the majority, we have no co-operation from the patient. Immediately there comes up the question of how far the liberty of the individual can be interfered with. In English legislation of more than 50 years ago the lunacy laws allowed the inebriate to become an inmate of insane hospitals and asylums. He became such voluntarily. Very

¹ See page 212 of the Journal.

² See page 208 of the Journal.

little use was made of the privilege. Later provision was made for establishing licensed retreats for inebriates, to which they might be admitted as voluntary patients. There has been much discussion concerning the compulsory commitments by a magistrate upon the certificate of two physicians and the declaration of a creditable witness. Finally, however, the compulsory features were eliminated. No compulsory provision has been made for the support of a needy person, although the law of 1899 permits the state and county to make such contributions as they may see fit toward the establishment and maintenance of such retreat.

In Massachusetts in 1885 a law was passed by which inebriates could be committed to insane hospitals and asylums. They were committed by the court in the same manner as insane persons; the same powers of detention were given. The practice at the present time pertains to women; men are provided with a special institution at Foxboro, as you know. The question of depriving such a person of his liberty was raised at once, and has been a matter of contention up to the present time; but the act of 1899, by which an inebriate is always given a hearing, unless he waives the right to one, seems to have settled the question.

In dealing with the inebriate we meet another difficulty in determining the particular class of person to whom such treatment should apply. When a person can be touched by criminal laws, of course, the time has passed when much can be done for the individual or the cure of the habit. But I think all medical men agree that there are certain cases in which inebriety is not a crime, but has reached the limit when it becomes a disease. The inebriate has lost his self-control; his moral sense is blunted; he is insensitive to his duty to his family and to the public; the craving for liquor entirely dominates over him, and it becomes necessary for someone to step in and help him.

Now it seems to me that it is impossible to draw a fixed and definite line of division between the inebriate who deserves treatment as a diseased person, and who may be expected to receive benefit thereby, and the one who should be dealt with as a criminal. It would seem necessary to determine this in the individual case. Attempts are being made, with some success, to exclude from the Hospital for Dipsonians and Inebriates the undeserving cases. This is being done so far as possible before commitment. If they gain admission to the hospital, a further examination is made of their case and the probability of reformation. If this is unfavorable, they are immediately discharged.

The primary object of treatment at Foxboro is to put the patient in first-class physical condition. He goes there nervously exhausted, often on the verge of delirium tremens, and sleepless; gastric and intestinal functions are disordered. At the start he is a sick man, and requires adequate medical treatment. Later he is put through systematic training in gymnastics, and is required to pursue some occupation until his final discharge.

DR. GEORGE A. SARGENT: I wish merely to give an idea of our routine treatment of cases of delirium tremens at the jail. Outside I suppose physicians are obliged to use the strait-jacket or to pin their patients down. At the jail this is not necessary. The only time for several years past when a strait-jacket was used was in a case of attempted suicide. The strait-jacket is in my judgment pernicious, and should always be avoided if possible. Strong narcotics and depressants are not called for in our practice, and it is our opinion that it is better and safer to do without them. Our idea is that the disease is practically self-limited,—that is, barring complications,—and our treatment is largely alimentary and sedative—milk and bromide of potash. When a case occurs the patient is taken from the jail to the lodge outside, where he is put into a padded cell, his shoes having been first removed, and he is given, perhaps, an initial dose of bromide of from 30 to 60 gr. Afterwards a dose of 15 gr. of bromide is given in milk every 3 hours, the amount of milk taken in 24 hours reaching from 2 to 4 quarts or more. For a while the patient may skip the feedings, but he usually comes to it before long. After he gets to sleep and sleeps a number of hours, he has practically recovered. He is usually kept below, however, till he has pretty well regained his strength, when he is bathed, dressed, and taken back to the jail. In a word, our treatment consists of regular feeding, mild sedatives and absolute freedom from restraint, so far as that can be obtained.

There are three things to think of: Cerebral hemorrhage, heart failure and pneumonia. If stimulants are needed, usually a little rum is given, preferably in milk. Digitalis, nitroglycerin and strychnia are also given, as are aromatic spirits of ammonia and the tincture of capsicum. We place a good deal of reliance upon the tincture of capsicum, and think that, given with bromide, it frequently tends to abort an attack of delirium tremens. Aromatic spirits of ammonia we often give to check the vomiting of a drunkard.

DR. TAFT: Through the courtesy of Dr. Bradford I am here, and wish to express my gratitude for the courtesy. I have been very much interested in the papers that have been read. In the class of cases at Deer Island it seems necessary in a great many instances to stimulate them as soon as they are admitted, and we try to induce sleep as soon as possible by the use of the hypnotics which have already been cited*—bromide of sodium, chloral hydrate, paraldehyde; hyosine hydrobromate and apomorphine subcutaneously. We try to rid the bowels as soon as possible of their contents. Our hygienic surroundings are very good, although we hope to have much better in our new wards now being constructed. In our autopsies which we hold on every case that dies where we can obtain permission, we always find there is fatty degeneration of the heart, and either pneumonia or congestion and edema of the

* Digitalis and strychnia for cardiac weakness; for nourishment, milk and egg juice, and eggs freely. When necessary, treatment is given with stomach or rectal tube.

lungs and inflammation of the kidneys, and in some instances enteritis and gastritis, rarely cirrhosis of the liver. If a patient can secure sleep soon after admission, the danger of delirium tremens is averted, but, as perhaps you know, we get very bad cases; the men have been drinking for years, and perhaps for this reason it is advisable to use stimulants for the first few days. We have found it necessary to use restraint at times, but as little as possible. We have plenty of attendants, and can give them every attention in that way.

Dr. H. G. BEYER, U. S. Navy, read a paper entitled

ON THE EFFECTS OF ALCOHOL.¹

Dr. C. H. ALDEN, U. S. Army, retired: My experience has not been anything like as great as that which has been gained by gentlemen who have been connected with large institutions in the neighborhood of this city, but in the course of my army life I have seen a good many cases of delirium tremens, and I was particularly pleased with the endorsement of my own ideas by the gentleman who first spoke. My practice has been to withdraw alcohol at once, pay attention to quieting the stomach, unloading the bowels, giving frequent food in as large quantities as the stomach will bear, and I give almost no hypnotics, very rarely a dose of chloral. I have not had the severe cases of delirium tremens that have been mentioned. In the army we have only the milder cases. Men come to the surgeon before they have the opportunity of drinking to excess for weeks and months as some of the cases spoken of tonight, so that we do not get the most severe cases of delirium tremens. I have never yet administered stimulants, though I have no prejudice whatever against them. I have never seen a case in which I felt it necessary to administer alcohol in the treatment of delirium tremens. I do not remember that I have lost a case.

I had occasion a few years ago to look up some of the reports sent in by medical officers of the army to the surgeon-general's office in regard to the treatment of inebriety. Some of them had tried to imitate the quack remedies, or the supposed methods of quacks, by the hypodermic injection of apomorphia, and with some success. One of our best surgeons, Dr. Geo. E. Bushnell, a very conservative man, took up the treatment of inebriety by hypnotism, and made quite a complete and exhaustive study of it. After several years he felt that he had data enough to publish, and he sent in this report. He was not at all eulogistic of the process, but stated frankly his results. He had 19 cases in which he had exercised the treatment for some time. In 11 of these cases he considered that he had made a cure. Of the others, some had relapsed and 3 went on drinking, and he did not stop their drinking by his hypnotic seances, and of course they were failures, but he considered that he had achieved very satisfactory results in 11 of the 19 cases.

One of these officers, Surgeon W. H. Arthur, was stationed at Fort Vancouver, Washington Territory, which at that time had the largest ratio of admissions for drunkenness, and he adopted a plan which he found very successful. His routine treatment was to place the man on the operating table, introduce the stomach tube, pump out the stomach, then wash out with a 2% solution of bicarbonate of soda, and after he had freed the stomach from all the mucus and contents he gave the patient a bowl of hot beef essence with capsicum, and allowed him to rest a few hours. He found this plan was very prompt in relieving the man, and it not only had an immediate curative effect, but its deterrent influence on the drink habit was excellent. He concluded his report by saying that he never had occasion to administer this treatment to the same patient more than once.

Dr. EDES: I have been very much interested in a great many things that have been said by the various speakers. I was very glad to hear what Dr. Beyer said about the improvement in the navy. My experience goes back considerably before his, to the time when the spirit ration was in use. I recollect when the whiskey was sent home from the Gulf at the time the ration was given up. I did not think the spirit ration was responsible for delirium tremens, because men could not accumulate enough to get into that condition. They had to march up, and each man took his pot and drank it at the moment. He could not carry it off. It was an occasion of considerable ceremony. Captain (afterward Admiral) Foote, who was a strenuous advocate of temperance, persuaded all the men, except one, on one vessel to give up the spirit. This one for a time clung to his rights, and at noon every day the drums used to beat, and the fifes play, and the whole ship's company would march up, and this one man came up and took his spirit with a good deal of ceremony, and then they piped down. But he finally gave it up, and they had a temperance ship. I do not believe the spirit ration was ever responsible for delirium tremens, but I am glad it was abolished. The question of giving alcohol to men with delirium tremens is one which has interested me a great deal. We used to have a good many cases of delirium tremens at the City Hospital. Those who went on the list "nervous from drink" were never given alcohol. I never saw any reason to give it, although I felt willing to give it if I saw the occasion arise. I believe in giving alcohol in some cases of pneumonia in delirium tremens, but as a rule I am entirely in agreement with Dr. Ellsworth in regard to withholding alcohol. I think there are institutions where they are so considerate of the patient's feelings in diminishing the alcohol gradually, that they keep up a state rather of remittent alcoholism than intermittent; they keep him so comfortable from one attack he would be ready to have another at a comparatively short notice, and I think that is a highly undesirable state of things. I should differ from some of the gentlemen in regard to the use of hypnotics. We used to use chloral rather freely at the City Hos-

¹ See page 210 of the Journal.

pital, usually chloral and bromide. I recollect that one man took by mistake over 100 gr. of chloral in one night. It did him no harm. Dr. John Ware, I think, was the first to call attention to the danger of forcing opium upon a patient with delirium tremens until he was made to sleep. His results were alluded to in George Eliot's novel, "Middlemarch," where the putting in force of the new views by the hero makes one of the critical incidents. The effect of capsicum has been alluded to. We used to give them at the City Hospital soup made very hot with red pepper. I should feel a little hesitation about using paraldehyde freely in alcoholism, as I should decline to use alcohol itself freely. Some years ago I saw a woman who suffered from insomnia and had taken paraldehyde on her own responsibility. Her condition was such that I could not describe it better than to say she had delirium tremens from paraldehyde.

In regard to alcohol as a food, I should like to call Dr. Beyer's attention to the work of Dr. Parkes on the use of alcohol in the Ashanti campaign under Lord Wolseley, giving the opinion of a large number of officers and men. The officers and men were unanimous in the opinion that alcohol as a rule did them a great deal of harm under certain circumstances; not a good thing to take on the march. They experienced the stimulant effect for a time, and then felt tired. But if they took it in the evening they thought it was of some value, and I think Dr. Parkes came to agree with them on that point, that it might be of some service in warding off such diseases as are liable to occur with fatigue. They all came to the conclusion that on the march it was worse than useless.

DR. H. R. STEEDMAN: My experience with cases of delirium tremens has been very limited and practically confined to cases seen at the Boston City Hospital 20 years ago and at the Danvers Insane Hospital. At the latter institution we had a number of cases of acute alcoholic insanity that were not far removed from delirium tremens, which were treated entirely by forcing the feeding if necessary with the tube, and the patients recovered very quickly. Of the two methods I should think this the safer, although perhaps the gradual withdrawal of stimulants and the use of hypnotics was perhaps more comfortable. In this connection it is interesting to note what Berkeley, the latest authority on mental diseases, says in his book just published. His practice is absolute withdrawal of alcohol in cases of delirium tremens (except in rare instances where the collapse is profound) and enforced feeding. It is to this treatment that he ascribes his success at the Baltimore City Asylum, where there has been no death from delirium tremens or alcoholic insanity for the past 5 years, while the death-rates reported from both American and German sources vary from 10% to 20% of severe cases.

With regard to the use of restraint, I should think it would be rarely necessary, as 48 hours is practically the limit of the acute excitement; but in elderly patients, for example, who are very

feeble and likely to be exhausted, a relatively "comfortable" restraint might prevent death from the incessant motor activity, in struggling with attendants, etc. The soft camisole is very different from the "strait-jacket." The latter, and similar appliances made for jails and such places for excited patients, are instruments of torture, and it is fortunate that a patient can breathe, immovably and tightly bound and confined as he may be by an apparatus of that sort. Whereas, if the ordinary camisole be used and the patient not too tightly fastened to the bed with sheets, it is surprising how quickly he will quiet down so that the restraint can be removed. A generous bag of ice applied to the head at the same time will help matters materially.

DR. BEYER: In reference to what Dr. Edes alluded to, I was not familiar with it at all, but it is in that spirit in which I gave alcohol, as you will remember, after a four hours' watch in the fire-room to overcome that fatigue, and the physiological principle I acted upon was this very one. We generally assume nowadays that the feeling of fatigue in muscular tissue is due to accumulation of the products of wear and tear, and that the exhaustion which follows is due to the lack of nourishment which a muscle gets. I have given alcohol in trying to overcome that form of fatigue and what has followed if it were not given — stiffness — and it has always had that effect that I avoided the stiffness the men would always complain of when I failed to give it after such a watch, and that principle explains the conclusions Dr. Parkes came to that alcohol administered after a fatiguing march has a beneficial effect, while during the march it will hasten the advent of fatigue.

DR. W. H. BAKER read a paper entitled

MYOMECTOMIES FOR FIBROIDS DURING THE CHILD-BEARING PERIOD.⁵

BRITISH CONGRESS ON TUBERCULOSIS.

HELD IN LONDON, JULY 22-26, 1901.

(Continued from No. 7, p. 195.)

FOURTH DAY.

THE INTERNATIONAL ASPECT OF TUBERCULOSIS.

SIR HERBERT MAXWELL occupied the chair. He said, in opening the meeting, that he regretted that yesterday some gentlemen, both from foreign countries and parts of Great Britain, whose names appeared upon the programme were crowded out. He then called upon DR. ALFRED HILLIER, who read a paper entitled

THE INTERNATIONAL ASPECT OF THE CONTROL OF TUBERCULOSIS.

DR. HILLIER said that he could not claim to be one of the official workers in the public health medical service. He was not officially connected with the work of public hygiene, but more with

⁵ See page 213 of the Journal.

that of voluntary enterprise, such as was undertaken by bodies like the National Association for the Prevention of Consumption. In order to clear the ground he would submit that we were in a position to lay down two conditions as essential to the establishment of tuberculosis in man: (1) The introduction of the tubercle bacillus; (2) a soil suitable to the requirements of the bacillus. Other conditions favor or retard the establishment of the disease; these two conditions were paramount. All public effort, all hygienic legislation directed against the encroachment of tuberculosis, must be based on a clear recognition of these two great factors.

The question to which we ought, in his opinion, more particularly to address ourselves, was to what extent has scientific effort in different communities and different countries addressed itself to checking the first great factor in tuberculosis—the introduction of the tubercle bacillus—to the sowing of the seed. All are agreed that first and foremost stands indiscriminately distributed sputum. Were protection from this source of danger secured, he thought that tuberculosis might become as rare as leprosy and as much under control as smallpox. Two practical questions had to be considered: (1) What throughout the civilized states of Europe and America was being done? (2) What, in general terms, were we called upon most urgently to do? As Germany produced the discoverer of the tubercle bacillus, she stood first in one great branch of the work for the treatment and prevention of the disease; namely, in the movement for the provision of special sanatoria. But, if Germany had led in the matter of sanatoria, thanks to Dr. Hermann Biggs of New York, the United States had led the way in practical downright measures of prevention. In New York spitting is no longer merely a disagreeable habit, it is proclaimed a public nuisance, and ordained by statute a penal offence. To France belonged the honor of having done more for the education of public opinion than any other country. It was worth noting that Norway had recently passed a law making notification of tuberculosis throughout the kingdom compulsory. Denmark had entered energetically into "*La lutte contre la Tuberculose*," and had created numerous sanatoria. In England we had a strong association, numerous sanatoria in course of erection, and we had a congress. In many other countries much good work had been done, but it would be impossible to refer to them all. Fortunately, in the alliance against tuberculosis, Europe might stand united against the most deadly enemy of mankind. What blight was to the corn, phylloxera to the vine, such was tuberculosis to humanity. Might not the international movement begun at Naples last year be extended? Could not a European committee or league be formed in which all European countries might be represented? Such a body might formulate the principles on which all were agreed, and might define the broad lines of action on which it was desirable that states, municipalities

and individuals should proceed. Legislation alone could never terminate many of the abuses associated with the spread of tuberculosis, but legislation fortified by public opinion could and would do so; the first step that modern Europe had to take was to revive and honor a common and ancient heritage—that Roman law which says, "*Salus populi, suprema lex*."

DR. MONTIZAMBERT, Ottawa, delegate of the Canadian Government, gave some notes on

TUBERCULOSIS IN THE DOMINION OF CANADA.

He said he was commissioned by his government to give a hearty greeting to this congress, and to express the hope and confidence his country had in the result of its meeting. Tuberculosis was a great bane in Canada and gave rise to a large mortality. Up to a recent date all knowledge of the disease had been confined to the medical profession, but lately it had been spread more among the people. Last year a national meeting took place in Ottawa, resulting in the formation of a Canadian Association for the Prevention of Tuberculosis, which extended all over the land. His country offered every kind of climate, so that it might be seen there how far climatic differences affected the disease. In the extremely cold districts there was an open-air treatment and, much as it might surprise people, very good results were obtained. But in many parts of the country the climate was not different from that of England, so that in one way or another open-air treatment was largely carried out.

PROFESSOR ROBINSON, Maine, U. S. A., said that in the State of Maine a campaign had been undertaken against the spread of tuberculosis. By means of educational literature many reforms had been brought about, and the mortality from tuberculosis during the last 8 years had been reduced from 20.4 to 11.69. Now there was a strong movement in favor of sanatoria.

DR. HOBBS, Bordeaux, said that an antituberculous society had been formed in the town of Bordeaux; it had been in operation barely a month, and aimed at collecting and distributing the literature connected with tuberculosis and encouraging the use of tuberculin in the dairies from which milk was supplied, and rendering assistance to medical practitioners in the town and department. It undertook the analysis of sputum in doubtful cases, and immediately forwarded the result to the doctor in question.

SENIOR DE SILVA-AMARAL, Portugal, spoke of the work done in Portugal, and said that they had founded an association, presided over by the king, for the prevention of the ravages of tubercle.

DR. BOZLEY THORNE read a paper on

THE NATIONAL IMPORTANCE OF GRATUITOUS BACTERIOLOGICAL EXAMINATION.

The reader said that it was no longer open to question that pulmonary tuberculosis was a curable disease. Briefly, the points which it was desirable to emphasize were: That early recognition was the essence of the curative treatment of pul-

monary tuberculosis; that a positive diagnosis in early cases was difficult apart from detection of the bacillus; that the appearance of the bacillus in the sputum marks the turning point of danger to the patient and those with whom he associates; that the bacteriological examination is a national concern, and should be provided for by the state.

Dr. HILLIER concluded the discussion. He was sorry that some were not present whose views he had hoped to hear on this subject, but he had raised certain questions about which he thought they were in practical agreement. They were practical people, and he thought they ought to put forward a definite statement as to what should be done. There ought to be a competent body whose duty it was to look after these matters. This body might also publish periodically the scientific work done in different countries on this subject, so that all workers might be put *en rapport* with one another, and there might be no over-lapping. It was time that an authoritative statement should be made by all states as to what they were prepared to do to put down serious sanitary evils such as that of indiscriminate spitting. He proposed the following resolution:

That this section is of opinion that a permanent international committee should be appointed (1) to collect evidence and report upon the measures that had been adopted for the prevention of tuberculosis in different countries; (2) to publish a popular statement of these measures; (3) to keep and publish periodically a record of scientific researches in relation to tuberculosis; (4) to consider and recommend measures of prevention for the guidance and information of the governments of states and local authorities.

This congress is further of opinion that such a committee should consist of representatives to be elected by the great national societies for the prevention of tuberculosis, and also of representatives nominated by various governments.

Dr. NEWSHOLME seconded this resolution.

The resolution was carried unanimously.

CONTROL OF MILK SUPPLIES.

PROFESSOR DELEPINE, Manchester, began the discussion on this subject by reading a paper entitled

WHAT EXACT STATISTICS ARE THERE TO SHOW THE CERTAINTY OR OTHERWISE OF THE TUBERCULIN TEST, AND BY WHAT MEANS MAY THE APPLICATION OF THE TUBERCULIN TEST TOWARDS THE ERADICATION OF TUBERCULOSIS BE BEST SECURED?

The reader said he had heard with grief of another address that interfered with what he proposed to say. It was hard to disagree with the discoverer of the bacillus, but he thought it was incumbent on Dr. Koch to give good evidence of his contention. There were a number of facts against his views, in the opinion of the reader. There were authentic cases of veterinary surgeons who had been infected by bovine tubercle; many of the lower animals when fed on human tubercle developed ordinary tuberculous lesions; typical lesions were also produced by inoculating animals with infected human sputum. Finally, there was

the reaction obtained from Koch's tuberculin. This last was the same in cases of animal tuberculosis as in the human disease, so that he could not help thinking that Dr. Koch was not justified in making his statement. He desired to propose the following resolution:

That in the opinion of the State section of the congress the statement made by Professor Koch, as to the danger of consuming tuberculous meat and milk, gives rise to serious administrative difficulties in this country. Such difficulties can only be removed by the confirmation or disapproval of Professor Koch's conclusions, and this section is therefore of opinion that the congress, as a whole, should appoint a deputation to wait upon the president of the Local Government Board and the president of the Board of Agriculture for the purpose of bringing these views to their notice.

Dr. ROBERTSON seconded. He thought it very necessary that something should be done to undo the mischief caused by Dr. Koch's statements.

The chairman said that the resolution had his approval, but that his opinion was not of much practical value; that he had only had relations with the matter by reason of his having presided over the Royal Commission appointed to consider tuberculosis. If Professor Koch's views were true, then that commission had been sitting on a wrong basis.

The resolution was put and carried unanimously.

PROFESSOR DELEPINE then continued his paper. He said that the prominent position that must be given to tuberculin was because it gave the best means of diagnosing tubercle. He said that cure largely depended upon early diagnosis. Tuberculin was an all-important agent in detecting tuberculosis in cattle, but its administration could not be enforced upon owners on account of possible mischief to the cattle from its use. On that account the state could not be asked to give compulsory powers. However, we now know much more about tuberculin, and evidence was being collected to show that when properly injected it did not cause mischief. It should not be applied when the temperature of the animal was raised, or during the calving period. He admitted that the test did not act in cases of advanced disease, but that was of no moment, as then the disease could be detected in other ways. In his opinion no animal could be guaranteed free from tubercle unless the tuberculin test had been applied. As to the reported tolerance of cows, he had found that after five injections, only then the reaction ceased to appear, so that it was not often that the test would refuse to answer. He then gave examples of experiments performed at Manchester to stamp out tubercle from among the cattle upon a certain estate. He referred to the results obtained by foreign experimenters. Where he had received samples of tuberculous milk, he invariably found that the cows yielding it answered to the test.

Dr. BOOBYER, Nottingham, said it must be recognized that the bombshell of Professor Koch had destroyed a good deal of interest in what was to have been discussed that morning. Medical officers of health could not afford to wait for the

results of slow experiments. He had heard that many in the meat and milk trade were jubilant over Professor Koch's opinion. He thought that Professor Koch had not sufficient evidence for what he stated. The circular letter of the Local Government Board dated March 10, 1899, founded on the report of the Royal Commission, at the present time ruled the conduct of medical officers of health and sanitary inspectors in dealing with diseased milk and meat. What was to be done? This circular must still be their guide, although when cases were brought before the magistrates no doubt Koch's opinion would be lung in their faces. He thought that the Local Government Board ought to be approached, and he begged to move the following resolution:

That the local government boards of England, Scotland and Ireland be asked to issue another circular similar to that of March 10, 1899, setting forth the line of action that should be followed by the municipalities and their officers with regard to diseased meat and milk.

DR. BAILLIE, Glasgow, seconded. He strongly insisted that no alteration ought to be made by medical officers of health in their custom of restricting the sale of tuberculous milk and meat until the matter was much more certain.

PROFESSOR BLITZ made some comments on Professor Koch's opinion, but many of his remarks were ruled by the chairman not to apply to the present discussion.

The resolution was then put and carried unanimously.

MR. J. S. LLOYD, M.R.C.V.S., next read a paper by DR. JAMES NIVEN, Manchester, entitled THE ADMINISTRATION OF THE MANCHESTER MILK CLAUSES, 1899,

to which he had appended a statement as to the work done by him as veterinary surgeon to the Sanitary Committee at Manchester. He admitted that evidence showing that tuberculous milk had been the cause of tuberculous disease to children was rather scanty, but he said that it was open to us to infer for various reasons that the food of young children and young cattle was more liable to produce tuberculous than the food of adults and of full-grown cattle. This conclusion had been rendered stronger by the evidence of feeding experiments made by Chauveau and Jöhne and by Drs. Woodhead and Sidney Martin. The Sanitary Committee of the City of Manchester had determined in 1898 to apply for similar powers to those enjoyed by Glasgow, with the result that the following clauses were enacted: (1) That cows known to be suffering from tuberculous of the udder must be isolated, and that the milk from such cows must not be used for human food; (2) powers were given to inspect the cow and to take samples of the milk from particular teats; (3) if the medical officer of health was of the opinion that tuberculous was likely to be caused by the consumption of a particular milk, the dairyman might be summoned to appear before the corporation to show cause why an order should not be made prohibiting him

from supplying milk within the city; (4) a dairyman supplying milk within the city who has in his dairy any cow affected with tuberculous of the udder shall forthwith give written notice of the fact to the medical officer of health. Unfortunately, the penalty attaching to an offence of this description must not exceed 40 shillings.

He then gave an interesting account as to the way in which the milk was examined in Manchester, and of the frequency with which tuberculous of the udder was found among the cows supplying the milk. He thought there was doubt whether the operation of the milk clauses was adequate to the result expected. He would urge these points: (1) Cows shown to suffer from tuberculous of the udder should be forthwith slaughtered in the presence of the veterinary surgeon; (2) all restrictions on the inspection of herds supplying the district with milk should be removed; (3) a heavy penalty should be attached to failure to notify suspicious conditions of the udder. Mr. Lloyd then gave an account of the veterinary work done under the milk clauses in Manchester, and the difficulties met with.

A delegate asked the question, What, in the opinion of Mr. Lloyd, was meant by "a cow totally unfit for human food"?

MR. LLOYD: The examination is carried out in accordance with the directions of the Local Government Board, and where condemned as totally unfit for human food the animal is usually much emaciated and shows numerous signs of tuberculous.

DR. NIVEN said that the milk clauses did not enable the authorities to compel the slaughter of cows with diseased udders, but only to effect their removal from the district. He moved:

That power be given by the legislature to have such cows slaughtered under veterinary inspection.

This resolution was seconded.

DR. EASTON, Fulham, moved as an amendment:

That compensation should be paid on such slaughter.

This amendment was also seconded.

DR. HOBSON objected to the question of compensation being introduced; that was outside the range of their discussion; they ought to go on the broad humanitarian question as to whether the food was fit for consumption.

The chairman said that they must take into consideration the position of the agriculturalists in the country, who were not very well represented there. The meeting must try if possible to carry that class with them, and the question of compensation very much affected them.

DR. NIVEN said that his resolution had been formulated by his Sanitary Authority, and that he was not authorized to pledge it to any scheme of compensation. Rather than do so, he would withdraw his resolution, although personally he was in favor of compensation.

On voting, the amendment was lost, and the original resolution carried.

DR. HORG, Liverpool, said that one of the dan-

gers of tuberculosis arose from taking milk from cows with diseased udders. He asked what furnished the best test of that condition.

MR. RICHMOND, F.I.C., then read a paper on

THE RELATIVE ADVANTAGES IN THE PREVENTION OF ACUTE TUBERCULOSIS OF THE USE OF STERILIZED MILK, PASTEURIZED MILK, AND MILK OBTAINED FROM HERDS FREE FROM TUBERCULOSIS.

A delegate asked the reader whether the milk used by his company was free from tubercle before it was sterilized.

The answer was that all the cows were carefully inspected before taking milk from them, so that they were probably free from infection.

COUNCILLOR JAGO asked Mr. Richmond if bacilli were found in apparently good milk, or was there always some sign of abnormality in milk thus affected?

MR. RICHMOND replied that such milk was usually abnormal.

DR. SHELLEY said that medical officers of schools had often to answer difficult questions as to the milk used there. Should the milk always be boiled? Few schools had dairy farms of their own. Ought milk generally to be sterilized? It was found that schools that took special precautions as to their milk supply were markedly free from those diseases which were attributable to milk, but not so those schools that only boiled their milk. In his opinion the boiling of the milk might destroy the bacilli, but not the toxins therein; a form of sore throat produced by milk was not eradicated by boiling the milk, but only by changing the source. He thought that the most important measure was to attend to the health of the cow that gave the milk.

MR. BARRINGTON said that he was a large owner of cows and had come from Ireland to attend this congress. He wished to know what would be the result of injecting his cows with tuberculin with regard to diminishing their milk supply.

MR. LAITHWOOD said that if the animals were healthy tuberculin would have no deleterious effect upon them, and would not diminish the milk supply.

The section then adjourned to Friday morning, July 26.

FIFTH DAY.

PROVISION OF SANATORIA.

SIR HERBERT MAXWELL occupied the chair. He said in opening the meeting that he had a great many names of gentlemen who wished to speak that morning. It would be necessary, however, to adhere to the order on the programme. He then called on Sir James Crichton Browne.

SIR JAMES CRICHTON BROWNE gave a brief address upon

WHAT ARE THE BEST MEANS OF PROMOTING THE ERECTION OF SANATORIA FOR PHTHISICAL PATIENTS,

in which (1) the curable may have the best chances of recovery afforded to them; (2) the

incurable, while ceasing to be a source of danger to the community, may have their lives prolonged and receive the comfort necessary to their condition? He said there was a great necessity for sanatoria. Some even now were in doubt as to the curability of phthisis. This arose from the old opinion of Laennec, but even Dr. Theodore Williams tended to support the old view, as he objected to the term "cure" being used, but rather preferred "arrest of the disease." He (Sir James) thought this was wrong, as nearly every disease left scars behind, but they did not count unless they disabled or caused suffering to the patient. In every cadaver there were found the remains of old disease, but yet we had been accustomed to call these cases "cures," and not merely "arrests of the disease." Tubercle bacilli were always waiting to intervene wherever the strength of the body went down, but wherever tubercular disease broke out afresh, it was not necessarily a relapse, but might be a fresh infection. Obsolete tubercle was often found in the lungs of many people who had never known of its existence and had died of other diseases. Nothing was more clearly shown by statistics than this. He found a large prevalence of tubercle among the inmates of asylums, and even under the depressing conditions always prevalent there, cures still went on. There was a long struggle between the tissues and the bacilli, and the power of resistance possessed by the former almost proved the existence of a *vis medicatrix nature*. It was to help the tendency to spontaneous cures, of the existence of which there could be no doubt, that sanatoria were so necessary. They ought to be brought within the reach of all persons, for the public was largely protected by the isolation of such cases, and this was being recognized in all civilized countries. England had been accused of having lagged behind, but this accusation was hardly just. She had not rushed into the sanatorium movement until it had been shown to be good; now that its worth had been recognized, more would be done. There ought to be three classes of sanatoria: (1) For the affluent classes; (2) for those possessing competent means; (3) for the poor. In (1) were included those to whom the incidence of sickness made no difference as to their financial position; in (2) were reckoned those who had sufficient means for paying their way under ordinary conditions of health, but in times of sickness were sure to be more or less embarrassed, and for which some eleemosynary assistance was necessary. The members of this class might contribute a portion of the cost, and if they recovered would not object to repay what had been expended for them. But it was in (3) that were included the great mass of the sick, although the line between (2) and (3) could not be sharply defined. Members of the latter class were always helpless in event of long sickness; private charity was not sufficient; public funds must be found.

MR. BRABROOK, C.B., chief registrar of friendly societies, said that what he proposed to deal with was the question whether it was to the interest of

friendly societies to provide funds for sanatoria. Such societies suffer from disease among their members: (1) By claims made on the sick funds; (2) by sums paid at the deaths of members. They had a legal power to provide funds under their special acts for hospitals and such like institutions, but before anything would be likely to be done it would be necessary for the orders to clearly understand at what cost its members might receive benefits. Friendly societies might combine together to form sanatoria. Although these orders possessed large funds, it must not be taken for granted that they could afford excessive contributions. Their members were usually picked men, owing to their having had a medical examination before admission to the order, so that their risks would not be so great as those of the general public. That the risk of phthisis was less was clearly shown by statistics; for this reason their contributions ought to be less. As a matter of fact, among the friendly societies a short and rapid case of phthisis was financially better for them than one of a long duration, as the funeral allowance was much less costly than prolonged sick pay. The conclusions he had come to were that the financial interests of the friendly societies in sanatoria were small, and for that reason they were not likely to be eager to become contributors.

HERR BIELEFELD, privy councillor, and president of the Senate of the Imperial Insurance Department, read a paper entitled

BATTLE AGAINST CONSUMPTION AS A SICKNESS OF THE PEOPLE ON THE GROUNDS OF THE GERMAN WORKMEN'S INSURANCE.

He said that since the year 1891, in Germany, all the hired workmen, the number of whom had been estimated at 12,650,000 in 1898, had been insured against sickness, such insurance having been enforced by legislation, and the large mortality arising from tuberculosis throughout the German Empire, and the prolonged sickness consequent on the same, had impressed on the departments having charge of the insurance funds the necessity of doing all in their power to check the ravages of tuberculosis among the insured, in order to keep down the enormous expense arising from sick claims. He then sketched out the means employed to provide sanatoria, convalescent homes, recreation places and special institutions for the treatment of consumptives in every stage of the disease; pointing out how the insurance departments worked in conjunction with the sick clubs and professional associations.

DR. REICHE gave instances of how frequently patients after treatment were able to resume their ordinary work, even when common workmen, and obliged to return to insanitary surroundings. The treatment lasted on an average from 5 to 30 weeks.

DR. PANNWITZ, Berlin, said that they knew that tuberculosis was a curable disease. The formation of sanatoria was largely the object of the German societies for the prevention of tuberculosis. The sanatoria helped to educate people

with regard to the struggle against tubercle, as the patients received special instructions there as to precautions to be taken in the future, and on their return to their homes they passed on this knowledge to others.

MR. HOFFMAN, statistician to the Prudential Insurance Company of America, said he should confine himself briefly to central facts in his communication on

LIFE INSURANCE IN ITS RELATION TO TUBERCULOSIS.

He said that the chief of these was, What interest had life insurance companies in the question of sanatoria for phthisis? He exhibited charts showing the mortality of this disease in America, and that there had been a great decline in its virulence. Dr. Koch had said that the reason of the diminution in tubercular mortality was the dissemination of the knowledge that tubercle was infectious. This statement was incorrect, in his opinion, and altogether ignored the progress of sanitary science, as the decline had been going on for the last 50 years. He drew attention to the difference in the rate of decline in the case of males and females in America, and thought that this difference was worthy of a very close investigation as to possible cause. It was always this disease that gave them most trouble and put them financially to the greatest cost, but the insurance companies could not contribute toward sanatoria. The insured had paid as a rule \$24, and had cost them at least \$65 before sanatorial treatment was possible. They might, however, help by distributing literature to educate the public, as their agents visited millions of people and might largely assist in disseminating sanitary pamphlets, etc.

He begged to propose the following resolution:

That, whereas it is in evidence that the further reduction of mortality of tuberculosis is of the greatest financial importance to insurance companies, in the opinion of this section such companies should endeavor to give the greatest publicity to the most essential and easily comprehended facts as to the treatment and prevention of consumption.

This resolution was seconded, put to the meeting, and carried unanimously.

DR. HAYWARD, medical officer of health of Haysdock, Lancs., gave an abstract of his paper on

THE MORTALITY FROM PHTHISIS AND OTHER TUBERCULAR DISEASES CONSIDERED IN SOME ASPECTS WHICH MAY BE DEMONSTRATED BY LIFE TABLES.

The reader said that the usual way of measuring the mortality of phthisis was to see how many died out of so many living. But we might put it this way: Suppose the disease was abolished, how many more would be living? He had constructed a table to illustrate this. His conclusions were that if this disease could be got rid of, every infant born would have an increased expectation of life of 2½ years. Where the age was 15, the expectation would be 3½ years; the average life of the population of the country would be increased by 2 years; the increase, in fact, would be more

than equal to what would occur if all the zymotic diseases were abolished.

LIEUTENANT-COLONEL MONTEFIORE, Charity Organization Society, said that although the development of sanatoria in this country had not been so rapid as abroad, we had led the way in promulgating the scientific principles on which they were founded. Foreigners had beaten us in this direction because the opinion of scientific men had more influence abroad than here. But he hoped the present congress would stimulate his countrymen. Convalescent homes here for the poor were very few, and many of these refused to take in consumptives. It was not generally understood that consumption was infectious, and the idea that it was not was encouraged by the fact that in some hospitals phthisical cases were admitted and treated side by side with other cases. He could not understand this. He thought the treatment in proper institutions would make a great difference in the length of disablement of workmen.

MR. MORTON, London Hospital for Consumption, said he would confine his remarks to one or two points. His experience had shown him the necessity of providing more sanatoria and even dispensaries; also of the need of finding relief for those left at home when the bread-winner was removed. The hospital patient was often compelled to leave too soon on account of his wife and children. He thought there was a general desire on the part of the public for information, as he had had that year over 4,000 applications for pamphlets as to the treatment of consumption. He might also say that wealthy people often needed education as much as the poor. He thought, too, that there was a great necessity for homes for the incurables; there were only one or two in existence, and considering the mischief such cases might do to the public, it was highly desirable they should be isolated in some such manner.

The chairman then said that Dr. Kaye's name was next on the list, but as the section had not yet listened to any lady members, he thought they might like to hear Dr. Jane Walker, if the former were willing to allow her precedence.

DR. KAYE signified that he was willing to do so.

DR. JANE WALKER, London, said that she did not intend to lay down any dictatorial statements as to the treatment of consumption among the poor. It could hardly be gainsaid that it was more necessary to help the poor than the rich. Overcrowding bore a direct relation to the causation of phthisis; consumptives among the poor had little chance while exposed to insanitary surroundings, and they directly threaten the health of the sound. There was a great tendency for both sexes to be more and more employed in indoor occupations, and unless proper inspection of the workrooms was kept up, overcrowding was more or less certain to occur. The authorities, like science, moved slowly; in her opinion, every division of London ought to have a sanatorium in the country; she had herself practical experience

of open-air treatment, as she had taken a farm in Norfolk and turned it into a sanatorium for 10 women patients. She had met with fair success, and thought such homes could be made to pay 2½%.

SIR JAMES CRICHTON BROWNE said it was now necessary for him to propose some resolution in order to give a practical turn to the discussion. He begged to propose:

That, in the opinion of this section, the provision of sanatoria is an indispensable condition for the treatment and diminution of tuberculosis, and that the duty of providing such sanatoria should devolve on the county councils.

DR. KAYE seconded.

DR. RITCHIE, Edinburgh, proposed as an amendment the following:

That it is desirable, for strengthening the hands of parish councils and of others interested in the care and treatment of those on the parochial roll suffering from pulmonary phthisis, that an expression of opinion be given by the congress to this effect.

That it is not only right, but necessary, that proper provision be made for the housing or accommodation of such afflicted persons, either by separate wards being provided in the poor or workhouse hospitals, in which they may be treated apart from the other inmates, or, what is more advisable, that a distinct building or sanatorium be erected, at a moderate cost, with accommodation for the care and treatment of cases of both sexes, not only of the early or curable, but also of the advanced stages of the disease.

DR. W. F. ROBINSON seconded.

SIR JAMES CRICHTON BROWNE thought that the resolution should be as general as possible; and, on second thought, he would withdraw the second part of his resolution.

Another amendment was proposed, but ruled by the chairman to be out of order. The chairman further said that Dr. Ritchie's resolution could not be treated as an amendment, but must be put as a separate resolution.

Sir James Crichton Browne's resolution was then put to the meeting, and carried.

Dr. Ritchie's resolution was next considered, although the chairman thought it hardly applied to the present business.

DR. PATTEN proposed, as an amendment, that "all public bodies be substituted for the bodies named in the resolution."

Another member proposed that "local authorities be put in the place of parish councils."

The chairman thought the section ought to be very careful as to what resolution it passed.

Dr. Ritchie's resolution was then put to the meeting, but was lost by a considerable majority.

The next subject considered was

THE ROLE OF HOSPITALS AND DISPENSARIES FOR CONSUMPTION IN THE PREVENTION OF PHTHISIS.

DR. EDWARD SQUIRE said that the chief causes of the diminution of consumption were the hygienic measures that had been employed in its treatment, as no specific had yet been found. It must not be forgotten that all consumptives were a danger on account of their proneness to infect others. The sanatorium often isolated

the patient, but a hospital should be all that a sanatorium was, and provide for more than the sanatorium could do. For a proper consumption hospital several departments were essential. There must be an out-patient department for patients able to be about, and through it expert assistance might be given to doctors in doubtful cases, so as to bring about an early diagnosis. Then there would be the in-door department for patients requiring active treatment, and who were not in a fit position to be in sanatoria. Thirdly, there should be a home for the dying connected with such a hospital, to which incurables might be sent when necessary. Whether such institutions should be supported by the charitable or by the municipalities was another question, but they should always be arranged according to the foregoing scheme.

Dr. CALMETTE then read an abstract of his paper:

LES DISPENSAIRES ANTITUBERCULEUX UREAINE
POUR LA PROPHYLAXIE DE LA TUBERCULOSE
DANS LA CLASSE OUVRIER.

Dr. CALMETTE gave an interesting description of a class of dispensaries established in Paris for the purpose of treating tubercular disease among the working classes.

Dr. LANDOUZIE made some remarks on Dr. Calmette's paper.

Dr. SAMUEL BERNHEIM, Paris, also gave an abstract of his paper:

ROLE DES DISPENSAIRES ANTITUBERCULEUX DANS
LA LUTTE PRATIQUE CONTRE LA TUBERCULOSE.

The reader said that these dispensaries were branches of the large hospitals for the reception and care of poor people; the patients were carefully examined in order to discover the earliest symptoms of tuberculosis. They were not only provided gratuitously with medicines, food and clothing, but they were warned to be on their guard against contagion; they were also taught to take all precautionary measures in schools, workshops and their homes. A certain number of sanitary officials attached to these institutions looked after the patients at their own homes, and made sure that existing rules were observed. Consumptives treated by these dispensaries, especially those in early stages of the disease, have derived the greatest benefit from them. From a prophylactic point of view he thought they would be found even more efficacious than sanatoria.

Dr. COLEY, Paris, made some remarks on the paper.

Dr. BONNET LEON read a paper entitled

SUR LE FONCTIONNEMENT DES DISPENSAIRES ANTI-
TUBERCULEUX EN FRANCE, ET SUR L'OEUVRE
GÉNÉRALE DES DISPENSAIRES ANTITUBERCULEUX.

The reader spoke of the terrible ravages caused by tuberculosis in France, and said that it was generally recognized that tuberculosis was contagious, preventable and curable if detected at an early

stage. It was necessary that some simple and cheap plan of action should be adopted, especially in large centres of population, among the working classes. He emphasized the three following points: (1) The necessity of educating the public; (2) advice and treatment directed to the cure of the disease at an early stage; (3) proper dieting. The reader adverted to the disadvantages of sanatoria, with regard to costliness, etc., and described Dr. Calmette's dispensary system, of the working of which he gave many interesting details.

The proceedings of the section then terminated.

(To be continued.)

Recent Literature.

School Hygiene. By EDWARD R. SHAW, Professor of the Institutes of Pedagogy, New York University. New York: The Macmillan Co. 1901.

In the education of youth nothing is of greater importance than the principle of a sound mind in a sound body, and it is the inculcation of this principle which is set forth very clearly in this volume. The author holds that it is in the highest degree incumbent upon school authorities to provide the best attainable conditions, not only to protect, but also to maintain, the health of pupils committed to their care. "The home may be educated to a great extent through the school. As the school, therefore, reacts closely upon the home, a knowledge of that which is hygienically best can in no other way be so quickly and thoroughly diffused."

In this work the schoolroom is considered as the unit in planning a school building, and this building should be a number of such rooms aggregated and properly arranged, and not a building cut up into rooms whose size and arrangement are dependent on the size and shape of the building. The topics treated are the schoolroom, the school building, school grounds, warming and ventilating, sanitation, school baths, school furniture, postures and physical exercises, eyesight and hearing, handwriting, healthful mental work and school diseases.

The chapters on school desks and chairs, the conditions conducive to healthful mental work, and the diseases which concern the school, are treated concisely and intelligently, and will be specially interesting to those physicians who are in any way connected with educational work.

It is a book which should be in the hands of every teacher and every member of a school committee, as well as every physician who has to do with the training of children.

It is reported that the castor bean plant, which has been found to be efficacious in driving away mosquitoes, will be employed in Chicago for banishing the pests from the parks of that city. — *Philadelphia Medical Journal.*

THE BOSTON
Medical and Surgical Journal.

THURSDAY, AUGUST 22, 1901.

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**SYSTEMATIC EXTERMINATION OF
MOSQUITOES.**

Now that the mosquito has been shown to be not only obnoxious but also a positive source of disease, active measures are being taken in various places to diminish its numbers by systematic methods. It is certainly desirable that boards of health should take an active interest in what promises to be a more and more important means of prophylaxis.

In New York, Health Officer of the Port Doty has given a detailed report of his recent investigations in regard to malarial disease on Staten Island, which is of much interest. He states that he selected a district known by the physicians of the borough to contain many cases of malaria, both in the acute and chronic form. This section, consisting of a basin less than a square mile in extent, within whose boundaries were some twenty-five stagnant pools varying from five feet in diameter to an acre or more in area, contained not more than a hundred small wooden houses, some distance apart. A house-to-house inspection showed that at least 30% of the inhabitants were suffering from the acute or chronic form of malarial fever. In almost every house or yard were found typical breeding places for mosquitoes, either in the shape of rain barrels, cisterns and cesspools or of abandoned receptacles thrown about the premises. Samples of water from these, as well as all stagnant pools, were examined, and larvæ in large quantities were found. Large tubes were distributed among the houses for the purpose of collecting some of the mosquitoes infecting the neighborhood, and among the latter the anopheles was found. On two evenings live mosquitoes were secured from one of the bedrooms of a house in which there were five malarial subjects. On the first night five were taken, and all but one were of the anopheles spe-

cies. On the second night twenty-two were collected, and of these more than one-half were the malarial insect. In a drop of blood taken from a child seven years old suffering from acute malaria, who lived in a house on the opposite corner, a bacteriological examination showed the presence of the malarial parasite.

The mosquitoes referred to were placed in large glass jars for observation. Many eggs have already been laid, and the laboratory work in regard to the mosquitoes, when completed, will be published in the medical journals. Many tests have been made in the laboratory to ascertain the value of different agents in the destruction of mosquito larvæ. It was a surprise to find that a solution of bichloride of mercury (1-2000) sufficiently strong to kill all micro-organisms affected the larvæ slowly, some being alive at the expiration of twenty-four hours. In weaker solutions they lived indefinitely. It would be unsafe to use this dangerous agent in ponds, etc., and the same may be said of carbolic acid and other agents experimented with. Permanganate of potassium, which has been strongly recommended for the destruction of larvæ, produced but little effect except in very strong solutions. During these tests the marked superiority of petroleum oil soon became manifest, and there seemed to be no special advantage of one petroleum product over another. The Lima oil which was used in petrolizing the stagnant pools and rain barrels, etc., is a crude petroleum with a minimum amount of naphtha. One cubic centimetre of this added to 3,500 cubic centimetres of water containing larvæ killed them in three or four hours. This is equivalent to about twenty drops of oil to a gallon of water; and, as a matter of fact, this result was usually obtained by less than this amount of oil. Dr. Doty is inclined to believe that the death of the larvæ is due to obstruction of respiration, and also that emanation from the oil or its odor, or both, is particularly repugnant, if not dangerous, to the full-grown mosquito.

There is no doubt, he says, that the best effect of the oil is gained by introducing it to a considerable depth under the water. In this way it is more surely brought in direct contact with the larvæ, particularly if the water is agitated. Having given a description of the apparatus employed in his practical work, he states that in petrolizing the stagnant pools it soon became evident that the long grass and weeds, particularly in the immediate vicinity of these places, were the abiding places of the mosquito during the day. Therefore, special attention was given to the removal of this growth and afterward petrolizing the ground with an ordinary sprinkling pot. The cisterns,

rain barrels and other such breeding places were treated by sprinkling the inside of the woodwork and the surface of the water with oil. If the boundaries of the section experimented upon included all the breeding places in this part of Staten Island, there is no doubt that a marked diminution in the number of mosquitoes would have been apparent at once, but, unfortunately, many breeding places exist in the territory surrounding this place. Nevertheless, the opinion expressed by the inhabitants of the section indicates that there has been a positive change for the better. Dr. Doty thinks that this investigation has been of scientific value, because it has shown (1) the intimate relation between the mosquito and malarial fever; (2) the true breeding places of the mosquito; and (3) that petroleum oil will surely and promptly destroy mosquito larvae, and, so far as careful experiments indicate, it is the only agent which can be depended upon for this purpose. The suggestion that birds, dragon flies, etc., should be propagated for the purpose of destroying mosquitoes is, in his opinion, not entitled to serious consideration. In conclusion, he feels justified in saying that the continued presence of mosquitoes in large numbers as a rule indicates defective drainage, or in some other way an insanitary condition of the infested section, and that the radical and scientific treatment of this condition is proper drainage and a compliance with modern sanitary regulations. Any other treatment is proper only when these measures cannot be enforced, and it is under the latter conditions that the use of petroleum is indicated. The responsibility of carrying out this important work must rest with the municipal, State and Federal authorities. Municipal sanitary codes should include strict regulations not only against the existence of stagnant pools but all forms of breeding places, and should empower sanitary officers to employ such means as are necessary to protect the public against these insects, and, when required, the application of oil should be made under their direction. In order to make this work uniform and effective, the co-operation of the State and Federal authorities is absolutely necessary, and such action would be followed by the most gratifying results.

A NEW MEDICO-MILITARY JOURNAL.

THE Association of Military Surgeons, which has a large membership among the medical officers of the army, navy, marine hospital service and national guard, has recently decided to publish a journal instead of yearly issuing a bound volume containing the transactions of the association and the papers read at its annual meeting.

The contracts for its publication have already been made, and the first number of the journal will appear shortly. The editor-in-charge is Capt. James E. Pilcher, assistant surgeon, U. S. Army, retired, under the supervision of a governing board composed of such representative men as Major J. V. R. Hoff, U. S. Army; Brig.-Gen. Robert A. Blood, Massachusetts Volunteer Militia; Surg.-Gen. Walter Wyman, U. S. Marine Hospital service; Col. Nicholas Senn, Illinois National Guard; Surg.-Gen. Geo. M. Sternberg, U. S. Army; Medical Director A. L. Gilson, U. S. Navy; Lieut.-Col. J. D. Griffith, National Guard, Missouri; Gen. Alexander J. Stone, National Guard, Minnesota; Lieut.-Col. George R. Fowler, National Guard, New York; Lieut.-Col. C. F. W. Myers, National Guard, New Jersey; Col. C. H. Alden, U. S. Army, retired; Lieut.-Col. H. M. W. Moore, National Guard, Ohio; Medical Inspector P. M. Rixey, U. S. Navy. There will also be a staff of associate editors, selected from medical officers prominent in the several government services and in the national guard, and a number of corresponding editors, selected from the medical officers of various foreign armies.

The new journal is intended to enlarge the scope of the association and enhance the value of its efforts in behalf of the soldier. It will contain not only the proceedings and publish the papers of the annual meetings, but will also present timely contributions upon medico-military matters, will furnish in full or in abstract all important contributions in its field from current literature, and, in its editorial department, will present all current news relating to the personnel of the association.

While the new journal endeavors to promote and develop military medicine, surgery and hygiene in general, it particularly aims at the mutual inspiration and improvement to be derived from the prompt publication, in accessible and attractive form, of the work of active military medical officers - which has heretofore been scattered through a large number of general medical publications and has thus been largely lost to those most interested. The new journal is intended to create a living and growing mass of medico-military literature, available as a standard for study and reference. The journal is expected to quicken the development of military medicine and surgery, through the constant agitation of topics pertaining to them, while it will reach all those most directly interested in these subjects. It is intended to furnish a medium for the reciprocal interchange of views and ideas between the medical officers of the state and national services, which cannot fail to be of advantage to both, while it encourages their closer social and pro-

professional relations and establishes a common standard for the medical departments of the national services and the state troops, the lack of which was found to be a fatal defect in the war with Spain. The new journal is expected to promote the condition of preparedness in the medical departments of all services, with the purpose of reducing the suffering and diminishing the mortality in the armies of future wars. Finally, an important purpose of the journal is to foster a feeling of *esprit de corps* among medical officers and to stimulate legislation beneficial to the medical departments of the state and national services.

The new journal will be issued free to all members of the Association of Military Surgeons, and is expected to be a strong factor in increasing the already large membership of the latter, drawn, as it already is, from forty-one different states and the three government services. As no similar journal is published in the English language, it is probable that the new publication will have a wide circulation among medical officers of the British services and those of Canada, India, Australia and other colonial forces.

MEDICAL NOTES.

THE STATISTICS OF INTUSSUSCEPTION.—D'Arcy Power, F.R.C.S., has compiled the following statistics of cases of intussusception occurring at St. Bartholomew's Hospital and at the Victoria Hospital for Children, Chelsea, Eng., during the years 1891-1900. Of 65 cases there were 23 recoveries and 42 deaths. Thirty cases presented points of especial interest as follows: Two recovered spontaneously, 1 acute and 1 chronic case. One recovered from a triple intussusception. One died of ileus after reduction. One had intestinal obstruction due to adhesions after the abdominal section. Two cases were too ill to operate upon. One case had such extensive adhesions that nothing could be done. Three cases recurred repeatedly after apparent reduction by irrigation. In 3 cases the intussusception was overlooked at the operation and was found post mortem. In 1 case there was no intussusception. Fifteen cases needed excision of the bowels; in 7 cases on artificial anus was made; all fatal. In 5 cases Murphy's button was used; 4 died and 1 recovered. In 2 cases Manns's operation was performed; both died. In 1 case a circular enterorrhaphy was done; it died.

FATAL RESULT FROM INFECTED MOSQUITO BITE.—It is reported that Chief Surgeon Havard has announced that the experiments in the investigation of the propagation of yellow fever, so far as they involve the mosquito test, will be discontinued. The decision was made because a Spaniard

who was recently bitten by an infected mosquito has died of yellow fever. The man desired to become immune and therefore allowed himself to be bitten. Another man who was bitten is very ill. It is also reported that at the end of the first week in August there were but five cases of yellow fever in Cuba, a condition which has not before been approached.

NURSES' TRAINING SCHOOLS IN GREECE.—It is reported that Miss Kleonike Klonare, a Greek who has studied nursing at the Massachusetts General Hospital and other institutions in Boston, has been requested by Princess Sofia to return to Greece for the purpose of establishing training schools for nurses in Athens.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon Aug. 21, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 34, scarlatina 33, measles 27, typhoid fever 19, smallpox 5.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending Aug. 17 was 233, as against 233 the corresponding week last year, making the death-rate for the week 21.2. The deaths from consumption were 22, pneumonia 6, whooping cough 3, heart disease 17, bronchitis 3, marasmus 9. There were 16 deaths from violent causes. The number of children who died under 1 year was 75; under 5 years, 103; persons more than 60 years, 43; deaths in public institutions, 75.

A WARNING REGARDING ANTHRAX.—Dr. William B. Little, city physician of Lynn, Mass., has issued a circular to the morocco manufacturers and employees, warning them of the danger of anthrax from the handling of certain skins. Notices have been posted explaining the danger and means of avoidance. Six cases are said to have been treated at the Lynn hospital during the last three years, and others have occurred outside.

SMALLPOX IN BOSTON.—Several cases of smallpox have come to the attention of the authorities during the last week in outlying portions of the city. Vaccination has been urged, and is being carried out. Whoever desires may be vaccinated by applying at the office of the Health Commissioners at the old Court House Building.

NEW YORK.

MODEL TENEMENT HOUSES.—The City and Suburban Homes Company, of which Dr. Gould is president, has begun the erection near the East River between 78th and 79th streets, of a group of six-story tenement houses designed by the best architects in strict conformity with the new

tenement-house laws, which will be the largest in this country, and cost about one million dollars. The buildings, which will be ornamental in appearance and fireproof, will occupy one city block, and all the rooms will be light and opening into the street or large, open courts. There will be no rear apartments, and each set will form a complete and private home with gas range, hot and cold water, steam heat, and separate toilets, each with a window. There will also be provided numerous shower and tub baths for the tenants, and the roof will be utilized for a roof garden and children's playground. In addition, each set of houses will be supplied with a laundry, a bakery, small store-rooms and cellars for the tenants, letter boxes, speaking tubes, electric vestibule-door openers, coal storage, a furnace for burning rubbish, and elevators for food, parcels, coal, garbage, etc. Notwithstanding the admirable accommodations and the many comforts supplied, the rents of apartments will be within the means of the ordinary tenement-house dweller, and, from experience with other model tenements, it is calculated that the venture will return a fair rate of interest on the capital invested. Such buildings will serve as educational objects to the surrounding population, and will be a revelation and stimulant to the ordinary landlord, and their effect in improving the sanitary condition of the poor and lowering the death-rate will undoubtedly be of the greatest possible value.

A BOGUS "DIPLOMA FACTORY."—A bogus diploma factory has just been closed by the authorities in Jersey City. Several weeks ago the chief of police of that place was informed that the "Central University of Medicine," located on Montgomery Street, and managed by one J. W. Norton-Smith, was doing an illegitimate business, the nature of which was not stated. He made an investigation, but the manager denied that he carried on any business in Jersey City, stating that he conducted the affairs of the institution by mail only. As no one could be found who had been swindled, he concluded that he had no authority to make an arrest, and his course was approved by Prosecutor Erwin and U. S. Commissioner Rowe. The latter referred the matter to Postal Inspector Cortelou, who reported that, so far as he could learn, the United States postal laws had not been violated. On Aug. 15, Governor Voorhees of New Jersey received a communication from Dr. J. M. Mitchell of Red Bank stating that the "University" was furnishing medical diplomas to all persons willing to pay \$10 for the same, and he immediately sent the information to the police authorities of Jersey City. On the day following detectives were sent to the office on Montgomery Street with orders to arrest whoever they might

find in charge, but the people had evidently been warned, and the place was found locked and deserted. It seems that in addition to issuing medical diplomas, this swindling institution offered to give the degree of Ph.D. to physicians and other professional men for the sum of \$5.00.

PAN-AMERICAN EXPOSITION NOTES.

MEDICAL TREATMENT AT ARMY FIELD HOSPITAL.—Not a few persons apply for medical treatment at the Model Army Field Hospital, which is located half a mile or more from the Emergency Hospital. As the army hospital is intended purely as an exhibit, only urgent cases are given attention. Being a government hospital, many persons are inclined to regard it in the light of a free dispensary, and requests for whiskey, medicines, permission to rest on the hospital cots, etc., are common. Recently one of the "Rubes," who advertise a certain concession by promenading the Exposition grounds attired as countrymen, thought to attract the attention of the crowd by "throwing a fit" in front of the field hospital. The spirit of the occasion was entered into by a couple of the hospital corps men near by, and they promptly proceeded to administer restoratives in the form of several grains of quinine in half a glass of water to the fakir, much to the disgust of the latter and the great amusement of the crowd. The "Rube" no longer includes the vicinity of the army hospital in his advertising route.

A UNIQUE BICYCLE RACE.—One of the freak performances of "Midway Day" was a bicycle race between a man with two artificial legs and a midget from one of the Midway attractions. The legless man rode well, but was unable to make up the handicap which he had been gallant enough to give the midget. Nearly all the exhibitors of artificial limbs at the Exposition have provided themselves with legless men who serve as attendants at their exhibits, and whom they use as "walking examples" of the efficiency of their appliances. These men, with their trouser legs cut off at the knees, are a prominent feature in the Manufacturers' Building, and their performances in walking, jumping, bicycle riding, wrestling, etc., attract large crowds of the curious. The other day, one was asked by an innocent old lady if he really thought it had paid him to have both legs amputated so as to better display his wares, and he was unable to convince her that his legs had not been removed for advertising purposes. Another bright woman was heard to remark to a friend: "Of course I can see that his legs are false, but I know as well as you do that his feet are real."

SMALL DEMANDS ON THE EMERGENCY HOSPITAL.—Comparatively few visitors at the Pan-American Exposition apply at the Emergency Hospital for medical attention. On "Midway Day," with an attendance of 106,000, but 80 cases were treated at the hospital. Outside of 4 persons who were slightly hurt by the bursting of a fly-wheel in the Machinery Building, these cases were chiefly composed of heat prostrations, headaches and indigestion. Only 14 ambulance calls were made, all the other patients being able to walk to the hospital. A score or so of women fainted during the day, particularly in the crowds which packed the Stadium during the Midway sports, but these recovered under the efforts of friends and Exposition guards without going to hospital.

CONCLUSION OF WORK OF A JURY OF AWARDS.—The jury of awards for the sections in hygiene and sanitation and medical and surgical appliances, has recently concluded its labors. Its awards have not as yet been announced by the Exposition authorities. The chairman of the jury was Capt. E. L. Munson, assistant surgeon, U. S. Army, who has recently published a work on military hygiene, and the members were Dr. S. H. Griffiths, surgeon, U. S. Navy, lately attached to the Naval Museum of Hygiene in Washington, and Prof. S. H. Woodbridge, professor of heating and ventilation at the Massachusetts Institute of Technology. By virtue of his position as chairman of the section jury, Dr. Munson is a member of the superior jury of awards, which takes final action on all recommendations of the subordinate juries.

RECEPTION OF AMERICAN PUBLIC HEALTH ASSOCIATION.—Preparations are being made for the reception of the American Public Health Association, which meets in Buffalo early in September. Through the efforts of Dr. Wm. A. Bissell, bacteriologist to the city Board of Health and surgeon to the Seventy-fourth Regiment, National Guard, New York, the magnificent armory of that regiment has been secured for the meetings of the association. Features already decided upon by the reception committee include a steamboat trip to Niagara Falls and a "smoker" in the "Streets of Mexico" on the Midway at the Exposition. A similar programme is being arranged for the forthcoming meeting of the Electro-Therapeutical Association.

INSPECTION OF ARMY, NAVY AND MARINE HOSPITAL SERVICE EXHIBITS.—The exhibits of the army, navy and marine hospital service have been recently carefully studied by representatives of a number of foreign governments. Within the past week, England, France, Germany, Canada and Chili have been thus represented. Dr. Cor-

nelio Guzman, medical director of the Chilian Army, who has just completed an exhaustive study of the methods and equipment of the medical service of the European armies, has been at the Pan-American for some little time, engaged in examining into and reporting upon its medical features.

THE "CRÈCHE."—The much-needed *Crèche* has at last materialized in the shape of a tent, suitably equipped, located in the rear of the Emergency Hospital. It is under the charge of Miss Walters, head nurse in the hospital.

Miscellany.

TYPHOID FEVER AND FILTERS.

DR. C. A. LINDSLEY, in the July *Monthly Bulletin* of the State Board of Health of Connecticut, urges greater care in the disposal of sewage, and warns against over-confidence in so-called filters:

"With a reckless indifference to consequences, the people of Connecticut, for generations, have been steadily and increasingly polluting their sources of drinking water, until now all public supplies and most of the private wells are liable to contain the germs of disease. All surface water in Connecticut, not artificially purified, may be a vehicle of infection to those who drink it. The dead from this cause alone in the State are counted by hundreds and the sick by thousands. Misplaced sewage is not peculiar to Connecticut; it has been called an American habit. Until the public are sufficiently enlightened to demand and secure a safer way of disposing of sewage, this yearly tribute of human health and life must continue to be paid, except in instances where personal precautions are taken to avoid the danger. One of the purposes of this paper is to utter a caution against the use of cheap contrivances misnamed "filters," which are readily attachable to the water-cocks in the house. They are for the most part mere strainers and collectors of the coarser dirt in the water, but are quite incompetent to exclude micro-organisms. Hence they are dangerous as giving a false sense of security, and in addition the accumulated filth in them may be a breeding place for germs. Natural stone filters are not always trustworthy. Scientific investigations show that they are of extremely uneven porosity, frequently faulty in lines and crevices, and soon become a nidus for the multiplication of microbes, which are speedily found more abundant in the filtrate than in the original water supply. The best filters are of the 'Pasteur type of filter.' These, too, require intelligent attention. They should be frequently cleansed by washing and brushing and sterilized by boiling. With such filters properly cared for, individuals can eliminate sewage from their water supplies and avoid that danger of infection."

METEOROLOGICAL RECORD

For the week ending Aug. 10, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer	Relative humidity	Direction of wind	Velocity of wind	Weather	Rainfall in inches
Daily mean	Daily mean	Maximum	Minimum	Daily mean	Maximum	Minimum	
Aug. 4 29.93	69	74	64	80	8.00 A.M.	8.00 P.M.	
5 30.13	70	77	63	34	8.00 A.M.	8.00 P.M.	
6 30.27	70	62	68	92	8.00 A.M.	8.00 P.M.	
7 29.98	74	64	65	90	8.00 A.M.	8.00 P.M.	
8 29.65	74	85	64	70	8.00 A.M.	8.00 P.M.	
9 30.06	74	81	65	85	8.00 A.M.	8.00 P.M.	
10 29.93	74	84	65	88	8.00 A.M.	8.00 P.M.	
11 30.03	74	84	65	76	8.00 A.M.	8.00 P.M.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall.
 ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUG. 10, 1901.

CITIES.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and group.
New York . . .	3,437,202	1,454	721	43.97	5.28	—	29.22	1.51
Chicago . . .	1,688,575	—	—	—	—	—	—	—
Philadelphia . . .	1,263,697	477	174	29.26	3.34	1.88	7.31	1.88
St. Louis . . .	575,238	—	—	—	—	—	—	—
Baltimore . . .	560,967	203	79	36.40	3.64	2.95	22.14	1.36
Cleveland . . .	381,768	—	—	—	—	—	—	—
Buffalo . . .	352,287	—	—	—	—	—	—	—
Cincinnati . . .	358,902	—	—	—	—	—	—	—
Pittsburg . . .	321,616	154	74	40.25	3.54	9.09	18.82	1.29
Washington . . .	275,718	—	—	—	—	—	—	—
Milwaukee . . .	285,315	—	—	—	—	—	—	—
Providence . . .	175,597	64	23	39.00	—	—	24.96	.39
Boston . . .	560,892	194	85	35.26	4.12	.51	14.42	1.02
Worcester . . .	115,421	38	25	69.40	—	—	47.24	—
Fall River . . .	104,963	67	26	62.66	1.49	2.98	56.70	—
Lowell . . .	91,868	39	24	48.72	2.56	—	33.33	5.12
Cambridge . . .	90,886	25	16	48.14	—	—	37.93	—
Lynn . . .	65,515	18	9	55.00	5.55	—	38.85	5.55
Lawrence . . .	62,559	27	21	48.14	—	—	48.14	—
New Bedford . . .	62,442	31	22	45.16	—	—	38.71	—
Springfield . . .	62,659	11	2	18.18	—	—	9.09	—
Sumerville . . .	61,143	3	3	33.33	—	—	22.22	—
Holyoke . . .	45,712	17	6	11.76	—	—	6.88	—
Brockton . . .	40,093	6	1	16.67	16.67	—	—	—
Haverhill . . .	37,175	7	1	14.30	—	—	—	—
Salem . . .	35,066	13	6	23.10	—	—	23.10	—
Chelsea . . .	34,972	6	6	—	—	—	—	—
Malden . . .	33,664	14	11	49.98	—	—	42.88	—
Newton . . .	33,664	4	2	50.00	—	—	25.00	—
Fitchburg . . .	31,636	9	5	—	11.11	—	—	—
Taunton . . .	28,506	11	4	9.09	—	—	9.09	—
Gloucester . . .	26,121	6	1	16.67	16.67	—	—	—
Everett . . .	24,330	7	4	—	—	—	—	—
North Adams . . .	24,090	10	6	10.00	—	—	10.00	—
Quincy . . .	23,899	7	2	42.00	—	—	14.30	—
Waltham . . .	23,481	6	1	33.33	—	—	—	—
Pittsfield . . .	23,166	6	—	—	—	—	—	—
Brookline . . .	19,635	—	—	—	—	—	—	—
Chicopee . . .	18,244	6	—	33.33	—	—	16.67	—
Medford . . .	17,414	3	1	33.33	—	—	—	—
Newburyport . . .	14,478	4	3	75.00	—	—	75.00	—
Melrose . . .	12,962	2	—	—	—	—	—	—

Deaths reported 2,992, under five years of age, 1,360; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, whooping cough, erysipelas, fevers and consumption) 1,173; acute lung diseases 127, consumption 297, scarlet fever 18, erysipelas 4, typhoid fever 33, whooping cough 22, measles 16, diphtheria 1, typhoid fever 1, smallpox 13.
 Street—Malden 1. From cerebrospinal meningitis, New

York 3, Baltimore 1, Worcester 3, Lowell, Cambridge and Lynn 1 each. From scarlet fever, New York 11, Philadelphia 2, Pittsburgh 5. From typhoid fever, Philadelphia 9, Baltimore 6, Pittsburgh 11, Boston 1, Fall River 2, Gloucester 1. From erysipelas, New York 3, Baltimore 1. From smallpox, New York 13.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,453,026, for the week ending July 27 the death-rate was 21.2. Deaths reported 4,658; acute diseases of the respiratory organs (London) 134, whooping cough 64, diphtheria 68, measles 114, fever 26, scarlet fever 15.

The death-rate ranged from 9.7 in Croydon to 34.3 in Liverpool; Birkenhead 30.0, Birmingham 23.0, Blackburn 29.8, Bolton 21.0, Bradford 14.7, Brighton 19.8, Bristol 13.1, Burnley 25.7, Cardiff 12.3, Derby 10.8, Gateshead 25.0, Halifax 12.4, Huddersfield 23.1, Hull 19.2, Leeds 28.9, Leicester 18.6, London 18.2, Manchester 24.1, Newcastle-on-Tyne 26.6, Norwich 17.7, Oldham 18.5, Plymouth 16.4, Portsmouth 20.2, Preston 28.1, Salford 24.2, Swansea 16.3, West Ham 23.3, Wolverhampton 15.8.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING AUG. 8, 1901.

GASSAWAY, J. M., surgeon. Relieved from duty at San Francisco, Cal., and directed to proceed to St. Louis, Mo., and assume command of the service, relieving Passed Assistant Surgeon W. G. Stimpson. Aug. 2, 1901.

MELTON, W. T., surgeon. To proceed to Jasper, Ga., for special temporary duty. Aug. 8, 1901. Granted leave of absence for 30 days from Aug. 24, Aug. 8, 1901.

STIMPSON, W. G., passed assistant surgeon. Upon being relieved by Surgeon J. M. Gassaway, to proceed to San Francisco, Cal., and assume command of the service. Aug. 2, 1901.

HYDEGGER, J. A., passed assistant surgeon. Granted extension of leave of absence on account of sickness, for 30 days from Aug. 30. Aug. 7, 1901.

HOLT, J. M., assistant surgeon. Granted leave of absence for 7 days from Aug. 15. Aug. 2, 1901.

HALLETT, E. B., acting assistant surgeon. Granted leave of absence for 7 days from Aug. 10. Aug. 8, 1901.

SCOTT, E. B., hospital steward. Granted leave of absence for 6 days from Aug. 5. Aug. 2, 1901.

SLOCUM, CHARLES, hospital steward. Granted leave of absence for 14 days from Aug. 6. Aug. 7, 1901.

MORRIS, G. A., hospital steward. Relieved from duty at New York, N. Y., and directed to proceed to Havana, Cuba, and report to the chief quarantine officer for duty. Aug. 5, 1901.

PHILLIPS, W. C., hospital steward. Relieved from duty at Chicago, Ill., and directed to proceed to the Muller Key, Fla., quarantine station, and report to the medical officer in command for duty and assignment to quarters. Aug. 8, 1901.

PROMOTION.

Hospital Steward E. F. OLSEN promoted and appointed clerk of Class 2 in the office of the Surgeon-General, U. S. Marine Hospital Service, July 16, 1901.

RESIGNATION.

Acting Assistant Surgeon E. A. SMITH resigned, to take effect from and after July 31, 1901.

RECENT DEATH.

DR. JAMES ALEXANDER WILLIAMS of New York died Aug. 15 at Athol, Westchester County, N. Y., at the age of 61. He was born at Sinking Springs, Ohio, and was graduated from Rush Medical College in 1863 and from Bellevue Hospital Medical College in 1866.

BOOKS AND PAMPHLETS RECEIVED.

Classification of Cancer upon an Embryological Basis. By W. F. Whitney. Reprint. 1901.

Our Recent Epidemics of Smallpox and the Failure of Glycerinated Lymph. By F. J. Ranney, M.D., Clarksville, Tenn. Reprint. 1901.

Sanatoria for Consumptives in the United States and the Canadian. By Clark Bell, Esq., LL.D., of New York, President Medico-Legal Society, Secretary American Congress of Tuberculosis. Reprint. 1901.

Original Articles.

THE TREATMENT OF STRICTURE OF THE ESOPHAGUS.¹

BY THEODORE DUNHAM, M.D., NEW YORK.

I NEED not here discuss the pathology of strictures of the esophagus. The accepted methods of treatment for both neoplastic and cicatricial strictures are familiar to you all. I think you will agree that, with the methods thus far employed, some new method of dilating cicatricial strictures would be welcome, if it should be rapid and comparatively safe.

During the past winter I have devised some procedures for the treatment of cicatricial stricture, which have met with such perfect success that I venture to ask your attention while I describe them.

The first requisite for dilatation of an esophageal stricture is to get some instrument to pass through the esophagus. In some cases all attempts to pass an instrument by way of the mouth fail. In a certain proportion of these cases, after performing a gastrostomy, it is possible to make an instrument engage in the cardiac orifice of the esophagus and push it up into the mouth. But sometimes even this is not successful. I had such a case during the winter. I could pass an instrument neither from above nor from below. I overcame the difficulty in the following way: The apparatus consisted of a glass of water, an ordinary drinking tube and a piece of black silk thread. I threaded the tube so that the end of the thread was at the mouth end of the tube. The patient then drank water through the tube. The thread was washed along in the current of water, and as it disappeared up the tube more thread was fed into the glass of water. When several feet of thread had been thus washed down, I fished the lower end of the thread out from the stomach by passing a bent probe into the gastrostomy opening. This was entirely successful at the first attempt. On trying it subsequently, however, I failed, because my patient, who was a child, had taken a dislike to the procedure and snarled the thread with his tongue, thus preventing its washing down.

This new difficulty I overcame as follows: To a glass funnel I attached a piece of rubber tubing, and to this, by a piece of glass tubing, a small rubber catheter, the tip of which had been cut off. A thread was washed down from the funnel until its end appeared at the end of the catheter. The rubber tubing was now pinched to stop the flow of water and thread, and the catheter inserted into a nostril until its end hung in the pharynx. A swallow of water was now allowed to flow from the funnel, and then the tube was again pinched. Water was thus intermittently fed down the esophagus, the thread going with the stream. After

several feet of thread had disappeared down the funnel, I fished the lower end of the thread out through the gastrostomy opening, as before.

Before trying to wash a thread down the esophagus of my patient, I first tested the feasibility of doing so upon an artificial esophagus. I have made a similar one to show you now. It is made of glass and rubber tubing. The funnel above may represent the pharynx. The channel passes from the neck of the funnel through a piece of rubber tubing and a piece of glass tubing, and then by means of a perforated cork into a glass tube of large calibre. This is intended to represent a dilated pouch above a stricture. The exit below from the large tube is by a small glass tube which passes half an inch into the large tube, to represent the mouth of the stricture as lying at a higher level than the bottom of the pouch. Thence the channel is continued by a piece of rubber tubing, by a piece of glass tubing which takes a circular turn in a vertical plane and then makes a sharp and constricted lateral bend, and the channel finally ends by a rubber tube having a diameter of about one-sixteenth of an inch. I will introduce a thread into the neck of the funnel, and then keep the funnel filled with water and gradually feed in the thread. The thread is carried by the current of water through the whole system without difficulty. Should it be arrested at any point, a momentary pull will disengage it and allow it to pass on.

Having passed a thread from the nostril to the gastrostomy opening, my next hope was to dilate the stricture by using the method devised by Dr. Robert Abbe and used with perfect success in a case reported by him a few years ago. His method consists in putting the stricture upon the stretch by engaging in it a conical gum-elastic bougie, and then sawing the stricture by pulling back and forth a stout thread passing through the stricture. In attempting to use this method I first pulled through a double thread of strong silk. By means of one of the two resulting threads I pulled through a piece of stout linen fish line; by the other one I attempted to draw into the stricture a conical gum-elastic bougie having an eye at its tip, to which the thread was attached. I was unable to make the bougie engage in the lower end of the esophagus, even when it was thus guided by a thread.

I then devised the wire-and-spindle bougies which I will show. Each consists of five feet of steel wire having a tiny knob at each end, and carrying at its middle a conical piece of metal. I had a series of these made, carrying spindles of different diameters, the smallest being No. 10 French and the largest No. 30.

These wire-and-spindle bougies I used in the following way: The fish line was drawn through the esophagus. The wire of a bougie was then attached to a thread and pulled through the esophagus until the spindle was arrested at the stricture. One end of the wire and of the fish line now projected from the mouth, the other ends from the gastrostomy opening. To guard the soft parts of

¹ Read by invitation before the Massachusetts Medical Society, June 11, 1901, as a part of the general topic, "In What Cases of Disease of the Alimentary Tract, Not Emergencies, Should Operation be Advised for Relief or Cure?"

the pharynx and of the stomach, I made two guide tubes, which consist of aluminum tubing, one bent to pass into the pharynx behind the larynx, and the other bent to pass through the gastrostomy opening and up to the cardiac orifice. The wire and fish line were drawn through these tubes above and below. Tension was then made upon the wire above, and the fish line was drawn back and forth. The wire began to yield, and soon the spindle was heard and felt to click against the upper guide tube, showing that a way had been cut for it through the esophagus. Larger wire-and-spindle bougies were then successively cut through in the same way, a No. 30 French being the largest I considered desirable, as my patient was only three years old.

The foregoing procedures apply to cases in which it is necessary to open the stomach, because no instrument can be made to pass from above.

In those cases in which it is possible to pass an instrument from above, I need not remind you of the dangers of attempting to dilate by forcing down the usual conical bougies. To avoid these dangers I devised an instrument, by means of which the idea of cutting the stricture with a string can be carried out by working entirely from above without opening the stomach. I have used this instrument with complete success this spring, and therefore venture to present it to you.

The instrument consists of a stout staff of whalebone, to the end of which is screwed fast an olive-shaped piece of metal. This olive is pierced by two tunnels. One is a curved tunnel having its convexity towards the end of the instrument and its two ends opening opposite one another well forward of the greatest diameter of the olive. This curved tunnel is accomplished by making two borings, which meet at an angle. The sharp crest where the borings meet is smoothed down by boring through a string covered with wet emery powder. Unless the metal is thus smoothed, the cutting string will itself be quickly chafed in two.

The second tunnel begins at the base of the olive, to one side of the screw, which attaches it to the whalebone staff, and passing diagonally through the olive, ends at its tip. This tunnel I will call the guide-tunnel. The instrument is held to its course in the esophagus by what I may call a guide-bougie. This consists of an urethral bougie cut off to a length of seven or eight inches. A steel wire passes through the lumen of the bougie. One end of the wire terminates in a metal tip at one end of the bougie. Where the wire emerges from the other end of the bougie it is soldered to a metal tip on the bougie and then extends beyond it some three feet. To shield the soft parts of the pharynx from the scraping of the string while cutting, I made a guard to hold the strings close to the whalebone staff. This guard consists of a handle to which are soldered two wires. These wires run along the whalebone staff and carry three wire loops encircling the whalebone, by means of which the guard may

slide along the staff. The wires also carry two sets of lateral eyes, in which the cutting strings may play to and fro. The strings are thus held away from the soft parts.

The method of using this instrument is as follows: An olive a little larger than the stricture is screwed to the whalebone staff. The two ends of the string which passes through its string-tunnel are threaded through the eyes of the guard. If the patient be a child, he is best seated in the lap of an assistant, with the shoulders resting against a pillow in front of the assistant, and the head thrown back over the top of the pillow, the mouth held open by a gag. A guide-bougie is chosen of such size that it will readily pass the stricture. It is introduced until all but the wire has disappeared behind the epiglottis. The end must then be in the stomach. As no force is required in passing this guide-bougie, it cannot make a false passage. The wire of the guide-bougie is now threaded through the guide-tunnel of the olive, and the olive slid along the wire until its tip comes in contact with the bougie portion of the guide-bougie. By pulling upon the wire and pushing the staff, the guide and olive become now virtually one instrument. As the guide is necessarily in the esophagus, the olive must follow it and cannot make a false passage, even if a fair amount of force is used. One thing must be guarded against — kinking the wire where olive and bougie meet, by failing to direct the staff towards the esophagus, while the olive is still in the pharynx. Attention to the position of the patient and proper handling of the whalebone staff will prevent this from happening. When the olive is arrested by the stricture, the guard is slid along the staff until its end is beyond the epiglottis, and then an assistant pulls the string to and fro, pulling parallel to the staff to make as little friction as may be. Moderate pressure is made upon the staff, which causes the olive to put the stricture on the stretch, and the strings cut a passage for it. As the olive descends, the guide-bougie coils up in the stomach. Owing to the slight force required to coil the bougie in the stomach, the olive may not, when it has cut through the stricture, plunge suddenly into the stomach. It is not, therefore, safe to wait for a sense of lessened resistance as an indication that the olive has passed the esophagus. The safe plan is to mark the bougie at the point which should be at the incisor teeth when the olive is in the stomach. For a child of two years, ten inches should be right.

After cutting strictures by the foregoing instruments, it is of course necessary that bougies be passed at intervals, to guard against new contractions. I hesitated to pass the ordinary bougies, for fear of making a false passage at the cut portion of the esophagus. I therefore had made a set of hollow bougies, which could be passed on a guide. They are ordinary gum-elastic bougies, with the ends cut off and a perforated conical metal tip screwed on. In my case, which had a gastrostomy, I pulled a wire from the stomach wound up through the mouth, and using this as

a guide, slid these hollow bougies down the esophagus until their tips appeared on the abdomen. Subsequently, I first introduced one of the guide-bougies such as is used with my stricture-cutter, and making sure that this had gently found its way to the stomach, I felt no hesitation in pushing down a No. 30 hollow bougie. This has been done at intervals of about a week. The gastrostomy wound has nearly closed spontaneously.

In the case operated entirely from above, the guide-bougie is also used to carry hollow bougies and maintain the dilatation. This patient is 18 months old, and a No. 27 French bougie is passed.

A DISCUSSION OF THE INDICATIONS FOR OPERATION IN GASTRIC ULCER.¹

BY ARTHUR T. CABOT, M.D., BOSTON.

OUR experience in the operative treatment of gastric ulcer has been considerably widened in the past few years, and yet I think little of practical value has been added to our knowledge of the indications for operation which were so excellently set forth by Leube and Mikulicz at the German Surgical Congress in Berlin in 1897. They well recognized the limitations of medical treatment in dealing with this troublesome disease, and we can add but little to the discussion of that part of the subject.

The changes which have taken place since then in our knowledge of this subject have been mainly in the line of improved surgical technique and consequently lessened danger from operative measures. As the risks of operation diminish, we have to frequently readjust our ideas as to the persistence with which medical treatment must be tried before resort is had to surgery.

Too often the question of operative interference in gastric ulcer has been postponed, not only until medical treatment has been long and evidently a failure, but even until the patient's condition has become desperate.

Let us see whether surgery offers a sufficient prospect of relief in this condition to encourage our medical brethren to call us earlier, while the patient still possesses the strength to endure a somewhat serious operation.

In order to properly present the indications for operation in gastric ulcer, it is necessary first to give a moment to the consideration of the different operations on the stomach which may be made useful in the various phases of this disease. These are: (1) Gastrotomy, including the excision of ulcers; (2) gastroplication, or turning in of the stomach wall to close an ulcer that has perforated, or to strengthen the wall at a point where perforation is threatened; (3) pylorectomy, for the removal of an ulcerating pylorus; (4) pyloroplasty, for the widening of a pylorus contracted by ulceration; (5) gastro-enterostomy, to provide a short cut into the intestine from a

stomach whose motility is interfered with by ulceration.

Gastrotomy and the excision of ulcers has so evident an application in cases where the ulcer can be located and reached, that nothing need be said in explanation of it for the purpose of this discussion. The same is true of gastroplication, which is plainly the proper procedure for closing small perforations. Pylorectomy, too, needs no especial consideration here, as it simply amounts to the mechanical removal of the diseased portion when situated at the pylorus.

When we come, however, to pyloroplasty and gastro-enterostomy, we have operations which have a wider range of usefulness than any of those mentioned. Their utility in relieving obstruction at the pylorus due to cicatricial contraction is plain and readily understood, but it has been further abundantly shown that these operations, particularly gastro-enterostomy, have a very decided influence in promoting the healing of ulcers, even when there is no evidence of pyloric obstruction. It is to be remembered in this connection, however, that even when no obstructing lesion is discoverable by inspection and careful examination at the time of operation, we are still not justified in concluding that the pylorus offered no harmful resistance to the passage of stomach contents into the intestine. For we know that spasmodic contraction of the pylorus plays a prominent part in some gastric conditions, and there is reason to suspect that it must be reckoned with far oftener than has hitherto been supposed. If such spasm has been of long duration, a thickening of the muscular ring about the pylorus may be recognizable, but a moderate spasm excited temporarily and intermittently by the irritation of food may play an important part in prolonging and aggravating an ulcerative process in the stomach wall and yet lead to no appreciable muscular hypertrophy. Whether we attach much importance to pyloric spasm or not, it is certain that a gastro-enterostomy is usually followed by a great amelioration of symptoms and by the disappearance of the excess of hydrochloric acid, which plays so important a part in the production of gastric ulcer.

It is also of great significance that a gastric hemorrhage is frequently brought to a standstill by a gastro-enterostomy. This result follows the operation so immediately as to suggest that the overactive peristalsis of the organ is quieted as soon as an ample drainage is afforded for its contents.

Mr. Mayo Robson lately reported a recent case of his in which, after repeated severe hemorrhages, he operated during an attack of bleeding, and had an almost immediate cessation of it.

The mere correction of the hyperacidity could hardly have produced so immediate an effect, but the cessation of the active struggle of the stomach to free itself might well follow directly on the operation which gave the contents free exit, and this would seem to be the most plausible explanation of the quick effect produced in these cases.

¹ Read by invitation before the Massachusetts Medical Society June 11, 1901, as a part of the general topic, "In What Cases of Disease of the Alimentary Tract, Not Emergencies, Should Operation be Advised for Relief or Cure?"

This brief review of the operations applicable to the relief of gastric ulcer shows what a great practical advance was made in the discovery of the efficacy of gastro-enterostomy in the treatment of this affection. When the surgeon approached these cases with the feeling that he must find the ulcer and operate directly upon it, by excision or otherwise, he might well feel deterred by the doubts whether in the first place he could find the ulcer, and secondly, whether if found, it would be accessible to safe operation. It is no wonder that these doubts, together with the very great risks of the operation, prevented early resort to surgery and kept the patients under medical treatment until their strength was so sapped that surgical interference was indeed a forlorn hope.

With gastro-enterostomy added to our repertoire, however, we can feel that if we do not find the ulcer accessible to safe removal, or even if we cannot find it at all, we may still afford relief to our patient by an easy and comparatively safe operation. The feeling of confidence which this knowledge affords has already begun to bring these patients to operation earlier, and the immediate improvement in results that has followed gives great encouragement for the future.

After this brief outline of the present position of the surgery of ulcus ventriculi, we are come to the proper subject of this paper; namely, the consideration of the indications which should lead us to conclude that a given patient is less likely to recover under medical treatment than with the aid of surgery.

To begin with, the conditions most evidently and indisputably demanding interference, it is unnecessary, I think, to urge the need of an immediate operation when symptoms of perforation appear.

It is true that occasionally a case of perforating gastric ulcer recovers under medical treatment. This occurs in a certain proportion of those rare cases in which gas alone escapes from the stomach into the peritoneal cavity. So exceptional a possibility cannot be used as an argument for delay, however, as it is far more than counterbalanced by the fact that the mortality attending an operation done inside of 12 hours of the perforation is only about one-half that expected in cases where operation is delayed to 24 or 48 hours.

In no other abdominal condition, except, perhaps, internal hemorrhage, is the success of interference so dependent on its promptitude. This is of so great importance that in cases of gastric ulcer in which acuteness of pain and tenderness indicate that the ulceration is approaching the peritoneum, it is well to make preparations which will insure a quick operation if the need arises. Early recognition of such a warning will save time when the patient's chances of recovery are slipping away at the rate of many per cent an hour.

Dangerous or persistent hemorrhage is another well-recognized indication for operation. The fact, however, that gastric hemorrhage is very rarely severe enough to cause speedy death, and

that many cases in which this is a prominent symptom recover when treated medically, must be taken into account, and must often lead us to choose a conservative course. A consideration of the cases in which hemorrhage occurs in gastric ulcer would seem to show that in a rough way we may divide them into two classes.

In the first class we would place those cases occurring before 30 years of age, and in the second class those appearing in later life. In the younger patients the hemorrhage is usually from the opening of some vessel of the stomach wall by the ordinary round ulcer. This form of ulcer so common in young women often leads to hemorrhage in them, but very rarely leads to fatal hemorrhage. This was pointed out by Hood, who found at Guy's Hospital, for the 20 years between 1870 and 1890, no case of fatal hemorrhage occurring in a young woman, and Greenough and Joslin in their study of the cases at the Massachusetts General Hospital found that the same was true at that hospital between the years of 1888 and 1898. An attempt has been made to explain this immunity from danger by the fact that women bear hemorrhage better than men, but it seems to me that the more plausible explanation lies in the fact that these early ulcers are more superficial, and the hemorrhage comes from the comparatively small vessels of the gastric mucous membrane.

A hemorrhage occurring in the second period, after 30 years of age, is on the other hand more likely to be the result of chronic ulcer, one of those slowly extending ulcerations which penetrate deeply into the walls of the stomach and threatens the large vessels lying near the serous surface, and which in extreme cases may lead to perforation of arteries in neighboring organs (pancreas, liver or spleen), to which the stomach has become adherent. We should feel, therefore, that the danger of fatal hemorrhage is greater in later life, and especially where the symptoms point to a long existing lesion of the stomach. Under such circumstances, a tendency to slight recurring hemorrhages should act as a warning to us that the ulcer is progressing in a possibly dangerous direction.

As has been said, excision of the ulcer or ligation of the bleeding vessel is often impossible, on account of its position, or because it cannot be found. In chronic ulcers, too, when they have penetrated into surrounding organs, excision cannot be practised, and constriction of the vessels by a surrounding stitch is an uncertain and somewhat dangerous procedure. The question then naturally arises: To what extent may we rely upon gastro-enterostomy to bring the hemorrhage to a standstill? The evidence seems to show that in a large proportion of cases it is efficacious. That it should sometimes fail is to be expected. Körte reports 2 cases of fatal hemorrhage from ulcers 8 and 12 days after gastro-enterostomy. The possibility of this occurrence would certainly lead one to excise an accessible ulcer rather than trust to gastro-enterostomy to stop the hemorrhage. In case, however, the ulcer cannot be

safely removed, we are justified in expecting a usually good result from gastro-enterostomy.

With an understanding of the different characteristics of the two forms of ulcer, it will be readily seen that in the case of hemorrhage from an ulcer occurring early in life, operation may be more properly deferred than in an ulcer appearing or persisting after 30 years of age. The diagnosis of a chronic and progressive ulcer, as distinguished from an ordinary round ulcer, is still further suggested when the patient has had a history of past attacks of dyspeptic character. When a frequently recurring hemorrhage appears as a leading symptom in the course of a chronic gastric ulcer, it is so sure a sign of impending danger that it should be regarded as a clear indication for operation. In these cases, even when a large vessel is not ultimately opened, intermittent hemorrhage gradually brings about a condition of anemia which favors the extension of the ulcer rather than its healing, so that under these circumstances a cure is practically hopeless except by operative measures. These are the patients who often supply the surgeon with his most brilliant successes.

Hitherto we have been considering the treatment of complications of gastric ulcer. We now come to the question of operative measures for bringing about the healing of the ulcer itself, and to a consideration of the evidence which should convince one that medical treatment has proved unavailing in a particular case, and that resort must be had to surgery.

As a preliminary to this study it may be well to look at the mortality of gastric ulcer *per se*, and compare this with the mortality attending the various operations for its relief.

Attempting this comparison, we are at once met with the difficulty of establishing any fair mortality rate for the disease. Various observers have set this at widely different figures, ranging from 15 to 50%. This divergence is largely due to the difficulty of following patients to the end. The lower figure, 15%, does not sufficiently take account of the morbid conditions left after the healing of an ulcer, and of the subsequent threat to life that these entail.

Mikulicz, in endeavoring to properly allow for these subsequent dangers which belong to the history of ulcer, inclines to the belief that from 25 to 30% fairly represents the proper mortality of the disease.

Notwithstanding all that has been written on the subject of gastric ulcer, it is surprising to find that otherwise good observers have not studied the end results of their cases, so that, with a disease showing so great a tendency to recurrence, their reports are of little value. We are fortunate in having one notable exception to this rule in the very full study made by Greenough and Joslin of the ulcer cases occurring at the Massachusetts General Hospital between the years 1888 and 1898. They find that out of 92 patients who left the hospital cured or relieved, 38 had a recurrence of their trouble and 12 died, 8 of these

deaths being undoubtedly due to the gastric condition. This leaves but 42 out of 92 who remained well an average of 5 years after their recovery from gastric ulcer. According to their investigations, then, the proportion of patients who were cured is between 40 and 50%. The greater proportion of patients either died or suffered a recurrence of the affection.

Investigating now the risks of the various operations, Mikulicz found them as follows: (1) The resection of the ulcer, 27.8% mortality; (2) gastro-enterostomy, 16.2% mortality; (3) pyloroplasty, 13.2% mortality. Adding all of the cases together, he found a mortality of 16.1% for all operative interference in this disease. Setting this figure against 25 to 30%,—the mortality of the disease,—he draws conclusions decidedly in favor of operation. Could he have had the figures of Greenough and Joslin, his arguments would have been even more conclusive. The matter is not so easily settled as this, however, unless it can be shown that after operation the cure is lasting. Unfortunately, this is not the case. We know that recurrences occur after operation, but we have no data to show how frequent these recurrences are. It may well be doubted whether they are not of sufficient frequency to annul the fancied advantage of the above figures quoted from Mikulicz's percentages.

Fortunately, the three years which have passed since Mikulicz made his calculations have seen such great advances in the surgical technique and consequently in the safety of gastric operations that we may properly consider the surgical risk as very decidedly lower than he did.

The most modern statistics give the death-rate of gastro-enterostomy as distinctly below 10%. Mr. Mayo Robson has even reduced his mortality after this operation to approximately 5%. This improvement in statistics is largely due, no doubt, to the fact that the patients come to operation earlier.

As soon as an ulcer has made its chronic or its progressive character known and has refused to yield to proper trial of medical treatment, then is the proper moment for surgery to step in, and by affording rest and free drainage, as it were, of the stomach to favor a solid healing of the ulcer. By such a course we might hope to cure many ulcers which, neglected, run on to an intractable condition which finally resists a late, almost despairing attempt at surgical relief and adds one more failure to the score against gastric surgery. This is no fanciful picture, but a fair statement of the course run by many cases in the near past. To make such cases rare in the future, it is important that in the first place the clinical physician shall make a closely studied and accurate diagnosis of the existence of ulcer, and that he shall satisfy himself as to whether he is dealing with a first attack or with a recurrence of a formerly existing condition.

If he satisfies himself that he is dealing with a chronic, recurrent ulcer, especially if spasmodic pains and vomiting suggest an obstructed pylorus,

he should at once suggest the propriety of operative interference and have the question thoroughly discussed. The consulting surgeon called to such a case would be justified in advising at once proceeding to an exploratory operation, with the intention of relieving the condition found in the manner best suited to the exigencies of the case.

If, on the other hand, the clinician is satisfied that he is dealing with a first attack of ulcer, he will treat the case medically with a proper watchfulness for complications. If the case drags out into a chronic course, with ups and downs, but never with complete recovery, it will again be well to consider the question of surgical interference.

When such a case recovers fully from the first attack, the patient or his friends should be warned of the dangers of recurrence and of the need of having good advice if such recurrence occurs.

If such patients, both those treated medically and those operated upon, can only be followed up and their subsequent history recorded, we shall presently obtain light that will enable us to see clearly the exact values of our results.

I will close with a condensed statement of the present indications for surgical treatment:

(1) Acute hemorrhages should rarely be treated by operation; the results of interference have not been good, while the results of medical treatment have been satisfactory. When, however, a hemorrhage frequently repeats itself, even if severe in amount, it will demand operative treatment as soon as its recurrent character is plain.

(2) Small, frequent hemorrhages, threatening anemia, give a clear indication for operation.

(3) Perforation of the stomach, either acute with general peritonitis, or chronic with surrounding adhesions and perigastritis, demands instant operation.

(4) When an ulcer runs a chronic course with a strong tendency to recurrence, and gradually diminishes the patient's capacity for work and for the enjoyment of life, an operation is indicated, especially when the patient is so situated as to be dependent on his daily work for support and unable to closely regulate his diet.

CANCER OF THE INTESTINE.¹

BY FRED B. LUND, M.D., BOSTON.

The history of the majority of patients who are subjects of cancer of the intestine is a most unsatisfactory one, and seldom redounds to the credit of medical science. Certainly those who see these cases as surgical consultants are generally abundantly impressed with their unfavorable side. We are asked to give surgical aid to patients suffering from the frightful emergencies in which this disease terminates, such as general peritonitis from perforation of the growth, paraintestinal abscess,

or complete occlusion of the bowel from contraction of an encircling cancer. These grave emergencies admit in general of nothing more than palliative operations; radical measures, such as resection of the growth, are out of the question, and the immediate mortality of even palliative surgery is very high.

My own operative experience consists of only three cases of cancer of the intestine, although I have been able to follow a considerable number of cases in the practice of colleagues. One was a general peritonitis from perforation of a stercoral ulcer of the cecum, in an old woman whose bowel was completely obstructed by cancer of the sigmoid, and who died four days after an artificial anus was made in the cecum; one was a patient with localized abscess from perforation of a cancer of the cecum, who died, three weeks after the abscess was drained, of peritonitis due to a second perforation; the third was a left iliac colostomy for complete obstruction of a cancer of the sigmoid, which was found to be situated so low in the pelvis and to have so extensively involved the peritoneum and glands that resection was out of the question. This patient lived in comfort for a year after the operation, a truss controlling the fecal current perfectly. Such histories as these are not uncommon in cancer of the intestine, and suggest the advisability of an inquiry as to whether they might not have been improved. A positive answer may be found in the history of two of the cases, which had been suffering for two and a half years and three months respectively from symptoms which ought to have indicated exploratory laparotomy. The symptoms of emaciation, increasing constipation, perhaps alternating with diarrhea, with localized gurgling of gas and intestinal discomfort, in a patient past middle age, ought to indicate exploratory laparotomy, whether a tumor is felt or not,—for the tumor may be so situated, say deep in the right or left hypochondrium, as not to be palpable before it has gone too far to admit of radical treatment. If we wait for a definite diagnosis in chronic as well as in acute abdominal affections, we all too frequently sleep through the period where efficient therapeutics are applicable, to suddenly wake and find our patient the victim of a general peritonitis or acute obstruction, or the subject of a generalized abdominal cancer so extensive as to be far beyond surgical aid. In the rare cases where a tumor is so situated that it is felt early in the disease, there ought to be no question regarding immediate laparotomy; but, unfortunately, even under these circumstances, the time is frequently wasted in waiting to make an absolute diagnosis.

There are several reasons why the diagnosis in intestinal cancer is frequently made too late in the disease, some of which are the fault of the attending physician, and some of which are not. The frequently insidious onset, the vagueness and elusiveness of some of the early symptoms, too often, instead of stimulating the medical attendant to a careful investigation, with the possibility of intestinal cancer in mind, lead to a careless

¹ Read by invitation before The Massachusetts Medical Society, June 11, 1901, as a part of the general topic, "In What Cases of Disease of the Alimentary Tract, not Emergencies, Should Operation be Advised for Relief or Cure?"

slurring over of the symptoms and a falsely optimistic view of the patient's condition, which is much easier than an alert appreciation of the possibilities. The doctor does not like to tell his patient that he suspects a cancer until he is absolutely obliged to; and for this inadequate reason he puts off exploratory laparotomy, or even other simpler means of diagnosis, till after complications arise which make certain both the diagnosis and the death of the patient. Certain patients, particularly in the lower walks of life, will not consult a physician, or will resort to the aid of quacks or Christian Scientists until the onset of peritonitis or obstruction leads them too late to seek medical aid. The cases will be especially frequent in hospital practice, and for their demise the medical attendant cannot fairly be held responsible.

But in the cases which resort to him early in the disease, with vague or uncertain intestinal symptoms, including loss of weight, in patients past middle life, let him never forget the possibility of intestinal cancer, nor omit to carefully exhaust all means of diagnosis at his disposal, unless he is willing to be responsible for the frequently rapid progress of the trouble to an incurable stage. He may attempt to console himself with the thought that the results of surgical treatment in this disease have so far not been brilliant; but the answer to this is that the chief reason for the poor results has been the lateness with which the diagnosis has been made, and the case turned over to the surgeon.

Were I to answer the question given me to discuss, "In what cases of intestinal cancer, not emergencies, should operations be advised either for relief or cure," I should say, in all cases in which an early diagnosis or even a probability has been established of the presence of intestinal cancer, exploratory operation should be performed with a view to removal of the growth. As far as we know, the only possible cure of an intestinal cancer consists in its early removal, and even palliative measures, such as intestinal anastomosis or colostomy, are much more safely performed in the absence of the grave emergency of obstruction, and before the patient has been too greatly weakened by the advance of the disease. Absolute localization to a limited portion of the intestine, without extensive glandular involvement, in a patient in good condition, is requisite for successful treatment of an intestinal cancer. These conditions demand not only early diagnosis, but frequently exploratory operation in the absence of exact diagnosis.

Before discussion of the symptoms on which the diagnosis may be made, it will be wise to briefly enumerate certain anatomical and pathological characteristics of the disease upon which its clinical symptoms depend.

Cancer of the intestine occurs most commonly in the fourth to the sixth decade of life, and is by far the commonest cause of chronic intestinal obstruction. It is about three times commoner in males than in females. It not infrequently occurs

in the third decade, however, and, as is the case with cancer, is constantly being found in younger patients than we have a right to expect it.

The large intestine is almost invariably the seat of the disease.² Leaving out the most frequent location of all, the rectum, which is to be the subject of a special paper, cancer of the bowel has the commonest sites in the cecum and sigmoid flexure, a fact to which the explanation has been suggested that these are subject to more constant irritation from the presence of fecal contents, the cecum being the depot of detention for the feces entering the large from the small intestine, and the sigmoid the reservoir in which they are held to await defecation. Next in frequency the cancer is found on the transverse colon, the splenic flexure, the hepatic flexure, and the descending colon. Disturbance of intestinal function and obstruction appears earlier in cancer of the lower part of the bowel, because the intestinal contents are most fluid at the cecum, and become more solid and easily stopped as progress is made toward the sigmoid region. The common cancer of the sigmoid is the small, hard, scirrhus, contracting type, and owing to its physical characteristics the tumor of the sigmoid is apt to present the following peculiarities: Its small size makes it difficult to palpate, and it may be palpable at one time and not at another, depending upon the distention of the intestines surrounding it, especially the dilated portion above it. If situated in the lower part of the sigmoid or on the coil which hangs into the pelvis, it may be palpable by rectum and not through the abdominal wall. The sigmoid having a long mesentery, it will be movable for a considerable period, and even after extensive secondary infiltration of the glands has taken place. Attacks of obstruction will appear early, owing to the scirrhus, contracting character of the growth. The long mesentery will favor resection.

Cancer of the cecum is more apt to present the softer glandular type—the adenocarcinoma; it is frequently situated for a long time upon the wall of the cecum without encircling it, and therefore attains considerable size and is often easily palpable, long before obstructive phenomena are caused. It is less movable than sigmoid cancer, having a short, or no, free mesentery. Cancer of the hepatic and splenic flexures is usually of the obstructive type, and owing to the position of these flexures deep in the abdomen under the ribs, is difficult to palpate before it has attained considerable size. It is very slightly movable. Cancer of the transverse colon, however, owing to the length of its mesentery, is frequently movable. It therefore becomes evident that the mobility of a tumor is no gauge of its operability. Even slight mobility of a cancer of a fixed portion of the intestine, such as the ascending colon or cecum, would indicate a probability that the tumor was in an early stage and could be successfully resected, while slight fixation of a tumor of the transverse colon or sigmoid would indicate such adhesions to

² Körte found in 58 cases, 54 of large and 4 of the small intestine, 3 of the latter involving the duodenum.

neighboring organs or involvement of the mesentery by cancer that the growth would be inoperable. We must not forget, however, that it is impossible to determine whether a tumor is operable or not before the abdomen is opened, or we shall condemn certain cases which might have been relieved. A favorable characteristic of intestinal cancer is the fact that the growth frequently remains a long time without secondary involvement of the mesenteric glands or of the liver, and that even in patients dying from intestinal obstruction the pathologists find tumors which might have been successfully removed. Certainly such pathological findings as these are a reproach to the clinicians, and ought to stimulate us to renewed efforts at early diagnosis of these conditions.

Differential diagnosis.—We have to consider sarcoma, tuberculosis, benign tumors, cancer or tumors of other organs, fecal impaction; and in case of obstruction without palpable tumor, benign scars and tubercular stricture.

Primary sarcoma of the large intestine is rare, occurring 18 times in 426 cases of malignant disease of the large intestine collected by Bovis.³ Sarcoma of the large intestine generally occupies the cecum, ileocecal valve or vermiform appendix.

Tuberculosis of the large intestine is also rare, and is generally located at the cecum. Points of value in the diagnosis from cancer of the cecum are the fact that the tubercular growth usually causes general thickening and infiltration of the cecal wall, which feels boggy and doughy. In cancer we get a localized tumor, the rest of the cecum being normal in feel. Tuberculosis of the cecum rarely causes obstruction until very late in the disease, while cancer of the cecum, though here it becomes obstructive later than in other parts of the intestine, notably the sigmoid, causes obstruction earlier than tubercle. The youth of the patient, the presence of active or latent tuberculosis in other parts of the body, and presence of tubercle bacilli in the stools may be valuable points in the differential diagnosis.

Obstruction of the intestine by tubercle is so rare that Erlheim,⁴ in 566 cases of tuberculosis of the intestine, found only 8 times a single, and once a double stenosis. Stricture of the intestine from tuberculosis comes on late in the disease, being due to the contraction of cicatricial tissue resulting from ulcers. The small intestine containing fluid contents, a very high degree of stenosis is necessary to produce obstruction, which is another reason for the lateness of appearance of that symptom. A tumor is rarely felt, owing to the small intestine being more difficult to palpate than the large.

Other rare causes of stenosis are benign tumors and contraction from the scars of benign (not tuberculous or malignant) ulcer.

When we have palpable tumor we have to think, in addition to tuberculosis, of chronic inflam-

matory processes and actinomycosis. Cancerous growths have been mistaken for movable kidney or renal tumors, and, in case of the hepatic flexure and ascending colon, for tumors of the stomach. In sigmoid tumors in the female pelvis we must consider disease of the adnexa.

Tumors due to fecal impaction may be distinguished from cancer by the cautious use of cathartics and enemata. The accumulation of hardened feces above a cancerous tumor may deceive as to its apparent size and operability.

Chronic inflammatory processes starting from the vermiform may closely simulate malignant tumors and must be carefully distinguished.

Krokiewicz⁵ alleges as of diagnostic value the absence of the diazo-reaction in intestinal carcinoma. This point awaits confirmation.

Symptoms.—As was stated at the beginning of this sketch, the symptoms of this disease are often elusive and vague, and the types show great variation. We may find a malignant tumor of the intestine with no symptoms at all, and we may find obstruction with no tumor. The best practical classification of the symptoms seems to me that of Boas, which I will slightly modify, placing in

Class I those cases in which the subjective symptoms are so clear that no objective signs are really necessary; that is, those in which the history is sufficient for the diagnosis—the stenotic cases. Here we have a story for several months, say from 3 to 18, of obstinate constipation, relieved at first by cathartics, but later accompanied by attacks of intestinal indigestion, nausea, vomiting and colic, preceding a movement of the bowels, and passing off when the latter takes place. The interval between the attacks grows shorter as the constipation increases, until finally the attack becomes continuous, and we have the picture of complete obstruction. Nothing further need be said regarding the advisability of operating before the latter condition has supervened. The diagnosis ought to be made whether a tumor is present or not. An absolutely diagnostic point which is sometimes available is the gurgling of gas through the obstruction, and frequently the splashing of the liquid contents of the dilated and hypertrophied bowel above the tumor. Sometimes the contractions of the intestine above the tumor may be seen through the abdominal wall during an obstructive attack, and observed to disappear at the close of the attack with the relief of the obstruction, making a most valuable point for diagnosis and localization. With the temporary relief of the obstruction the symptoms may markedly improve, and the patient gain in weight and color—conditions which may give rise to a false optimism as to the diagnosis.

More deceptive are slight cases, without visible or palpable dilation of the bowel, where perhaps a single slightly distended coil may empty itself with a gurgle under the pressure of the physician's hand. This if repeated is a most important sign, and one that ought to be decisive. The reflex

³ Bovis. *Rev. de Chir.*, Paris, 1900, xvil, 29-99.

⁴ Wein. *klin. Woch.*, 1900, xlii, 70-83.

⁵ Wein. *klin. Woch.*, 1898, No. 29.

vomiting is important and may be mistaken for some gastric disorder. The vomitus is not characteristic and may contain hydrochloric acid, bile, etc. In contrast with vomiting from gastric catarrh, however, it may be observed to be unattended by fermentation, as evinced by the absence of the eructation of gas and of sarcinae.

The alternation of diarrhea with constipation is frequent, and generally is mentioned in all descriptions of the disease. As a matter of fact, diarrhea may be on the one hand absent, and on the other hand may be present without constipation, as in the laterally situated, ulcerating, but nonobstructive growths. It is in these rarer cases that we are most apt to get blood, pus and mucus in the stools. This condition may lead to a wrong diagnosis of enteritis membranacea. The finding of small fragments of tumor in the stools is rare, but of course valuable. In

Class II are placed cases in which the symptoms are of doubtful or nonexplicit character, so that objective symptoms, such as the presence of a tumor, the finding of blood or pus in the stools and the like, are necessary to diagnosis. In cases of this sort the value of exploratory laparotomy is great, and its danger so slight as not to be worthy of consideration.

In regard to presence of blood in the stools, it is a valuable point, but it occurs in so small a proportion of cases as to be often unavailable. Treves estimates it at 15%. Blood and pus are both signs of ulcerating growths. The stools of small calibre, ribbon and lead-pencil stools, are rarely found, and that only in growths low down in the sigmoid, where they have not had an opportunity to become reformed and remodeled after coming through the narrow portal of the obstruction. In

Class III are placed cases in which local symptoms are entirely wanting until the disease has made extensive progress and perhaps metastasis has occurred. Here a gradually increasing cachexia alone leads to a suspicion of disease of an internal organ. Such a case I have recently observed at the City Hospital. A man of 50 died with cachexia, ascites and jaundice from cancer of the liver, which presented an enormous tumor. In the right inguinal region during life could be felt a small nodule, which was found at autopsy to be a cancer of the sigmoid and the primary source of the liver cancer.

Class IV includes cases in which sudden obstruction comes on without previous notable symptoms in the midst of apparent health. In these cases the existence of previous slight obstructive attacks may be brought out by careful questioning. Such cases as this serve to emphasize the fact again and again demonstrated in experience, that abdominal symptoms apparently slight and transitory in their character may mean the insidious onset of fatal disease. The first case mentioned in this paper, perforation of a stercoral ulcer in a woman apparently previously healthy except for the disability incident to advanced age, is an illustration of this class.

In doubtful cases the general condition of the patient is often of value in diagnosis, but on the other hand may prove very deceptive. In some cases we find early a marked cachexia, in others no loss of weight, or at least a very slight one. In the stenotic cases we frequently find an alternating gain and loss. In the cases classed as ulcerative we commonly see a steady loss.

Now what are the dangers and benefits of operative treatment of cancer of the intestine? In the first place, in patients suffering from the stercoremia resulting from long-continued obstruction, a simple operation, even, such as colostomy, is fraught with grave dangers. In his collection of 426 cases, Bovis⁶ found 101 cases of enterostomy with a mortality of 38.6%, certainly a high mortality for so simple an operation as sewing the colon to the abdominal wall and opening it. On analysis we find that in a large proportion the operation was done late, with the patient *in extremis*, having had total obstruction for a week or 10 days, and perhaps fecal vomiting for a week. Of these grave forms of obstruction there were 29 cases operated with 24 deaths, while of cases operated before obstruction had taken place, or just at its beginning, there were 16 cases with only 2 deaths.

In regard to intestinal resection, or entero-anastomosis, the difficulties of technique and mortality are enormously increased if they are performed when the bowels are distended and paralyzed by complete obstruction. These operations ought never to be thought of under such conditions. The mortality from enterectomy for cancer in the 171 cases collected by Bovis was 31.5%. Enterectomy performed under conditions of acute obstruction has a mortality of 50%, nearly twice that of enterostomy in general.

Numerous cases are reported where a primary enterostomy has been successfully followed by a later excision of the growth which has been brought outside the abdomen at the first operation, and numerous ingenious methods have been devised to facilitate these procedures, which, however, we have no place for in a paper of this sort.

Now with regard to these operations for the removal of cancer of the intestine. What relief of symptoms and prolongation of life do they offer? The benefits need not be very great, for unoperated the patient is face to face with certain death, not improbably under the painful symptoms of intestinal obstruction or peritonitis. Before attempting to consider the prolongation of life resulting from operation, we must first try to ascertain how long on the average a patient with cancer of the bowels lives before serious symptoms appear. The older writers assigned a duration of 1 to 5 months; König in 1890, followed by Salzer, Koch and Boas, assigned a duration of 3 to 4 years. As a matter of fact, the apparent duration, which alone can be determined, varies enormously, but Bovis, who has made probably the most careful study of the question, assigns a duration of about 1 year before

⁶ Wein. Klin. Woch., 1898, No. 29.

obstruction or peritonitis supervenes. This period is frequently much shorter, as evidenced in the cases of perforation and obstruction cited at the beginning of this paper as coming on in 2 and 3 months respectively. The shortness of the period of development is a weighty argument against delay, and in favor of early exploration. A delay of even a few weeks at a critical period in the growth of the disease may prove sufficient to allow it to get beyond control. Now supposing that we are dealing with a favorable case; that is, one in which there are no metastases, and in which the tumor can be entirely removed. How long a survival will follow a successful enterectomy? Bovis gives a minimum average survival of 19.3 months. This is based entirely upon the time the patients were known to be alive, so that there can be no doubt that if more of the patients had been followed during their entire lifetime the average would have been much higher. One of Boas' enterectomies was well 5 years after operation. Körte,¹ out of 12 excisions in 1900, reported 5 cases as well from 3 to 8½ years after operation.

Enterostomy.—This operation, being merely a palliative one, performed in cases when it is impracticable to extirpate the tumor, one cannot hope either for as long a survival or as great comfort as after enterectomy. Bovis gives a mean average survival of 6.4 months. This is undoubtedly below the actual average. Körte, in a series of 9 recoveries from enterostomy, noted marked relief of symptoms in all cases. One patient worked for 3 years and lived 3½ years after the operation. Two patients lived more than a year without discomfort. Cases have been noted in which apparent decrease in the size of the cancer followed this operation. Dr. G. H. Monks recently reported such a case in which the patient lived in comfort for 2 years.

Enterostomy.—For this palliative procedure Bovis gives a mean average survival of 10.1 months after operation, which, as in the case of the operations previously described, is undoubtedly too small. Senn reports a case of a survival of 10 years after this operation, Lardenois a survival of 5 years. Fourteen of Körte's cases had a long survival after operation, one of them 2 years and 7 months. In 2 of his cases life was prolonged 3½ years and 2 years respectively by entero-anastomosis subsequent to enterostomy.

It is not an uncommon experience for most of us to see patients survive a year or more after left inguinal colostomy, and with a suitable truss to control the fecal current, which can be arranged in most cases, the discomfort occasioned is not great.

Conclusions.—To briefly review the operative indications and to state the answer to the question, In what cases of intestinal cancer, not emergencies, should operation be performed? I would say that operation is indicated absolutely in all cases in which a tumor is suspected of being a

cancer of the intestine, after careful eliminative diagnosis. If a benign tumor or obstruction is found so much the better.

Operation is indicated where the symptoms point to a probability of stenosis of the bowel, whether a tumor is palpable or not.

Exploratory operation is indicated whenever vague intestinal symptoms associated with loss of weight in persons past middle life lead to the suspicion of intestinal cancer.

Exception should be made of cases of general metastases of the peritoneum, cancer of the liver, etc., in which event no radical operation can be proposed, but all operative measures must be directed to palliation.

With regard to the nature of the operation, that must be determined at the time in accordance with the nature of the individual case, and is not a question for elaboration in this paper. Suffice it to say that excision of the growth with immediate union of the ends of the bowel is the ideal to be sought. Intestinal anastomosis and enterostomy are merely palliative measures to be undertaken where the former is impracticable. The constant improvement which is being made in the technique of enterectomy promises an improvement in results.

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NEW PROCEDURES IN THE TREATMENT OF HIP DISEASE: OPERATIVE DISLOCATION AND DRAINAGE OF THE ACETABULUM IN ACETABULAR DISEASE.¹

BY E. H. BRADFORD, M.D., BOSTON.

Cases of acetabular disease of the hip-joint are very puzzling in regard to treatment, especially when of the severe type. That this condition is not an infrequent one is well known from pathological evidence. The following procedure was found of an advantage in a single case, and may be useful in other similar cases.

A boy of the age of six was afflicted with hip disease of a severe type. The symptoms increased in several months, and the patient was reduced to the characteristic condition of emaciation and

¹ Körte. *Verhandl. d. Deutsch. Gesellsch. f. Chir.*, Berlin, 1900, xxvi, Th. 2.

¹ Read by title before the American Orthopedic Association, June, 1901.

cachexia. The hip was cut down upon, and an attempt made to drain the joint, channeling and enretting as has been suggested as a remedy in similar cases, but without checking the downward progress of the case. The condition became serious, and excision was considered, but as on x-ray examination it was found that the acetabulum was the part chiefly involved, the head of the femur being slightly affected, the benefit from excision as ordinarily performed seemed doubtful. Excision of the acetabulum offers such a high percentage of mortality that it was not thought advisable, and an amputation at the hip-joint seemed the only alternative. This latter was not allowed by the parents. Under the circumstances the following method would be tried, with the idea of entirely relieving the acetabulum of interosseous pressure. The head was thrown out of the joint by means of incision similar to that found for excision and placed upon the dorsum of the ilium. A free incision was made, allowing free drainage from the acetabulum, which was found perforated; a celluloid drainage tube of an inch in diameter was made and inserted to a sufficient depth to reach the acetabulum, and secured by a stitch; the base of the acetabulum was touched with carbolic crystals and washed off with alcohol. The limb was then fixed in a plaster-of-paris spica in a position of the limb assumed in hip disease in the stage of deformity; that is, flexion and adduction.

Marked improvement took place in the condition of the boy. He required no opiates, was able to move about without pain immediately after the operation, and in a few weeks was able to walk about on crutches. The drainage was kept in for six months, after which time the plaster was removed, and the boy allowed to go about with the limb moving freely.

The boy is now in a condition of hip disease in the stage of deformity. There is still a sinus from the acetabulum, and it is intended to keep the limb in this position for a year, performing a reduction again after the boy has entirely recovered his strength, and the tubercular osteitis of the acetabulum has been healed. If the acetabulum is filled and incapable of holding the head, a subtrochanteric osteotomy will correct the deformity.

At the time of operation it was found that the head of the femur was but slightly affected, and the acetabulum perforated. The ordinary excision, therefore, would have been without benefit. The method employed was a life-saving procedure and left the boy in the condition of deformity which is seen in severe, untreated cases of hip disease; namely, with a slight flexion, adduction and subluxation. This can later be corrected, and the method is suggested as of use in cases of acetabular disease, where no other method is of value. The procedure will not recommend itself in older patients. In growing children it is offered as a suggestion of advantage.

It has the advantage over excision of less mutilation of unaffected parts, greater thoroughness

in drainage and in better protection from injuries, interosseous pressure of the diseased parts, the chief source of prolongation of the process in hip disease.

Clinical Department.

AN APPARENT CASE OF DIPHTHERIAL INFECTION FROM WELL PERSONS CARRYING DIPHTHERIA BACILLI.¹

BY FRANKLIN W. WHITE, M.D., BOSTON.

THE history of the following case well illustrates several important points concerning the contagiousness of diphtheria.

The child whose illness we shall consider was 2 years old, of Italian parentage, and lived in a thickly-settled tenement-house district of Boston. He was taken sick Dec. 12, with an attack of diphtheria of moderate severity, having fever and being confined to bed for 2 or 3 days only. Membrane was present on the tonsils, diphtheria bacilli were found in cultures from the throat, and he received 3 injections of antitoxin. Convalescence from this illness was rapid, and the child remained perfectly well, but positive cultures were obtained from his throat for the following 3 months.

Diphtheria bacilli obtained from the throat on Feb. 18, about 2 months after the illness, were moderately virulent, and bacilli from the throat on March 2, nearly 3 months after the illness, showed a low but definite virulence. The tests for virulence were made by direct injection of solid culture into guinea pigs, and by injection of 48-hours-old or 2-weeks-old bouillon cultures into guinea pigs, the amount of fluid injected being $\frac{1}{2}$ of the weight of the pig. A 48-hours bouillon culture of the bacilli obtained on Feb. 18 gave a decided local and general reaction in the guinea pigs, which, however, cleared up, and the pigs lived. The bacilli obtained on March 3, in 48-hours bouillon culture, gave a slight local reaction in the guinea pigs, followed by recovery. A 2-weeks-old bouillon culture killed the guinea pigs in 5 days, producing a small necrotic focus at the site of inoculation which contained diphtheria bacilli.

Four persons were more or less continuously exposed to infection from the first child during the 3 months in which virulent bacilli were present in his throat. Two persons, a boy aged 4 years and a woman aged 25 years, were in the same family, and 2 others, a girl aged 6 months and a woman aged 18 years, lived in an adjoining room. The woman aged 25 years had had diphtheria in childhood; none of the others had ever had the disease. On Feb. 1, nearly 2 months after the child's illness, a preliminary fumigation of the rooms was carried out with the object of reducing the number of diphtheria bacilli about the premises and hastening their final disappearance. On March 1 a

¹Read before the Massachusetts Association of Boards of Health, July 31, 1901.

negative culture was obtained from the child's throat, the house fumigated, and the child released from isolation, the assumption being that the diphtheria bacilli in the child's throat were too few in number and of too little virulence to prove dangerous to others. On March 3 cultures were made from the throat of the child and the 4 people known to be exposed to him. Diphtheria bacilli were found in the throats of the original child, of the boy aged 4 years, and of the girl aged 18 years. Three days later a second set of cultures was taken from the noses and throats of the same people; positive cultures were obtained in the throat of the original child, in the nose and throat of the boy aged 4 years, and in the nose of the girl aged 18 years. Neither of the 2 exposed persons who had diphtheria bacilli in the throat were ill at any time during the 3 months.

The diphtheria bacilli from the original child showed a low grade of virulence even at this late date, as stated above. The bacilli from the throat of the 4-year-old healthy boy showed an equal virulence. The virulence of the bacilli from the girl was not tested. Just after the release of the patient, 2 children, a boy of 7 years and a girl of 4 years, came to the house from out of town and were exposed to the children having bacilli in the throat, for a day or two, and then returned home. Within 5 days the girl developed clinical diphtheria of moderate severity, was treated with antitoxin and recovered. (It is not known that cultures were taken in this case, and an unfortunate chain of circumstances has prevented our obtaining additional data.) This child was not attending school at this time and not exposed, as far as known, to any other cases of diphtheria, and the evidence is very strong that she received her infection from these healthy children with whom she associated and who had carried virulent diphtheria bacilli in their throats for nearly 3 months. We cannot absolutely rule out the possibility of more than one source of infection in any case of diphtheria, and this case is no exception to the general rule, but at the same time we consider that the evidence of infection from the source cited is of the strongest possible kind.

The interesting features of this case are as follows:

The long duration of virulent bacilli; namely, for 85 or more days, in the throat of the child who had a rather mild attack of diphtheria, and who was treated with antitoxin.

The presence of virulent bacilli in the throats of 2 out of 4 of the child's associates nearly 3 months after his illness, and after the premises had been twice fumigated.

The fact that these 2 associates had never had diphtheria and yet carried virulent diphtheria bacilli in their throats for a long time without developing the disease.

The fact that the persons not showing bacilli in the throat were of an age (6 months and 25 years) when infection was less likely to occur.

The case shows that children who are fre-

quently brought into direct contact with true cases of diphtheria often receive the virulent bacilli into their throats, and that these bacilli may persist for days, weeks or even months. In some of these children no disease develops.

It shows that children associated with well persons carrying bacilli, even after fumigation of the premises, may contract the disease, in spite of the low virulence of the bacilli.

It confirms the well-known fact that one negative culture does not guarantee that diphtheria bacilli have disappeared from the throat. It illustrates the need of more rigid isolation of diphtheria cases, especially in the tenement-house districts.

We always recognize that diphtheria patients, ill or convalescent, or their discharges, are a source from which virulent bacilli may be obtained, but we must not forget that the healthy throats of individuals who have been in contact with them, and which may contain virulent bacilli for weeks and months without causing any lesion, are also a source of contagion.

We have a rule that no convalescent diphtheria patient may be released from isolation until one or two negative throat cultures have been obtained. It may prove a great advantage to add a further rule; namely, that associates of the patient must also show negative throat cultures before being allowed to mingle with healthy persons.

The fact that the majority of people, and even the majority of children, are not very susceptible to diphtheria is undoubtedly a great safeguard against more frequent infection.

I wish to thank Dr. Hibbert Winslow Hill for his kind interest and assistance in allowing me to carry out the bacteriological work on these cases at the laboratory of the Boston Health Department.

Reports of Societies.

BRITISH CONGRESS ON TUBERCULOSIS.

HELD IN LONDON, JULY 22-26, 1901.

(Continued from No. 8, p. 224.)

SECTION II.—MEDICAL, INCLUDING CLIMATOLOGY AND SANATORIA.

SECOND DAY.

SIR R. DOUGLAS POWELL in opening the session said: It is my first duty to give a cordial British welcome to all our brothers in science who have come from distant parts of the Empire and from foreign countries to take part in this conference, and to discuss with us the many problems—social, hygienic, pathological and therapeutic—connected with tuberculosis.

In this particular section the discussion will mainly centre about three questions, relating to the climatic and antitoxic treatment of tuberculosis and the use of sanatoria. Tuberculosis is a disease, the specific lesions of which tend to

heal if we can secure them from contamination by putrefactive and suppurative organisms. This is the conviction that experience burns into our minds in our hygienic and therapeutic struggle with consumption. It is scarcely conceivable that with the increasingly *al fresco* methods of our treatment this important question of climate should not enter still more largely into our consideration, although some physicians are inclined to minimize their effects.

Of the local causes that contribute to atmospheric contamination, and so spoil climates, we cannot here say much; they belong rather to the hygienic section. It is often disappointing to find a good climate marred by local impurities, and the vivifying power of the sun exhausted on organic débris in the atmosphere, so that little healing power is left for those who may have come long distances to seek it.

Besides purity, however, and freedom from organic and inorganic dust, there are the well-known attributes of climate, sunlight, prevalence of winds, wetness or dryness of soil, range of temperature, relative humidity, rarity or denseness of air, all of which the physician must consider in advising his patient. Not only must we consider climate in the gross, but climate in detail. As in this country it is possible to find an habitat for almost every plant that grows, it should be possible to find some part which would be suitable to almost any class of consumptives—the choice of the climate most suitable for the various constitutional states and varieties of local lesions.

As to sanatorium treatment, the essentials are perfect asepticity in sanitation, skilled alimentation and controlled metabolism, with a predominant medical supervision. But there would seem to be room for a brighter sympathy in the handling of consumptives. The consumptive need not be made to train as a gastronomic athlete; gain of weight is not the best measure of improvement. Some good music or lectures might amuse without fatiguing or exciting the patients. The persons who have passed through sanatoria have learned valuable lessons as how to manage themselves, but there is danger of some impairment of those higher qualities with which consumptives are often conspicuously gifted.

The business of the session then began.

C. THEODORE WILLIAMS, M.A., M.D., F.R.C.P., consulting physician to the Hospital for Consumption and Diseases of the Chest, Brompton, read an address entitled

THE TREATMENT OF CONSUMPTION BY CLIMATE.

Climate has in all ages been considered to exercise an important influence in the treatment of pulmonary tuberculosis, though opinions have differed as to the kind of climate which is most beneficial.

In South America, since early times, arrest of tuberculosis has been produced by prolonged residence in the Andes (Archibald Smith, Guilbert and Weber) without the aid of sanatorium and other treatment, and these successes must be attributed to

climate and to climate alone. Numerous authenticated instances of arrest can also be shown as the result of sea voyages, of warm and of cool marine climates, or of dry warm climates, respectively; in fact, it has been proven that the arrest of tuberculosis has occurred in a variety of climates and under very different conditions. The main object is to determine under what climatic conditions arrest of the disease most frequently takes place, and what are the real causes of such improvement.

In all climatic treatment, care must be taken to bring the patient fully under the influence of the atmosphere, and to ensure a strictly open-air life, with complete hygienic measures, whether in a sanatorium or elsewhere.

The climate which best fulfills these conditions need not necessarily be a warm or a cold one, but should be dry, with abundant sunshine, admitting of much exercise, and producing appetite and muscular vigor.

Tropical climates are excluded on account of their relaxing influence, and their favoring bacillar increase.

The principal climates utilized for the treatment of pulmonary tuberculosis may be grouped as follows:

I. Marine.

II. Dry, warm climates.

III. Mountain climates.

Of marine climates the temperate ones of the British Islands have been shown to be suitable for a large number of cases of chronic pulmonary tuberculosis, specially in its strumous form, even when accompanied by pyrexia, and for our countrymen and countrywomen the avoidance of long journeys and the certainty of abundant and good food and of home comforts is a great recommendation.

The warm marine climates of Madeira, the Canaries and the West Indies are beneficial in catarrhal tuberculosis, but not as a rule in phthisis generally.

Sea voyages are probably the most successful form of marine climates, and provided (1) the patient's cabin be well ventilated, so that he is sure of abundant fresh air by night and in stormy weather as well as by day, and (2) that the food supply be good and unfailling, and (3) that the voyage be in temperate and not in tropical seas; a sea voyage is often productive of large gain of weight and color and leads to arrest of tubercular disease. Sea voyages are most beneficial in (1) hemorrhagic phthisis, (2) in strumous or scrofulous phthisis accompanied by affections of the glands or joints, and (3) in cases of chronic tubercular cavity where the disease is limited and unilateral.

Dry, warm climates include that of the desert (especially the Egyptian) and those of the Mediterranean Basin. The desert climate is remarkable for its dryness, sunshine, and its purity and asepticity, and is especially adapted to open-air treatment. Owing to radiation the extremes of temperature are often great. General improvement in con-

sumptives is perhaps more striking than local, but diminution in the amount of lung secretion and reduction of cough usually takes place. The desert climate appears to act more decidedly in preventing the spread of tubercular disease than in arresting that already present. It seems to most benefit cases of chronic cavity, especially in elderly persons and patients who are incapable of much exercise. The climate of the Riviera and of the Mediterranean Basin, as a whole, is cooler and more stimulating, but liable to greater vicissitudes of weather, though not of temperature, than the desert climate. It is moister than the latter, and, compared to the British climate, it is clearer and brighter with a good deal of wind, but free from fog or mist, with a winter mean temperature from 8° to 10°F. higher, with half the number of rainy days, and 4 or 5 times the number of sunny ones. It can be recommended in chronic phthisis, especially when complicated with inflammatory attacks, in strumous and laryngeal phthisis, and to patients with rather extensive tubercularization of the lungs, who, from feeble circulation, short-windedness, or advancing age, are unable to bear the effects of a high altitude.

Mountain or high altitude climates vary according to latitude, but are all characterized by (1) diathermancy, or the increased facility with which the sun's rays are transmitted through the attenuated air, which causes a difference between sun and shade temperature of 1°F. for every rise of 235 feet (Denison); (2) by their asepticity, as shown by the preservation of meat for long periods; (3) by their physiological effects on the human body, as shown by the tanning of the skin, increase of both pulse and respiration rate, followed after a certain period of residence by a slowing and a deepening of the latter, and an extension of the thorax, also by an increase in the amount of urea and water excreted by the kidneys; more oxygen is absorbed and more carbonic acid expired by the lungs. The effect on cases of early tubercular consolidation is remarkable, local pulmonary emphysema is produced around the tubercular nodules, and the healthy portions of the lung become hypertrophied, necessitating enlargement of the thorax, which can be proven in several ways. Expansion of the chest takes place, unless opposed by extensive lung fibrosis or pleuritic adhesions.

It is suggested that the arrest of the tubercular disease is greatly owing to the pressure on the tubercular masses by the increasing bulk of lung tissue, which by emptying vessels promotes caseation and cretification of the tubercle. Accompanying these changes are the disappearance of cough and expectoration, improvement in digestion and assimilation, gain of weight, of color and of muscular, respiratory and circulatory power.

The high altitudes have produced the best climatic results of all climates in the treatment of phthisis, but they are most successful in cases of early tubercular consolidation, where they produce complete arrest in by far the larger proportion of patients, and in hemorrhagic phthisis, but they are not equally successful in cases of exa-

vation, which require a longer sojourn to produce arrest.

The high altitudes are much more beneficial to the young than to the middle-aged of both sexes, males over 30 and females under 20 benefit least. The special effects named have been noted in the Alps, the Andes, the Rocky Mountains, and are common to all mountain ranges.

The period of sojourn for patients in any climate must depend on the conditions of the climate and of the individual to be treated, and in many instances a change of climate after a prolonged stay has many advantages.

Contra-indications to the various groups of climates are enumerated.

All climatic treatment should be carried out under as strict medical supervision as sanatorium treatment.

Dr. BURNET YEO followed with a paper mainly on the

CLASSIFICATION OF CASES.

He said: The objects of treatment by climate in cases of pulmonary tuberculosis seem to me to be the following: (1) To arrest catarrhal conditions of the air passages; (2) to improve nervous and circulatory tone; (3) to increase the activity of the digestive functions, and thus stimulate nutrition by promoting the desire and increasing the power to take exercise; (4) To raise the moral tone—by no means an unimportant matter—by affording a clear, bright and cheerful environment; (5) to diminish by its asepticity bacterial activity.

OPEN-AIR TREATMENT—NEW AND OLD.

It must be a question for consideration whether so-called "open-air treatment," without regard to suitable climatic conditions, will do all this. It should be our object when practicable to place the consumptive patient under conditions and in circumstances where, without risk or injury, he may obtain the most complete and perfect aëration of the lungs possible.

The recommendation of a long sea voyage as a cure for phthisis doubtless had its origin in the idea of pulmonary hyper-aëration. It was an early form of "open-air" treatment, but with grave drawbacks and risks.

Sydenham, in recognizing in the treatment of phthisis the value of increasing pulmonary aëration by long-continued horse exercise, clearly anticipated the modern idea of "open-air" treatment of this disease.

Now climatic treatment is essentially "open-air" treatment, and the appropriate selection of a climate must depend on the suitability of that climate to open-air life in the particular cases we may have to deal with.

DIFFICULTY IN CLASSIFYING CASES.

It is difficult to establish any precise and rigid classification of the cases best suited to particular places, because in many cases, and especially in very early cases and in quiescent chronic cases,

with a limited area of local disease, the patients will do well and obtain arrest of the disease in a variety of places with somewhat different climatic conditions.

"INCIPIENT PHTHISIS."

Another difficulty in drawing reliable conclusions from published statistics is the tendency on the part of certain observers to use somewhat vaguely the terms "incipient phthisis" and "pre-tuberculous phthisis."

I find many practitioners are in the habit of using the term "incipient phthisis" in the sense of "suspected" phthisis; in that case it expresses an opinion rather than a fact.

It would be much better, I venture to suggest, to dispense with the use of the term "incipient phthisis" and employ the more precise term "early phthisis" instead.

The term "pre-tuberculous" phthisis is, I think, still more objectionable.

We are, I suppose, all agreed that early cases with a very limited area of local disease, with little or no fever, with integrity of the digestive functions, and in young and otherwise healthy adults, do well, and are frequently cured in a variety of climates, provided they live a perfectly hygienic, open-air life. They recover probably more speedily in altitude climates than elsewhere.

OBJECTIONS TO SEA VOYAGES.

Now it is to the more vigorous of this group that I consider a sea voyage may be of use, and then only to those who have a liking for the sea. The value of the ocean voyage has been, in my opinion, greatly overestimated, and its serious drawbacks insufficiently realized.

Another point in which I conclude we shall be agreed is that decidedly advanced dyspneic cases should not, as a rule, be sent far from home, more especially if there is any pyrexia.

There is no great difficulty, then, in deciding what to do with cases at the very onset; we must be greatly influenced by questions of age, sex, temperament, occupation, social conditions and constitutional tendency. They will get well in a variety of places with careful management.

Nor is there much room for hesitation as to what course is best to follow in decidedly advanced cases. The progressive febrile cases are best in bed with an abundant supply of fresh air. It is the moderately advanced case that calls for careful discrimination and is the most difficult to decide about.

The question put to us in this discussion is: What influence has climate on the treatment of consumption, and how far can cases be grouped for treatment in certain climates?

THE INFLUENCE OF CLIMATE ON CONSUMPTION.

The answer to the first part of the question will, I suggest, be that a suitable climate

(1) Relieves or removes catarrhal conditions accompanying the disease in a number of cases.

(2) It raises nervous and vascular tone.

(3) It increases muscular energy and the ability as well as the desire for exercise.

(4) By rendering an open-air life possible, it increases the aëration of the lungs and diminishes the activity of bacterial agencies, one of the most essential conditions of arrest and cure of the disease.

(5) It improves the tone and promotes the activity of the digestive functions, and so enables the patient to take the large amount of food which is needed to heighten his state of nutrition.

(6) And, finally, it improves the moral and mental state by surrounding the patient with a bright, cheerful and hopeful environment.

THE GROUPING OF CASES.

Then, as to the answer to the second part of the question, we may, I think, say:

(1) That cases seen at the very commencement of the disease, and who are otherwise in good health, may be permitted a certain amount of choice in the selection of a climate, provided it allows of many hours being spent daily in the open air, and that they are placed under admittedly hygienic conditions. A choice may be made from climates of altitude, the desert climate, the inland plateaux of South Africa, the sea voyage for those with a decided liking for the sea, and suitably placed sanatoria.

(2) For progressive febrile cases, repose in bed or on a couch at home, in the best conditions practicable for the free access of air and sunshine to their apartments.

(3) For advanced cases home is best, if the conditions of home life are favorable, or the warm marine climates with cheerful surroundings, if home life is unfavorable or change is urgently desired.

(4) For catarrhal cases warm, soothing climates like Madeira or Teneriffe are best.

(5) For rheumatic or gouty cases of the fibroid or pleurogenic type, dry, marine climates or the desert climate are most suitable.

(6) For the so-called "scrofulous cases," if free from catarrh, fairly bracing marine climates; if with catarrh, mild marine climates should be prescribed.

(7) For most other moderately advanced cases, with the limitations already mentioned, the climate of the high mountains, above the cloud belt, is the most curative.

I have not made a "hemorrhagic" group because I do not think it would be a natural one; every hemorrhagic case must be, in my opinion, considered apart, and, if I may be permitted the phrase, dealt with "on its own merits."

SIR HERMANN WEBER, London, said the general opinion seemed to be that climate is important, but open air is still more important. Many years ago he obtained good results by advising bakers and workers at indoor and sedentary occupations to give up their employment for some outdoor work. This haphazard open-air treatment did not take into account the rest which is so marked a feature of modern sanatorium treatment. What-

ever climate is selected, the need of supervision is of the utmost importance, and in estimating the benefits of any climate he would compare the results before and after the introduction of sanatorium treatment in the locality. He had a very high opinion of climate, but a still higher opinion of hygienic and dietetic management. Great as are the disadvantages of our British climate, we can cure our patients here if they will subject themselves to the careful supervision of sanatorium treatment. On the other hand, patients have done badly in the best of climates when, for want of medical advice, they have done foolish things—such as overexerting themselves.

DR. DENISON, Colorado, said there was nothing in altitude climate which in itself would guarantee freedom from tuberculous infection, but whatever good there was in climate was increased by high altitude. At high altitudes the need for increased ventilation resulted from the greater quantity of air which had to be inspired to provide the necessary amount of oxygen. Deficient ventilation was the keynote of causation of tuberculosis, as outdoor life was the keynote of its cure.

SIR WILLIAM MOORE, Dublin, expressed the opinion that climate plays a very secondary part in treatment and in the prevention of consumption. The essential is to teach the people how to manage themselves hygienically. The closed bedroom windows that are so commonly to be seen shows what ignorance there is in the people which must be overcome.

DR. LANNELONGUE, Paris, described experiments made on guinea pigs by himself with Drs. Achard and Gaillardi, which tended to show that the influence of climate in the evolution of tuberculosis is inconsiderable. In man, as in animals, it is the constitutional peculiarity of the individual—the soil—which determines the course of the disease, not the climate in which he finds himself.

PROFESSOR GRAM, Denmark, said that in this country the mortality from consumption was greater in the inland parts than on the sea coast. They had therefore built their sanatoria at the seaside.

DR. CHARLES DENISON, Denver, Col., U. S. A., read a paper on

DEVITALIZED AIR TOXEMIA A PRIME CAUSE OF TUBERCULOSIS.

Under this head it is intended to discuss the degenerative effects of deficient ventilation, and to show how, through the devitalization of the air by its loss of vitality, due probably to a change in its normal electrical state, a dyscrasia (in persons breathing it) is created, which gradually drifts into degeneration of tissue, the so-called "soil" of tuberculosis.

The Richardson experiment is discussed, and the need is emphasized of further experimentation on this line in order to throw more light upon this important matter. The prevailing idea among

medical men, that the tuberculosis germ is the only cause, to the exclusion of as important predisposing causes, is criticized. The question of "soil" is now even more important than that of "seed," in order to successfully combat this dyscrasic disease.

Man, under our present civilization, is very generally tainted with a dyscrasia which goes back to this devitalized air toxemia for its cause. The fault is the disproportion of breathing space and sun influence to the needs of man in sleeping, living and working rooms.

The deficient ventilation curve, upon which the most civilized peoples are living, will, by illustration, be contrasted with the normal life curve, which should represent the longer and uncontaminated lives of a people living under natural conditions.

Outdoor life is thus suggested as the keynote to this congress.

The need of education along these lines will be emphasized, and plans for legislative control, through yet to be enacted laws, will be suggested.

THIRD DAY.

DR. HERON, London, read a paper entitled THE THERAPEUTIC AND DIAGNOSTIC VALUE OF TUBERCULIN IN HUMAN TUBERCULOSIS.

It was the fact that a man who had rendered such services to medical science as Koch had notified his discovery of a new remedy for tuberculosis, that caused the thousands of medical men from all parts of the world to visit Berlin in the autumn of 1890. If a new treatment had been announced by any one of less note, it would have been allowed to make its way slowly.

A few months later, however, the new treatment was to a large extent discredited by a celebrated fellow countryman of Koch's. Virchow expressed the opinion that the use of tuberculin caused destruction of the tissues around the tuberculous centres, and thus set free bacilli to carry on their work to neighboring organs and healthy tissues. Heron has for 10 years used tuberculin injections in some 2,000 instances on about 60 patients, and has found no evidence to support the view of Virchow.

Koch at the outset distinctly stated that the curative action of tuberculin could only be expected in cases of tuberculosis of the lungs if these were taken in a comparatively early stage. Although he was not then able to express the fact, we now know that it is almost useless to use this remedy in cases of "mixed infection." The use of tuberculin has fallen into discredit (1) because it was used in unsuitable cases; (2) because it was given in too large doses; (3) from neglect of the rule that the dose should never be given whilst the temperature of the patient was raised; (4) from neglect of the rule that the dose should not be increased when the temperature is raised by its administration; (5) because of the prejudice amongst doctors and patients from the severity of the reaction produced.

Recent illness has prevented Heron completing the series of observations which he had intended following out for this occasion, and he is, therefore, obliged to utilize material which has already been brought forward. Some 57 cases have been injected since 1890, and of these several have been lost sight of, but about 16 were still well and earning their living at the end of 1900.

Lupus cases treated with the old tuberculin relapsed, even whilst the injections were being continued, but one case of lupus treated with the new tuberculin was completely cured, and had no relapse. This case was presented to the Clinical Society of London in 1898.

For diagnostic purposes tuberculin has an especial value. All agree that cure in pulmonary tuberculosis is almost dependent on early diagnosis, and with the aid of tuberculin we can diagnose tuberculosis earlier than by any other means. It is also perfectly safe as well as perfectly reliable.

A case, quoted at some length, where death resulted some 24 hours after an injection of tuberculin for diagnostic purposes in a girl of 17 years, seemed to show that such injections were not quite safe. Reasons, however, were given to show that death was not due to the tuberculin.

In conclusion Heron expressed the conviction that the immense value of tuberculin will yet become fully recognized.

PROF. R. KOCH, Berlin, said that when in 1890 he first put tuberculin before the profession, he pointed out its diagnostic as well as its therapeutic value. An experience extending from that date to the present has confirmed his opinion that tuberculin is an indispensable aid to diagnosis and a valuable means in treatment. Incipient phthisis can be diagnosed and cured by tuberculin. A correct diagnosis can be obtained by a single injection in 97% of cases. As to the method of employment, the patient should be under observation for a day or two previously, and no patient should be injected while the temperature is over 37°C . The initial injection should be $\frac{1}{10}$ mgm. for weak patients, and up to 1 mgm. for stronger patients. If there is no rise of temperature, double the dose may be given after a day's interval, and so on until 5 or even 10 mgm. may be given. If there is a slight rise, the same dose should be repeated after the temperature has gone down. If the second dose of the same amount gives a stronger reaction than the first, the diagnosis of tuberculosis is certain. If no reaction occurs with a second dose of 10 mgm., then alone are we justified in saying that there is no tuberculosis. He himself, with an experience of some 3,000 cases in which tuberculin was used for diagnosis, has never seen any disadvantageous results when tuberculin has been used as recommended. In cases of apical catarrh of the lungs, especially after influenza, some 15% did not react, and subsequent results showed no tuberculosis. In cases of pleurisy 73.2% reacted.

As to the therapeutical uses of tuberculin it should only be used in early cases, and never in cases where the temperature is over 37°C . Mixed

infections are unsuitable. It is of especial importance to avoid the strong reactions which it was at first thought necessary to produce. It is also desirable that the treatment should be repeated with intervals of 3 or 4 months, until all capability for reaction is extinct.

SIR R. DOUGLAS POWELL, president of the section, said that he had noted the important statement of Professor Koch: That tuberculin should only be used when the patient's temperature was normal. Unfortunately, however, in practice most of our patients come to us with abnormal temperatures. This difficulty stands somewhat in the way in the use of tuberculin, both in diagnosis and in treatment.

PROFESSOR OSLER said that tuberculin had been used as a routine practice in doubtful cases for 6 years in both medical and surgical wards of the Johns Hopkins Hospital. They used it freely and fearlessly, and he could unhesitatingly endorse the favorable opinion of Dr. Heron. As to danger, they had found none—it was harmless. In treatment he was impressed by the limitations of its application if it was not to be used in febrile cases. When a febrile condition is reached most physicians, if they had on one hand tuberculin and on the other open air with which to treat the patient, would choose fresh air.

DR. FRANKEL, Berlin, said that many of his cases treated with tuberculin in 1890 remained well at the end of 1900, a result which no other treatment would have achieved. We made mistakes at first—such as overdosing—which we now avoid. To be successful in using tuberculin we must begin carefully and advance slowly.

DR. DENISON, Denver, Col., while agreeing as to the value of tuberculin for diagnosis and for immunization, expressed the opinion that von Ruck's watery extract is more exact in its action and more correctly standardized than Koch's new tuberculin recipe.

DR. THEODORE WILLIAMS, London, as the result of the use of tuberculin at the Brompton Consumption Hospital, had come to the conclusion that its diagnostic value was undoubted, but that its therapeutic value is doubtful. It is good for diagnosis, but dangerous for treatment.

DR. MCCALL ANDERSON considered that tuberculin was of the greatest use in surgical tuberculosis. It acted as a local remedy, and general treatment was wanted at the same time.

SIR R. DOUGLAS POWELL, DR. BONSFIELD, DR. VIVANT of Monte Carlo and DR. SQUIRE of London asked for information as to the bearing on the use of tuberculin of the nonidentity of human and bovine tuberculosis. Would tuberculin prepared from the bacilli of human tuberculosis react in tuberculous animals and *vice versa*?

DR. FANCE, London, referred to the large mortality from tuberculosis in asylums for the insane. He had injected 75 patients for diagnostic purposes. Of these, 20 non-suspects were injected as controls, and he injected himself also, all without reaction of any kind. Of 55 suspects, 45 reacted, and of these, 34 have died. Twenty-nine of these

34 showed tuberculosis at the necropsy. Of the 11 who reacted, who are still living, 6 have local tuberculous lesions, 2 have been lost sight of, and in only 3 out of 45 who reacted is there no evidence of tuberculosis.

DR. E. O. OTIS, Boston, U. S. A., asked why in certain cases of syphilis a reaction was obtained with tuberculin, and in what per cent of syphilitic cases this reaction showed itself.

DR. HEROS in replying said that there seemed to be considerable unanimity as to the diagnostic value of tuberculin, and if the result of the meeting were to strengthen the general agreement as to this, the discussion would be valuable. In answer to Dr. Otis, he had never seen a rise of temperature from tuberculin in syphilis.

PROFESSOR KOCH, in answer to the questions put to him during the discussion, said that so far tuberculin had been prepared from the bacilli of human tuberculosis, but the reaction was a "group" reaction, so that cattle would react to human tuberculin as well as to bovine tuberculin. As to fever, when the temperature of your patient is raised, you must keep him in bed till it goes down to 37°C . before using tuberculin. With regard to the question between fresh air and tuberculin in treatment, there was really no reason to contrast these; they should be used in combination.

DR. DENY, Louraine, read a paper recording the results of

CERTAIN INVESTIGATIONS ON THE RESULTS OF TUBERCULIN'S INOCULATION OF DOGS.

He concludes that the formation of tubercles is a manifestation of the resistance of the organism.

MOSS, ALBERT ROBIN, member of the Academy of Medicine and Delegate of the Academy of Medicine of Paris, read a paper on

THE NATURE AND DIAGNOSIS OF PREDISPOSITION IN TUBERCULOSIS; THERAPEUTIC CONSIDERATIONS.

The prophylaxis of tuberculosis does not consist solely in the measures taken, either publicly or in private, against the infective agent. A study of the respiratory exchanges enables one to recognize predisposed subjects beforehand, and consequently to submit them to a hygienic and therapeutic regimen capable of modifying the functional and nutritive fault, which is the necessary antecedent condition for the development of the bacillus.

The respiratory exchanges are increased in 92% of the subjects of confirmed tuberculosis, and in 63% of those with a tuberculous heredity. Alcoholism and the different forms of overwork increase the respiratory exchanges, and are capable of creating a soil for tuberculosis in the same way as heredity.

An examination of the respiratory exchanges, therefore, enables one to make a diagnosis of tubercle in doubtful cases and in an early stage. We may even diagnose the *predisposition* to tuberculosis.

MM. S. ARLOING and P. COURMONT, Lyons, France, read a paper entitled

TECHNIQUE AND RESULTS OF THE SERUM DIAGNOSIS IN TUBERCULOSIS.

The employment of homogeneous cultures of the bacilli of human tuberculosis in glycerinated broth offers a means of investigating the agglutinating power of secretions, and especially of the serum in tuberculous animals and men.

Our researches in the most varied cases of human tuberculosis show that a positive serum reaction in a suspected subject will be a most valuable sign in establishing the existence of visceral tuberculosis. A negative reaction in a suspected case will help in excluding a diagnosis of tubercle. The serum diagnosis of tubercle is, therefore, most valuable, especially in the preliminary diagnosis in cases suspected of early pulmonary lesions.

To obviate the difficulties which are recognized, we have for some time past employed cultures, the growth of which has been arrested by the use of formalin at the time when they present the most favorable conditions. Thus prepared, the cultures will retain their properties for a long period.

DR. HORTON SMITH, London, and DR. LYDIA RABINOWITZ, Berlin, spoke of their experiences with the serum of MM. Arloing and Courmont, and as the result of the various experiments on men and animals they both concluded that the agglutination test cannot be relied upon in the diagnosis of tuberculosis.

FOURTH DAY.

DR. CLIFFORD ALBERT, in opening the discussion on

SANATORIA FOR CONSUMPTION,

said that though the open-air treatment of consumption was advocated in England half a century ago, it was Brehmar who, by his method, brought the cure of phthisis within the reach of the poor, whereas it had been a costly achievement before. The modern treatment was called the sanatorium method; it has been worked out and perfected in sanatoria, and though open-air treatment may perhaps be carried out at home, the method should be supervised by a medical man who has had practical experience of sanatorium treatment. It is in the congregations of the sanatorium we have learned individual treatment; for phthisis there is no specific, not even climate. The coldest air that the patient can stand, if dry and clear, is the best for any individual patient. This generally increases the appetite and makes forced feeding unnecessary; but cold which stimulates a young man, would shrivel up an older patient. There should be central committees for the encouragement of scientific work in sanatoria. Much important scientific work is at present performed in sanatoria, but it requires collating. The examination of the blood, observations on the agglutination by serum, and the virulence

of the bacilli rather than their number, are points which require attention. The importance of an early diagnosis was insisted upon. Wherever a person complains of being overwrought, of being off color, suspect phthisis first, cough or no cough. Let no hemoptysis, however slight, be set down to a blood vessel in the throat. As to the duration of stay required in the sanatorium, the degrees of cure are three: Arrest, obsolescence and *restitutio ad integrum*. The last may be disregarded; if we expect obsolescence, it will be practically impossible to carry out sanatorium treatment with the poor. To bring about obsolescence, even of the first stage, we need two winters and one summer at least. To the poor this is impossible. What we must aim at is what the Germans have described as "wirtschaftliche Heilung" (economic cure) rather than the "wissenschaftliche Heilung," or absolute cure. Six months will probably be required in the majority of cases, but we may calculate the probable stay that will be required by the progress of the patient in the first month. As to treatment, we must treat the patient, not the abstract tuberculosis. Alcohol is rarely required and is, as Bennett said, "a two-edged sword." Some form of gymnastics properly adapted to the condition of the patient may often be of value. Protest may be entered against the emptiness of mind which certain reformers would enforce upon their patients. I feel sure that the lack even of tranquil occupations and amusements conduces to introspection. The vacuous looks and aimless wanderings of the patients hanging about the sanatoria has impressed me painfully.

The main questions propounded were the following:

(1) Can mixed infections be inferred from fever curves?

(2) Can we distinguish between economical (wirtschaftliche) healing and complete (wissenschaftliche) healing? If so, what is the mean term of residence for the economical healing of early cases?

(3) How long in certain active cases, say 6 to 8%, is a febrile patient to be kept to bed in the reasonable hope of recovery? For instance, in a public sanatorium are we justified in retaining patients who have been confined to bed for 4 months, 5, or even 6 months?

(4) What estimates of improvement, and what rules of prognosis can be based upon physical signs alone?

(5) Is multiple tuberculosis, say in the lungs and in the testicle, too hopeless a condition for a public sanatorium? How far is it comparable with an equal extent of mischief in one organ?

(6) Of what use, if any, is massage?

(7) Of what use, if any, is hydrotherapy?

(8) Is pulmonary gymnastics appropriate at any stage of progress? and if so, under what conditions?

(9) Must we repair the body at the expense of the life of the mind?

(10) Can we not even give some more educa-

tional value to the sanatorium higher than the medical drill of it?

Dr. KINGSTON FOWLER, London, said that he could only repeat what he said at the discussion on "Sanatoria" in November, 1899. Subsequent experience had confirmed the opinions then expressed. The treatment could not be properly carried out at home. Sanatorium training was essential. When people talk of the splendid situation of their homes, the southerly aspect, the large rooms, the extensive garden, and other advantages for treatment at home, this frequently spells disaster. For in these advantages they forget the necessity for proper regulation of their lives. The aim of treatment is obsolescence, but this is not always obtainable. Further researches on metabolism are required to help us to decide the vexed questions concerning the feeding of patients. The necessity for early treatment is shown by the very large proportion of cases in which cured tuberculosis found at necropsies occurred in the early stages, and the small number in which cure occurred when the disease was advanced. In deciding the stage of the disease it is well to take the number of lobes affected into consideration. Although the country is the best place in which to treat consumption, much good can be done by hospitals in towns; even the London poor get accustomed to an out-of-door life in 2 or 3 days.

Dr. PHILLIP, Edinburgh, in giving the result of the experience of 10 years of sanatorium treatment, said that each case required consideration *per se*; all cannot be treated on one plan. The temperature of the ward need not be kept high. It is found that patients do better in the winter than in the summer. Rest and exercise must be considered together, and should be gauged by the temperature and pulse. Simple respiratory exercises are often useful. As to alimentation, a full dietary is necessary, but not forced feeding. Skin hygiene requires attention not only for purposes of cleanliness. Overclothing is to be condemned. Cold bathing often does good if shock is avoided. As to site, almost anywhere will do, so long as the immediate surroundings are satisfactory, and sufficient ground is obtainable for carrying out the treatment. It is well to treat patients in their native air. Uniformly good results are obtained in early cases, and even advanced cases are made more comfortable. The temperature charts show the steadying of an oscillating temperature and decrease in the rapidity of pulse. Night sweats disappear entirely in a few days or weeks. Sanatorium treatment at home, though theoretically possible, is most difficult to carry out practically.

PROFESSOR SCHROTTER, Vienna, said that as the principles of sanatorium treatment are in the main settled, the details still require attention. Is it sufficient to keep patients in our climate, or is it necessary to send them to the South or up to the mountains? In Austria they have a central sanatorium with 130 beds, where patients are observed for 2 or 3 months, and then some will be sent to the South, others to the mountains, and kept under observation to see how they progress. In sana-

toria, not only climatic, hygienic and dietetic treatment should be employed, but every known treatment should be observed and utilized, as far as it is found of value. Just now tuberculin, having gone out of fashion, has again come forward and must be observed afresh. It would be an advantage if Professor Koch would give definite instructions for the uniform preparation of tuberculin.

Dr. DVOŘÁK, Prague, recommended the institution of wards or pavilions for tuberculous patients, for the isolation of tuberculous patients in general hospitals, and said that one of the most important points in our views of the treatment of tuberculosis was that it could be treated in every climate in which tuberculosis arises.

Dr. JANE WALKER said that the good results of sanatorium treatment are so immediate and so apparent that it is only after some experience that the difficulties begin to show themselves. The chief difficulties arise in the length of the disease. Patients have to pass long periods of mental and physical inaction, and the longer this is kept up the longer it takes to get them back to their normal mental and physical condition. Hospital patients should be employed by doing the cooking and housework. With paying patients it is more difficult to find employment. There is a fear of dropping into routine treatment, but we must remember the patient as well as his disease.

Professor JANEWAY, New York, said that in America at least there were far too few sanatoria. The State should see that patients who are sent by the doctors into the country to recover their health should not infect the people to whom they go in the various villages. Until sufficient sanatoria are provided this care is essential, but it is quite possible the patients would get well without going to sanatoria, especially those who are sufficiently well off to get all the comforts they require. Sanatoria are required for the poor, but are not so essential for the rich. The great defect is the failure of medical men to recognize early consumption. Greater care and knowledge is required. We must also not think that every lesion in a tuberculous patient's lungs is evidence of acute tuberculous mischief. There may be intercurrent and temporary pneumonia or bronchitis, and many of the patients who recover after they have been said to have lost one lung are probably patients of this class.

Sir HERMANN WEBER, London, said he had known a patient with continuation of temperature ranging between 98.5° and 103° for 3 years, at last fully recovered. Gout is a most favorable complication. Out of 25 cured patients under his observation, 18 have developed distinct gout in some form. He emphasized the necessity of transition sanatoria, where patients after leaving a sanatorium might be kept for a time under observation. Too often the individual is forgotten in the system or method of treatment peculiar to a particular institution.

Dr. KNORR, New York, said the best climate for a sanatorium for the workingman is that in

which he will have to work and earn his living. For the rich, also, the sanatorium should not be too far away from home, so as not to add home-sickness to his other illness. The State has duties to perform in providing sanatoria, but the work requires a large staff of medical men to assist, and these men must be paid.

Dr. SNOU, Bournemouth, endorsed Dr. Clifford Allbutt's remarks as to forced feeding. As to the danger of infection, he considered the safest place to live in, for those who wished to avoid consumption, was a well-regulated sanatorium. Patients in a sanatorium learn discipline, and all who wish to carry out the treatment at home should first spend a month at a sanatorium to learn how to manage themselves, this being the most important thing of all.

Dr. ROSENTHAL, Copenhagen, said that if all consumptives are to be treated in sanatoria, the number to be built would be enormous. While awaiting the erection of sanatoria he advised that we should utilize existing hospitals, especially those in the country.

Dr. BURTON FANNING attaches most importance to rest in the treatment of consumption, but the value of the nurse in the sanatorium can hardly be overestimated. He presented a report on the results of sanatorium treatment in the United Kingdom, dealing with 716 patients from sanatoria where the inmates defray the cost of their own maintenance and treatment. The payments vary from 2 to 6 guineas a week. As the result of treatment, 92% of all the patients gained weight, but in no particular do the results of different sanatoria show greater variation than in the matter of the amount of weight added to their patients. In 71% of the patients there was an habitual rise of temperature to 99.6° or higher; 8.6% had rapid cardiac action without fever; quiescence or definite recovery occurred in 25.1%, and reduction of fever in 50.7%. Frequency of pulse without fever would appear to be a most unfavorable sign. Of those patients without either fever or quickened pulse, 63.6% secured quiescence of their disease or definite recovery. Since earlier cases are now being sent for treatment, the subsequent records of our sanatoria will contrast favorably with this report. The results of treatment must always mainly depend on the selection of cases submitted to it.

Dr. WOLFF BECHER, Berlin, said it is impossible to provide sanatoria for all the poor consumptives. Many spend the time walking the streets of the town; and in endeavoring to do something for them, they had in Berlin provided a new kind of sanatorium, where the patients spent the day, but returned to their homes at night. Barracks obtained from the Red Cross Society had been erected in the woods 2 miles out of the town, where the patients spent the day in the open air. This kind of partial sanatorium treatment is inexpensive, and though not entirely satisfactory, does a great amount of good.

Dr. BRAINÉ HARTNELL advocated the taking of the temperature in the rectum, wherever exactness

is required. It is not necessary to take the temperature directly after exercise, the most important point is the length of time that the temperature remains high after exercise. If it falls in half an hour no harm has been done. In the lower ranges of temperature there are often great differences between the rectal, oral and axillary temperatures. In the higher temperatures there is little advantage in rectal temperature, as there is little difference between the rectal and oral temperature. In many cases the rectal temperature shows activity when the temperature taken in the mouth shows nothing.

DR. PARSONS, Dublin, expressed doubts as to the utility of erecting sanatoria for the poor consumptives. They are unable to remain sufficiently long to obtain full benefit, and on return to their unhygienic surroundings the disease lights up afresh and perhaps progresses more quickly from the contrast to the open-air life in the sanatorium. He found great variations in the amount of weight the patients gained during different months of the year. In March and June only about 4 oz. per week was the average gain per patient, whereas in September, October and November the gain per week was as much as 14 to 16 oz.

SIR R. DOUGLAS POWELL, in summing up the results of the discussion, said that the lines on which the discussion had run were just those that he had hoped to see followed. He was glad to find that the human interests and amusements of the patients were not neglected in the requirements laid down for sanatorium treatment.

FIFTH DAY.

ON THE USE OF THE RÖNTGEN RAYS IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.

DR. WALSHAM in his paper proposed the following questions: (1) Can the Röntgen rays show tubercle in the lung? (2) If so, at what stage of their development? (3) Can the rays detect tubercle in the lung before the other means of physical diagnosis already at our disposal?

In a picture of a normal chest we see at once that the pulmonary image in health is quite transparent from apex to base, with the exception of a few ill-defined shadowy lines to the right of the heart shadow. These cardiac lines are seen more or less pronounced by all skiagrams of the healthy chest, and must, therefore, be considered normal. Now, on what do they depend? Are they caused by the lower division of the longer bronchi? I think not. These cardiac lines are caused, no doubt, by the junction of the pericardium with the pleuræ.

The shadow of the scapulæ is better removed. This can be done in the following way: The patient lies in the prone condition on the plate, the arms being extended and hanging over the end of the couch. In this position the scapulæ are turned edgewise, so to speak, and their shadow removed from the skiagram.

The next shadow I should like to call to your attention is one usually seen in the more muscular

objects. It is somewhat triangular in shape, and extends upwards and outwards towards the axillæ. By the stereoscopic method these shadows are seen to be outside the chest, and are caused, no doubt, by the anterior axillary folds. Of course the shadow of the pericardium with contained heart in the anterior position is well seen. The shadow of the diaphragm is also well seen, and, if the diaphragm be watched with the screen, we see that it does not, as physiologists tell us, become flatter with inspiration. Its curve is always maintained unaltered; it plunges up and down piston-wise. And now I come to a point of great importance in the diagnosis of pulmonary tubercle:

The movement of the diaphragm on the affected side is much less than on the nonaffected or less affected side, and this when the disease is limited to one apex. Why this should be so is hard to explain, but the fact remains. If you look at the picture you will see that the healthy chest in the living person is as clear as that of the dead body with thoracic viscera removed, showing that any abnormal shadow seen in the skiagram is due to some pulmonary change—in other words, the muscles and integuments of the thorax are transparent to the rays. Not so, however, with the dead lung outside the body, which casts a very distinct shadow, although transparent in the living condition. At present I cannot offer any explanation of this curious fact. There is one other shadow I will mention, and that is, we occasionally see an ill-defined curved shadow in women with large mammary glands.

In a well-developed case of pulmonary tuberculosis the clear pulmonary image is obscured by flocculent shadow, punctate in parts. Now, on what do these shadows depend? Are they due to tubercular consolidation or to patches of congestion of caseation, or pleural adhesions, or what? The shadow caused by grey and yellow tubercle is nothing like so dense as that of caseation. It has been asserted that the blood next to the bones is the most opaque tissue of the body. With this assertion I cannot agree. Putting the above facts together we may, I think, answer our first question by saying that the Röntgen rays can show definitely tubercle in the lung. I will now pass on to the second question; namely, at what stage of development can the x-rays detect tubercle? And here I am afraid we must admit that the very earliest stage in the development of the tuberculous process cannot be detected by the x-rays. I think, however, we are justified in saying that the x-rays are able to diagnose early tuberculous change in the lung. I think also that the Röntgen rays can detect tubercle certainly as early as the stethoscope.

I think that this means of detecting an early tuberculous shadow brings a little nearer the day when internal tubercle may perhaps be treated with chemical rays, as external tubercle—namely, lupus—is being treated today with such conspicuous success. In the future we may, perhaps, be able to say of pulmonary tubercle, "It comes as a shadow, so departs."

DR. BECLERE, Paris, discussed the
TECHNIQUE OF THE APPLICATION OF THE RÖNTGEN
RAYS IN THE DIAGNOSIS OF TUBERCULOSIS.

He advises that the observer should increase his sensibility to the light by remaining some minutes in the dark before making a radioscopic examination. Although it is necessary that the generator of electricity for supplying the Crookes' tube should have a certain power, it is not necessary that this power should be very great. On the other hand it is indispensable that the power of penetration of the rays should be adapted to the luminous sensibility of the observer. For this reason tubes furnished with a vacuum regulator are preferable to others. It is equally indispensable that the tube should be easily moved, and it is necessary to be able to restrict at will the divergent bundle of Röntgen rays, so as to confine the surface illuminated by the screen. To this end he had constructed a disc of lead with a variable aperture which is a simplification of the iris-diaphragm of microscopes.

In radioscopic examination we commence by taking a general view of the thorax by enlarging to the maximum the opening in the diaphragm, then we pull out the tube so that the normal ray of incidence traverses the apex of the chest, then we narrow the opening of the diaphragm until no more can be seen on the screen than the supra-clavicular region of the two lungs. Lastly, one varies the electric resistance of the tube, and consequently the penetrating power of the rays, so as to obtain the greatest contrast possible between the clear and the obscure parts in the radioscopic image.

DR. BONNET-LEON, Paris, based his paper on the same subject on more than 600 observations. By the employment of the fluorescent screen he was able to make a precise diagnosis in 98% of the cases even at the commencement of the disease. In the very earliest stage a diagnosis could be arrived at by observing the diaphragm and the inspiratory muscles. Anomalies in the synchronism or the amount of displacement of the two halves of the diaphragm, one might almost always diagnose a predisposition to tuberculosis or a commencing tuberculosis. In this way a number of persons apparently in good health had become suspected, in whom some months or years afterwards unmistakable evidence of disease had manifested itself.

DR. ESPINA Y CAPO, Madrid, drew attention to the value of the x-rays in demonstrating glandular tuberculosis. The tachycardia, which is recognized as important in the early diagnosis of tuberculosis, is found by him not to be rhythmical. The diaphragmatic excursion also is made visible and gives valuable information. The small size of the tuberculous heart can also be noted. The modifications in the position of the clavicle and of the scapula, as well as the peculiar shape of the intercostal spaces, are also seen. The best means of developing and fixing the plates has occupied his attention, and he uses the diamido phenol (1.2

per 100) with sulphite of soda crystallized to 6 per 100 as a developer, and Euckel's (Swiss) hyposulphite (25 per 100), making the bath fresh for two or three radiographs only.

THE TREATMENT OF PULMONARY TUBERCULOSIS IN
CHILDREN BY RAW MEAT AND MUSCLE SERUM,
ACCORDING TO THE METHOD OF MM. CH. RICHEL
AND HÉRICOURT.

These papers were read by DR. ALBERT JOSIAS, Physician to the Hôpital Bretonneau at Paris, and DR. JEAN CH. ROUX, Ex-Intern of the Hospitals of Paris.

The authors have carried out the treatment by raw meat and muscle serum, as described by MM. Richet and Héricourt, in a series of tuberculous children. Each of the patients received daily the expressed juice of 500 gm. of raw meat; cooked meat was banished from their diet, and an equal quantity of raw meat substituted. Treatment was strictly maintained for months, and, in some cases, for nearly a year. Sixteen cases of pulmonary tuberculosis were investigated in this way. So long as we have to deal with a purely tubercular lesion, the patient markedly improves under the treatment. But when the tuberculous lesion is invaded by microbes which grow in the softening lungs and in the cavities, when the organism is radically affected by toxins circulating in the blood, treatment such as we have carried out has no longer any therapeutic effect in the large majority of cases.

DR. SYMES THOMPSON, London, read a paper on
THE OPEN-AIR TREATMENT IN INSTITUTIONS AND
IN NURSING HOMES.

Many persons find it difficult to submit themselves to the restrictions and regulations of a sanatorium, who would readily enter a nursing home where few patients are received, and the conditions more nearly resemble those of their own homes. If the medical supervision is complete, and the essential features of sanatorium treatment are carried out, there is no reason why the treatment in such homes should not prove successful.

The idea that *wind* is harmful is not in his opinion correct. Improvement is greater with air in movement (wind) than in still air. Cases of tubercular pharyngitis, prior to the development of lung disease, and cases of galloping consumption are especially suitable for treatment in nursing homes.

DR. SQUIRE, London, said that undoubtedly the great feature in treatment was to teach the patient how to regulate his life to the best advantage, and then to ensure that he carried out the instructions which were given. This generally required constant supervision, and was easier in a sanatorium where regulations were laid down and rigidly enforced than in a nursing home where the patient expected more freedom. In different sanatoria, though in all there were strict regulations, the details of the regulations differed even in what seemed essential points. In one forced feeding was insisted upon; in another this was not re-

quired. The important point, however, was that there were rules which had to be obeyed, and apart from the exact details contained in the rules the obedience to regulations was in itself a valuable disciplinary training. Having instilled into the patient the habits of discipline,—the ready obedience to authoritative orders,—it was possible to relax the strict supervision of the sanatorium, and the treatment could then be satisfactorily carried out in a nursing home or in the patient's own home.

DR. F. MORIN, Leysin, said that the best results were obtained when the sanatorium treatment was combined with altitude climate. Sanatoria for curable cases formed only a part of what was required, consumptives required treating before and after, as well as during sanatorium treatment. England had set an example in providing hospitals for consumptives in which all stages of the disease could be treated.

DR. LASALLE, Bordeaux, said that not only are sanatoria for consumptives required in which the treatment is curative, but marine sanatoria also in which the treatment is preventive.

Other papers read in this section were on: "Devitalized Air Toxemia a Prime Cause of Tuberculosis," by Dr. C. Denison, Denver, Col.; "The Responsibility of the Medical Profession with Regard to Cases of Tuberculosis," by Dr. Bardswell, Aberdeen; "The Treatment of Pulmonary Tuberculosis by Means of Formalin Intravenous Injections," by Dr. Maguire, London; "Tuberculosis of the Eye and Its Addenda," by Dr. Allen T. Hajt, Chicago; "The Inhalation of Formic Aldehyde as an Aid in the Open-Air Treatment of Phthisis," by Dr. Chowry Muthu, London; "Experimental Researches on the Method of Action of Igarzol in the Process of Cure of Pulmonary Tuberculosis," by Professor Cervo, Sicily; and "The Principles of Treatment of Tuberculous Laryngitis," by Dr. St. Clair Thomson, London.

(To be continued.)

Recent Literature.

Treatise on Appendicitis. By GEORGE RYERSON FOWLER, M.D., Professor of Surgery in the New York Polyclinic; Surgeon to the Methodist Episcopal Hospital; Surgeon-in-Chief to the Brooklyn Hospital, etc. Second edition, revised and enlarged. Pp. 235, with 58 illustrations and 13 plates, 5 of which are colored. Philadelphia and London: J. B. Lippincott Co. 1900.

Since the publication of the first edition of this work in 1894, much has been learned relating to this subject. The author has been conspicuous among the active investigators. His increased experience and accumulation of data have caused him to revise his former work.

Much has been rewritten, several chapters rearranged, and two new ones added. The difficul-

ties in differential diagnosis have suggested a chapter devoted to the classification of those lesions likely to simulate appendicitis, and intended to facilitate an early diagnosis in such doubtful cases.

Nonoperative treatment has been considered. Pathology has also been introduced in the chapter on The Inflammatory Lesions of the Vermiform Appendix. The conditions resulting from foreign bodies and inflammatory conditions of the cecum, which are closely related to appendicitis, form a separate chapter. Some of the older operative methods have been abandoned, and newer ones substituted. In the chapter on operative treatment the topographical anatomy is described and graphically presented by excellent illustrations. Dr. Fowler also describes his own method, which is the result of a very large experience in this class of operative work.

The book is well and interestingly written, the method concise, the subject well classified and arranged. It is, indeed, well worth reading. The work of the publishers is also most satisfactory.

The Treatment of Fractures. By CHARLES LOCKE SCUDDER, M.D., Surgeon to the Massachusetts Hospital, Out-patient Department, etc. Assisted by FREDERIC J. COTTON, M.D. Second edition, revised. Octavo, 457 pp., with 611 illustrations. Philadelphia and London: W. B. Saunders & Co. 1901.

The first edition of this excellent work was published in 1900. The publication of the second, only one year later, indicates not only the demand for the book, but also the determination of the writers to make it a thorough and modern work.

It is intended as a guide for practitioners and students in the treatment of fractures. It aims to describe in a practical way the recognized methods of treating such lesions. The plan of the volume is to depict the actual conditions which exist in fractured bones. This is done by description and "graphic" illustration reproduced from Röntgen photographs and museum specimens.

By these means the indications for treatment are suggested. Individual fractures are considered according to the following plan: The anatomy is first discussed, next the method of examination, then diagnostic characteristics, prognosis and final results. Finally, the details of treatment, which are extensively illustrated by an elaborate complete series of cuts reproduced from new and original drawings. The operative treatment, after-treatment, complications and sequelae are also considered.

This plan is an excellent one for presenting the subject, and it is systematically followed. In many instances the commendable custom of describing and illustrating treatment in its minute detail is very fully followed. This forms one of the features of the volume which has justly made it so popular. For example, in the treatment of fracture of the neck of the humerus, it not only directs that the arm is to be fixed to the thorax, but it is also stated and shown exactly how and

why this is done. This is in marked contrast to the descriptions found in many works on this subject.

The new edition has been enlarged by the introduction of many x-ray plates intended to familiarize the reader with the interpretation of such means of diagnosis. There is also a chapter entitled *The Röntgen Ray and its Relation to Fractures*, by E. A. Codman, M.D., an expert in this subject.

The authors in general think the practitioner should be able to interpret an x-ray photograph or negative without the assistance of an expert. The chapter on the use of plaster-of-paris is valuable and interesting. The book concludes with a valuable and well-arranged bibliography and index. In every respect the work of the publisher sustains the high standard of excellence of the first edition.

Human Placentation. An Account of the Changes in the Uterine Mucosa, and in the Attached Fetal Structures During Pregnancy. By J. CLARENCE WEBSTER, B.A., M.D. (Edin.), F.R.C.P.E., F.R.S.E., Professor of Obstetrics and Gynecology in Rush Medical College. Pp. 185, with 233 illustrations. Chicago: W. T. Keene & Co. 1901.

This monograph by Dr. Webster is largely a résumé of the author's histological and embryological investigations of the structure and growth of the human placenta at different months, with an account of the changes in the uterine mucosa during pregnancy.

The author says that during the course of his investigations, carried on for eleven years, he has been able to examine the pregnant uterus during all months of pregnancy from the second to the ninth, in the three stages of labor, and during various stages of the puerperium, as well as a number of complete abortions. He has also examined the pregnant uteri at various stages in the mouse, rat, rabbit, guinea pig, pig, sheep and cow. A careful study was also made of the normal mucosa, of the corpus uteri in the nonpregnant state, in order to appreciate the changes which occur in pregnancy.

The writer has described in detail the valuable specimens which he has been able to acquire, and he compares his conclusions with those of Leopold, Peters, Minot, Reichert and others, although his deductions do not in many instances coincide with those of other observers. He agrees with Peters apparently with respect to the formation of the decidua reflexa, in that the young ovum, when it becomes attached to the uterine mucosa, rapidly sinks into the compact portion and continues to excavate laterally as well as deeply, and the overhanging portions of the mucosa thus formed form the decidua reflexa.

He says that the part played by the reflexa seems mainly to fix and steady the young ovum during its early life, while the placental circulation is being established, and that it probably also furnishes a little nourishment to the ovum through the chorion laeve, but this is of minor significance

and of brief duration. He says that the old and long-taught view that the chief degeneration of the decidua is of a fatty nature cannot be held. He believes that absorption of the decidua may take place directly into the maternal circulation, or by the agency of leucocytes, but there can be little doubt that it is also brought about by the agency of the fetal epiblast.

There are many interesting and too little understood subjects discussed by the author in his work on the development of the placenta, and the whole book is worthy of careful study. There is also in the work a chapter devoted to "The Shed Placenta," and another to the "Phylogeny of the Placenta."

In the book are a number of excellent illustrations, while at the end are 30 plates, comprising a large number of figures from drawings and microphotographs by the author. These represent a very large amount of work, but their value is limited because of the usual lack of clearness in reproduction, and also because of the small amount of descriptive matter given in connection with them.

The book is an attractive one, is well printed on heavy paper, and in itself is a valuable contribution to obstetric knowledge and literature; we are fortunate in having such a work published in English.

Atlas and Epitome of Obstetric Diagnosis and Treatment. By DR. O. SHAEFFER of Heidelberg. From the Second Revised German Edition. Edited by J. CLETON EDGAR, M.D., Professor of Obstetrics and Clinical Midwifery, Cornell University Medical School. Pp. 317, with 122 colored figures on 56 plates, 38 other illustrations. Philadelphia and London: W. B. Saunders & Co. 1901.

Atlas and Epitome of Labor and Operative Obstetrics. By DR. O. SHAEFFER of Heidelberg. From the Fifth Revised German Edition. Edited by J. CLETON EDGAR, M.D., Professor of Obstetrics and Clinical Midwifery, Cornell University Medical School. With 14 lithographic plates, in colors, and 139 other illustrations. Philadelphia and London: W. B. Saunders & Co. 1901.

These two volumes belong to Saunders' Medical Hand-Atlas Series which have been so successfully brought out in this country by this publisher. They are authorized translations of standard German works, and although in many respects essentially German, yet they are very acceptable in English, and are valuable reproductions for use in connection with more elaborate textbooks.

The two books on obstetrics are entirely separate volumes, one taking up mainly obstetric diagnosis and treatment, and the other labor and operative obstetrics. The work is insufficient for use as a complete textbook, for although the text is well written and well translated, and the directions for treatment generally conservative, it is much abbreviated, which also tends to lessen its

value for reference. Unfortunately, also, the classification of presentations and positions does not entirely correspond to modern teaching.

The chief value of this work over others of a similar kind, a number of which have been published, lies in its many illustrations, which have been used freely and judiciously and are among the best that have been produced. These are not simply reproductions from photographs taken indiscriminately, as is too often the case in modern books, but they are outline drawings and lithographic representations, many full-page size and accurately colored plates being used from well-selected subjects. Obstetrics is one of the branches of medicine in which much may be learned by a careful study of good illustrations, and therefore a work in obstetrics with really good pictures is to be warmly commended and should meet with a ready sale.

The chief point for criticism in this work lies in the arrangement of the text, explanatory and other notes being frequently inserted indiscriminately, in such a manner as to tend to confuse and disturb the reader. Such notes are best introduced at the bottom of the page rather than at the top or middle. The descriptive matter for the plates is very full and complete but is subject to the same criticism in the arrangement, in that it is placed upon another page from the plate, often requiring the turning of one or more leaves to find and read, a time-consuming procedure at least.

The books have in them much to commend, and the plates which they contain alone make their possession desirable.

The Extra Pharmacopœia. By WILLIAM MARTINDALE, F.L.S., F.C.S., and W. WYNNE WESTCOTT, M.B. Lond., D.P.H. Tenth edition, 688 pages. London: H. K. Lewis. 1901.

The success of this thick little book is due to its compactness and to the frequent revisions of its text. The essential pharmacological and therapeutic properties of all the useful drugs are described and references are given to important original articles. There is a good section on antitoxins, another on organo-therapy and analytical memoranda for the chemical and microscopical examination of urine and blood, bacteriological methods and directions for the preparation of culture media.

A Syllabus of New Remedies and Therapeutic Measures. With Chemistry, Physical Appearance and Therapeutic Application. By J. W. WAINWRIGHT, M.D., Member of the American Medical Association; New York State Medical Association, United States Pharmacopœial Convention, 1900; American Chemical Society, etc. Pp. 229. Chicago: G. P. Engelhard & Co. 1901.

We are glad to recommend this book to our readers. It contains a brief, clear and impartial account of the newest remedies and remedial agencies. In no other volume have we seen similar information so agreeably presented.

THE BOSTON Medical and Surgical Journal.

THURSDAY, AUGUST 29, 1901.

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LEGAL RIGHTS OF PHYSICIANS.

We have before found occasion to comment on the widely disseminated idea that a physician under certain circumstances is obliged to give his services, regardless of his own desires or interests. We are strongly of the opinion that physicians as a rule rarely fail to respond to calls made upon them, however irksome the occasion may be. This is usually done willingly and without ulterior motives as to recompense. In the minds of many of the laity, however, such services are regarded rather in the light of an obligation on the part of the physician than as a voluntary act. The attitude is that the physician must go to a case if called, whatever his wishes in the matter may be. No doubt physicians have brought this state of affairs, in great measure, upon themselves, by the alacrity with which they respond to demands made upon their skill and time. This is as it should be, and will unquestionably continue, as the usual attitude of the physician toward his work and his duty to the community. The matter, however, assumes a very different character when the physician's liberty is so far taken from him that he is liable to prosecution if he refuses to respond to each and every emergency call that may be made upon him. It is necessary, both for the good of the profession at large and for the ultimate welfare of the community, that a definite understanding should be reached. Test cases occasionally arise in which the physician is censured for his apparent neglect of duty, and in such instances the rulings of the courts are of great interest and importance in the final adjustment of the questions at issue.

A case bearing directly on the matter has recently been discussed by the Indiana Supreme Court. The circumstances were, in general, as follows: A person being dangerously ill, a doctor was called, but, for reasons not stated, he refused

to respond, and death resulted; the implication was, that had the physician responded promptly life might have been saved, especially since no other doctor could have been called in time to have been of service. Suit was brought against the doctor, and the counsel for the prosecution argued that under the Indiana statute, regulating the practice of medicine, a doctor was bound to render professional services to all who may apply. In the final ruling the Court entirely dissented from this point of view, and maintained that a physician is not liable for arbitrarily refusing to respond to a call, even though he is the only doctor available. The Court further said that "In obtaining the State's license (permission) to practise medicine, the State does not require, and the license does not engage, that he will practise at all, or on other terms than he may choose to accept."

This appears to be the only just attitude to take. However strong the moral law may be in such instances, and however we may be inclined to criticise a physician for declining his services in times of great emergency, the fact remains that he is a free agent, and can no more be compelled to attend a patient than a lawyer can be compelled to take a certain case. Furthermore, the moment compulsion comes in from without, the whole significance of a physician's work is lost; if his sense of duty is not sufficiently strong to urge him to self-sacrifice, it is perfectly apparent that he cannot be forced into paths of virtue by legal enactment. We need more cases similar to the one to which we have alluded, to determine the exact relation of the physician to his patients in the eye of the law. In the meantime it is gratifying to know that in Indiana there need be no further question regarding the legal independence of the physician, however reprehensible he may be morally.

JOURNAL OF MEDICAL RESEARCH.

The appearance of a new medical journal is not in itself remarkable in these days of zealous journalism. As in other matters, however, so especially in medical journalism, there is usually an opportunity and a place for new ventures, provided they are sufficiently good. It is no doubt presumptuous to judge from a single number of a new journal, and that the first, as to its permanent excellence and ultimate success, but we are inclined to think we are not in error when we give to the publication before us a high place of continued usefulness.

As stated in the editorial note which accompanies this first issue, the *Journal of Medical Research* is to be devoted to the prompt publication of original investigations in medicine. Numbers

will appear as rapidly as material accumulates. The journal is the direct continuation of the *Journal of the Boston Society of Medical Sciences*, though much widened in scope and changed in form, and will be supported by the society of which it was formerly the organ and by the newly-formed American Association of Pathologists and Bacteriologists. It is under the editorship of Professor Harold C. Ernst of the Harvard Medical School.

This first number is a thick volume of 297 pages, and represents essentially the proceedings of the American Association of Pathologists and Bacteriologists at the recent meeting held in Boston. The journal is excellently printed on unglazed paper, and is well illustrated with half-tone and heliotype plates and a few colored plates. A most satisfactory mean has been found between an appearance of cheapness, and unnecessary elegance.

With the constantly increasing amount of original work which is appearing from various laboratories throughout the country, there is no question that this new journal will find ample material for its continued and frequent publication. To contributors the most attractive feature of the prospectus is the promise of prompt publication. The desire for priority is a pardonable weakness, particularly when many men are working on the same or similar problems. Nothing is so annoying to an ardent investigator as the loss of recognition in a new field of research which comes from tardy publication. If the new journal can live up to its promise in this one respect, and we have no doubt it will, there certainly will be no lack of worthy contributions. We shall watch with interest the progress of the journal; it has arisen from small beginnings to its present estate, which should be indicative of a still greater future development.

AN EXCESS OF ZEAL.

It is well to have the courage of one's convictions, but there is also danger that enthusiasm may lead one too far, especially if unsupported by insufficient scientific knowledge. It has been reported, for example, that a certain dairy commissioner of Colorado, said to be a man of unusual health, has volunteered to have bovine tuberculous material injected into his body, to prove the correctness of what is now apparently known as the "Koch tuberculosis theory." Whether or not the experiment has been done, we do not know; we hope it has not, since it certainly would prove practically nothing if it had. Such extravagances are the natural result of periods of excitement such as this, which the popular interpretation of Koch's utterances seems to have aroused. The

demonstration must come through other channels than experimentation on human beings, and whether or not the dairy commissioner of Colorado is disinterested in his motives, he should be spared his useless martyrdom.

The experimentation on yellow fever appears to be a more serious question. Here the evidence obtained from the bites of infected mosquitoes is certainly of great scientific value, inasmuch as the experiments may be exactly controlled, and volunteers are apparently not lacking, who are willing to submit to the possibility of infection. Most unfortunately, however, several of the experiments are said to have resulted fatally. It is reported that of eight persons bitten by infected mosquitoes, three have died in Cuba within three weeks. We hope this report may be exaggerated or untrue; if it is not, there is in the statement ample food for reflection. Immunity gained at such a possible price is certainly not worth while. Further evidence is needed, and we hope may be forthcoming, to determine the nature and degree of virulence of the mosquito infection. The investigation is in the hands of competent men, who will no doubt be guided by experience in further experimentation, but we trust the list of deaths from voluntary infection may not be increased.

MEDICAL NOTES.

PLAGUE IN CHINA.—Plague is said to be epidemic in only a few places in Canton, but is widespread in the province of Kwang-Tung. Rev. John M. Foster, writing from Swatow, is reported as saying: "Some places are practically depopulated, all the people having fled to other towns or to temporary shelter in the fields or on the hill-sides. In one town back of Swatow numbering over 3,000 there are said to be only 200 or 300 now in the place. Last week a young man whom I sent to the town of Nam Leng, where they tried to open a market and failed, came in with the news that he was the only person left in the village. He urged them to bury the rats that died in their houses, but it is absolutely useless to attempt sanitary regulations with a lot of uninstructed people here."

APPOINTMENT OF DR. A. P. OHLMACHER.—Dr. A. P. Ohlmacher has been appointed professor of pathology in the Northwestern University Medical School (Chicago Medical College). Dr. Ohlmacher has been connected with the Pathological Laboratory of the Ohio Hospital for Epileptics at Gallipolis, Ohio, and will for the time being continue the direction of that laboratory. He is particularly known through his study of the pathological anatomy of epilepsy.

CUBA'S COMPARATIVE FREEDOM FROM DISEASE.—At the end of the first week in August there were said to be only five cases of yellow fever known to the authorities on the entire island, an unprecedented condition of immunity. The death-rate of Matanzas, where the conditions of health are not so favorable as in Havana, has been from 20 to 24 per 1,000 during the last few weeks. This is about the same as the death-rate of Washington and Baltimore.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Aug. 28, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 32, scarlatina 14, measles 11, typhoid fever 28, smallpox 3.

BOSTON MORTALITY STATISTICS.—The Board of Health reported a large increase in the mortality of children for the week ending Aug. 24 compared with the corresponding week last year. The total number of deaths reported during the week of children under 5 years of age is 128, of which 103 are children under 1 year, as against 87 and 69 respectively a year ago. The total number of deaths of children 5 years of age since July 1 is 681, of which 512 are of children under 1 year of age, as against 385 and 289 respectively a year ago. The mortality from cholera infantum since July 1, 113; diarrhea, 120; dysentery, 7. The total number of deaths for the week was 242, against 226 the corresponding week last year, showing an increase of 16 deaths, and making the death-rate for the week 219. Of this number 123 were males and 119 were females; 236 were white and 6 colored; 192 were born in the United States, 49 in foreign countries and 1 unknown; 50 were of American parentage, 171 of foreign parentage and 21 unknown. The deaths from consumption were 21, pneumonia 9, whooping cough 1, heart disease 15, bronchitis 6, marasmus 16. There were 9 deaths from violent causes. The number of children who died under 1 year was 103; the number under 5 years, 128. The number of persons who died over 60 years of age was 19. The deaths in public institutions were 78.

STATE COLONY FOR THE INSANE.—The State Board of Insanity is reported to have selected the site for the new State colony for the insane, authorized by the last legislature. The spot selected is in the towns of Gardner and Westminster. About 1,500 to 2,000 acres will be required for the purpose, and this has already been bonded. The ground is well situated on a ridge surrounding a natural basin, through which flows one of the tributaries of the Whitman River. Monadnock and Wachusett mountains are in sight, and there

are many minor elevations in close proximity. It has an elevation of 1,200 feet above sea level.

BEQUEST TO THE MASSACHUSETTS GENERAL HOSPITAL.—By the will of the late Henry Whitman the Massachusetts General Hospital receives \$10,000.

NEW YORK.

ARREST FOR MISCONDUCT IN PROFESSIONAL EMPLOYMENT.—The Second Appellate Division of the New York Supreme Court holds, in an action brought by Henry J. Haigh, Jr., to recover a sum which he deposited with Dr. George H. Martin as security for the payment of dental work, which the latter agreed to perform, that in the event of the dentist's refusal to do the work he is liable to arrest. The case, the court says, *per curiam*, falls within Subdivision 2 of Section 2,895 of the Code of Civil Procedure, providing that an order of arrest may be granted where the action is brought to recover damages for "misconduct or neglect in a professional employment, fraud or deceit," notwithstanding that the plaintiff, upon an inquest upon defendant's default, fails to prove an allegation of the complaint to the effect that the dentist was authorized and licensed in his profession.

DEATH-RATE IN NEW YORK STATE.—The mortality statistics for the year 1900, which have just been made public by the Census Bureau at Washington, show a gratifying reduction in the annual death-rate throughout the country during the past 10 years, a result attributed to local improvement in sanitary conditions and health regulations. For New York State the following figures are given: Annual death-rate per thousand inhabitants, 1890, 19.6; 1900, 17.9. Cities, 1890, 23.2; 1900, 19.2. Rural, 1890, 13.9; 1900, 15.2. New York City, 1890, 25.3¹; 1900, 20.4. From these statistics it would appear that in New York at least the rural districts had not kept pace with the cities in the march of improvement.

YELLOW FEVER ON AN INCOMING VESSEL.—When the steamship *Ethelbehta* arrived from Progreso on Aug. 21, it was found that one of the crew had died from yellow fever just before the vessel came into port. An autopsy was made at quarantine, and the diagnosis of the disease was confirmed. Several others of the crew who were suffering from febrile symptoms were sent to Swinburne Island for observation.

APPOINTMENT OF PROF. J. E. LOUGH.—Prof. J. E. Lough of Richmond, Ind., who for four years has been professor of physiology at the Wisconsin State Normal School at Oshkosh, has been appointed to the same chair in the University of the City of New York.

¹ Estimated.

Correspondence.

IMPRESSIONS OF THE BRITISH CONGRESS ON TUBERCULOSIS.

Boston, Aug. 27, 1901.

MR. EDITOR: As one of the comparatively few Americans attending the recent Congress on Tuberculosis, my individual impressions may be of interest to some of your readers.

First and foremost, it was a British congress. Foreigners were indeed present, and were prominent in the proceedings. They were listened to with attention, but the conclusions drawn and the resolutions passed were almost without exception designed to influence Parliament and the British people. It was the evident aim of the leaders to arouse both the laity and the medical profession of Great Britain to the importance of making a vigorous attack upon this scourge of humanity. Everything was arranged to carry out this idea,—the patronage of the King, the presidency of the Duke of Cambridge, and the co-operation of many distinguished members of both Houses of Parliament and the mayors of important cities, was secured. The Earl of Derby was president of the organizing council. Receptions were given by the Lord Mayor of London and by the Duke and Countess of Derby. River and garden parties by Sir J. W. Ellis and the Duke of Northumberland, and still another by the Ladies' Committee, under the patronage of the Countess of Derby, at the Botanical Gardens in Regent Park. Noble lords who presided at the meetings had to excuse themselves to hurry to Parliament to take part in the debates on national and international affairs. Speeches and general papers were often begun "My Lords, Mr. Chairman, Members of the Congress," etc. Conversation with nonprofessional members showed that they took not only great interest in their work upon the various committees, but also that they attached much importance to the actions and conclusions of the congress. Private houses, with their art collections, were thrown open to those taking part in the meetings, and everything was done to make the stay of the members while in London most attractive, and also to impress the people of England with the importance of the subject discussed.

Professor Koch's address was the dramatic episode of the week. From what I have said above, it will be seen that it was a discordant note. It had been expected that there should be one acclaim from the physicians, the great agriculturists, the laboratory workers, the milk producers and the veterinarians, which should compel public opinion, and here was an assertion which at once tended to diminish the force of the impression desired. Professor Koch's address was read at one of the great general meetings in St. James Hall, and made a most profound impression. After the paper had been read there was an impassioned protest against the conclusions presented. The subject of the communicability of bovine tuberculosis to man was discussed thence forward not only at the meetings and among the members, but in the hotel corridors and smoking-rooms. Why it should have been such a bombshell I cannot make out, nor why Professor McFadyean in his address, read the latter part of the week, should have begun by saying, "As recently as a few days ago . . . I was under the impression that it would not be necessary to formally prove that the term tuberculosis, as it is now employed by medical men and veterinary surgeons, relates to one and the same disease." Both Professors McFadyean and Sims Woodhead told me that they were familiar with the work of Professor Smith, and fully appreciated the value of whatever he might produce. Yet after these years they were not prepared to confirm or deny the conclusions which certainly might with fairness be drawn from his kindred work. The editorial in the JOURNAL for Aug. 15 voices to my mind the rational position to be taken in regard to the whole question. After the reading of Professor McFadyean's paper there was one event that

amused the Englishmen considerably, it being so typically American. This was the statement by Sir Jas. Crichton Browne, then presiding, that an American delegate was so impressed with the importance and the newness of Professor Koch's ideas that he had cabled them home and had just received the following reply: I quote from memory, "Cable received, matter considered, experiments begin tomorrow!" The general opinion in regard to Professor Koch's position, so far as I could gather, was "not proved" or "certainly too soon to draw the conclusions put forward."

The discussion regarding the uses of tuberculin also proved to be of decided interest. The papers were practically unanimous in favor of further trial, and full of reports of good results from its use. As one who took a very conservative position, I received after the meeting criticisms on the enthusiasm of several of the writers which, while interesting, are not repeatable. In this discussion Professor Koch showed to the greatest disadvantage. Having read a paper giving the results of his great experience, he was asked by a number of speakers what he meant by tuberculin—the old or the new? Which did he use for diagnosis and which for treatment? Could bovine tuberculosis be trusted in making diagnosis in human beings? etc. Not only were these questions repeatedly asked during the morning's session, but they were formally read by the chairman when calling upon Professor Koch to close the discussion. When he arose he spoke in German, though specially requested not to do so by the chairman. Several members made notes and attempted to report what he had said at the close of his remarks, but the accuracy of each reporter was denied. Apparently no one knew exactly what was said, if we may judge by the remarks of Professor v. Schrötter of Vienna, who the following day, after speaking of the ups and downs of tuberculin, called on Professor Koch to make a definite statement as to the exact composition of tuberculin, and the methods of its use. Certainly many left the room on the day of tuberculin discussion with the feeling that the distinguished professor had distinctly dodged the issue. And this I think tended to increase the distrust over the conclusions of the first address.

Professor Courmont found no supporters for his agglutination reaction in the serum of tuberculous patients, though he is still enthusiastic as to its value. Dr. Lydia Rabinowitch read of the negative results of a long series of experiments made in the laboratory in Berlin.

The treatment of tuberculosis in sanatoria was discussed with, for the most part, great unanimity of opinion. Especially noteworthy was a clear-cut, Scotch paper by Dr. Philip of Edinburgh, and well-chosen remarks by Dr. Jane Walker, taking up a side of the subject neglected by other speakers. She also read a paper on the following day upon the work at her own sanatorium. The position which has been held by Dr. V. Y. Bowditch was specially emphasized; namely, that eminently satisfactory results are obtained from sanatorium treatment, even in the so-called undesirable climates, such as near Edinburgh and London.

The papers regarding the French dispensaries for tuberculosis, one of which was presented by Professor Calmette of Lille, were full of suggestions to those who have to combat the disease in large cities and among the working men and women.

The museum contained an instructive collection of most beautifully prepared specimens, illustrating all phases of the pathological conditions arising from tuberculosis. Among the rarest were a set of no less than seven specimens of thoracic duct tuberculosis which were exhibited by Professor Benda of Berlin. There were also a collection of bacteria especially those of the tuberculosis group, as well as charts, architectural plans and photographs of recent hospitals and sanatoria. The catalogue of the museum was well printed and very complete, giving a full description of each specimen, as well as tables and statistics. This catalogue, the work of Dr. W. J. Horne, deserves special commendation.

It was unfortunate that there were not more well-known Americans present. The best known doctors—Janeway, Osler and Dock—have never been especially identified with the tuberculosis problems. Dr. Biggs of New York was also absent, and Drs. Knopf of New York, Otis of Boston and Denison of Colorado were perhaps the best known of the men from the United States for their work against tuberculosis. While registering, I heard earnest inquiry made for a well-known Boston man who was a vice-president, but he was not to be found. It is specially to be regretted that Prof. Theobald Smith was not present.

The banquet given to the foreign delegates at the Hotel Cecil was well arranged and most enjoyable. A novelty to me was the introduction of a professional crier who, dressed in a bright uniform, stood behind the chairman, Lord Derby, and when the attention of the company was desired would cry, "Silence! The Rt. Hon., The Earl of Derby speaks!" After the proposal of the toast or after the response he would again cry, "The toast is to the Queen!" And still later, after the toast had been drunk, he would lead the cheering. The speeches were complimentary for the most part, a few only rising above the commonplace. The American respondent unfortunately used the occasion to introduce some set resolutions of appreciation of the congress, and the whole fell decidedly flat.

My jolly Scotch neighbor, in gossiping over various people, things and places, said that Professor Koch had told him, in conversation a few evenings before, that the place where medical problems were being attacked with the greatest vigor and in the most scientific spirit was in the laboratories of the medical schools and hospitals of America. Another thing pleasing to a Bostonian was that Professor Grawitz, when asked what book upon the blood he would recommend, had said that there was none better than Cabot's.


As I have intimated, the details of the congress were admirable, the papers and abstracts appearing on the day of delivery on the tables in Queen's Hall. Among the pleasant features of the occasion were the informal lunches after the morning sessions, many of the physicians keeping open house and inviting strangers to come home and lunch with them and thus have a chance to get acquainted with the delegates. There was much more than the most industrious person could do or see in the week's time, and my only regret is that there were not more than thirty or forty Americans present at this most interesting occasion.

Very truly yours,

A. K. STONE, M.D.

METEOROLOGICAL RECORD

For the week ending Aug. 17, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather		Rainfall in inches.	
	Daily mean.	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather			
			Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.		8.00 P.M.	Rainfall in inches.
S...11	30.00	80	87	72	82	54	68	W	N	9	4	C.	F.	.05
M...12	30.08	68	75	62	87	90	88	E	N	9	6	O.	R.	.02
T...13	30.12	67	72	62	83	77	80	E	S	9	9	C.	C.	†
W...14	30.03	70	76	63	87	88	86	S	E	6	12	O.	C.	†
T...15	29.55	69	75	62	96	91	94	S	S	3	12	O.	F.	†
F...16	29.94	77	85	69	71	62	66	W	W	12	5	F.	F.	†
S...17	29.96	74	86	63	64	83	74	W	S	10	10	F.	O.	†
	30.01		80	65			80							.11

* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threatening; N, snow. † indicates trace of rainfall.
☞ Mean for week.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, AUG. 17, 1901.

CITIES	Estimated population.	Reported deaths in each.	Percentage of deaths from					
			Deaths under five years.	Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrhœal diseases.	Diphtheria and croup.
New York	3,437,202	1,514	760	45.34	5.81	7.0	29.36	1.78
Chicago	1,698,555	—	—	—	—	—	—	—
Philadelphia	1,230,697	297	197	27.61	6.51	4.34	6.90	1.77
St. Louis	575,228	—	—	—	—	—	—	—
Baltimore	568,957	218	98	34.40	3.21	4.13	20.18	1.35
Cleveland	381,508	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	—	—	—	—	—	—	—
Washington	275,718	—	—	—	—	—	—	—
Milwaukee	252,415	69	26	37.50	—	1.45	24.65	2.90
Providence	175,507	—	—	—	—	—	—	—
Boston	560,892	233	163	24.89	3.86	1.29	3.90	—
Worcester	118,421	29	23	22.78	—	—	30.49	—
Fall River	101,863	45	34	26.36	—	—	40.09	—
Lowell	94,969	45	23	25.77	1.44	—	28.88	5.45
Cambridge	91,886	28	10	35.71	—	3.57	25.00	—
Lynn	68,513	23	11	26.09	4.54	4.54	17.39	—
Lawrence	62,699	20	15	40.00	—	—	26.36	—
New Bedford	62,432	25	19	40.00	—	2.85	40.00	—
Springfield	62,059	26	9	26.92	7.69	—	11.53	—
Somerville	61,043	14	7	25.70	—	—	25.70	—
Holyoke	45,712	20	10	40.00	5.00	—	15.00	15.00
Brookton	40,063	8	2	25.00	12.50	—	12.50	—
Haverhill	37,475	10	3	30.00	10.00	—	—	—
Salem	35,366	11	11	60.00	—	—	40.02	6.06
Chelsea	34,072	11	7	30.99	—	—	—	—
Malden	33,664	13	5	38.50	7.70	7.70	23.10	—
Newton	33,587	7	4	42.90	—	—	42.90	—
Fitchburg	31,531	9	4	—	—	—	—	—
Taunton	31,066	—	—	—	—	—	—	—
Glooucester	26,121	12	3	16.67	—	—	—	8.33
Everett	24,536	9	3	11.11	—	—	—	—
North Adams	24,200	8	3	37.50	—	—	25.00	—
Quincy	20,818	11	3	27.27	—	—	15.15	—
Waltham	20,481	8	3	37.50	12.50	—	12.50	—
Pittsfield	21,766	6	2	33.33	—	—	—	—
Brookline	19,335	—	—	—	—	—	—	—
Chicago	19,317	1	1	42.90	—	—	42.90	—
Medford	18,244	1	—	—	—	—	—	—
Newburyport	14,478	8	1	12.50	—	—	12.50	—
Melrose	12,262	7	2	28.60	—	—	—	—

Deaths reported 3,147; under five years of age, 1,457; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrhœal diseases, whooping cough, erysipelas, fevers and consumption) 1,298, acute lung diseases 135, consumption 345, scarlet fever 19, erysipelas 1, typhoid fever 64, whooping cough 33, cerebrospinal meningitis 16, smallpox 7, measles 3.

From whooping cough, New York 13, Philadelphia 11, Baltimore 2, Pittsburg 1, Boston 3. From cerebrospinal meningitis, New York 7, Boston 3, Pittsfield 2, Springfield, Everett, Melrose and Southbridge 1 each. From scarlet fever, New York 9, Philadelphia 1, Pittsburg 2, Providence 1, Boston 1, New Bedford 1, Brockton 1. From typhoid fever, New York 12, Philadelphia 2, Baltimore 9, Pittsburg 10, Providence 1, Boston 3, Cambridge 1, Lynn, New Bedford, Haverhill and Malden 1 each. From smallpox, New York 6, Philadelphia 1. From measles, New York 2, Boston 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,623,626, for the week ending Aug. 3 the death-rate was 22.91. Deaths reported 13,250; acute diseases of the respiratory organs (London) 125, whooping cough 56, diphtheria 69, measles 120, fever 20, scarlet fever 43.

The death-rate ranged from 9.7 in Croydon to 33.0 in Gateshead; Birkenhead 21.9, Birmingham 25.0, Blackburn 22.0, Bolton 21.7, Bradford 18.1, Brighton 17.3, Bristol 13.1, Cardiff 11.7, Derby 21.6, Halifax 11.1, Hull 19.0, Leeds 29.6, Leicester 21.8, Liverpool 30.2, London 29.0, Manchester 29.2, Newcastle-on-Tyne 31.7, Norwich 15.1, Plymouth 14.9, Portsmouth 29.1, Preston 37.7, Sheffield 28.1, Swansea 11.9, West Ham 31.0, Wolverhampton 11.6.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING AUG. 10, 1901.

F. J. B. CORDEIRO, surgeon. Ordered to the Pensacola Navy Yard.

D. H. MORGAN, passed assistant surgeon. Detached from the Pensacola Navy Yard and ordered to the Naval Hospital, Norfolk, Va.

FOR THE WEEK ENDING AUG. 17.

F. ROGERS, medical inspector. Detached from the "Brooklyn" and ordered home.

J. E. GARDNER, surgeon. Detached from the Naval Hospital, Cavite, P. I., and ordered to the "Brooklyn" temporarily.

M. S. ELLIOTT, passed assistant surgeon. Detached from the "Annapolis" and ordered to the "Kentucky."

E. M. SHIFF, passed assistant surgeon. Ordered to the Cavite Naval Station.

W. H. CLARK, assistant surgeon. Detached from the "Glacier" and ordered to the "Annapolis."

W. E. G. HIGGS, assistant surgeon. Detached from the "Kentucky" and ordered to the "Glacier."

J. T. KENNEDY, assistant surgeon. Detached from the Marine Brigade and ordered to the "Brooklyn."

H. E. ODELL, assistant surgeon. Detached from the Naval Hospital, Cavite, P. I., and ordered to duty with the Marine Brigade.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING AUG. 15, 1901.

GEDDINGS, H. D., passed assistant surgeon. Granted leave of absence for 1 month and 15 days from Aug. 15, Aug. 15, 1901.

GARDNER, C. H., passed assistant surgeon. Granted leave of absence for 14 days from Aug. 17, Aug. 9, 1901.

GRUBBS, S. B., assistant surgeon. Granted leave of absence for 3 days from Aug. 12, Aug. 9, 1901.

ANDERSON, J. F., assistant surgeon. Relieved from duty at Liverpool, Eng., and directed to proceed to New York, N. Y., and await orders. Aug. 13, 1901.

LORR, C. E. D., assistant surgeon. Granted leave of absence for 7 days under paragraph 178 of the regulations. July 7, 1901.

GOLDSBOROUGH, B. W., acting assistant surgeon. Granted leave of absence for 7 days from Aug. 11, Aug. 13, 1901. Granted leave of absence for 21 days from Sept. 5, Aug. 13, 1901.

PRIMROSE, R. S., acting assistant surgeon. Granted leave of absence, on account of sickness, for 21 days from Aug. 10, Aug. 10, 1901.

ROBINSON, S. D., acting assistant surgeon. Granted leave of absence for 30 days from Aug. 5, Aug. 10, 1901.

HANRATH, F. R., hospital steward. Granted leave of absence for 10 days from Aug. 12, Aug. 13, 1901.

WALLIUS, M., hospital steward. Granted leave of absence, on account of sickness, for 23 days from Aug. 8, Aug. 14, 1901.

SOCIETY NOTICES.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—The twenty-seventh annual meeting of the Mississippi Valley Medical Association will be held at Hotel Victory, Put-in-Bay Island, Ohio, Sept. 12, 13, 14, 1901.

ROENTGEN SOCIETY OF THE UNITED STATES.—The second regular meeting will be held at Buffalo, N. Y., Sept. 10-11, 1901.

APPOINTMENTS.

The following appointments have been made at the Massachusetts Charitable Eye and Ear Infirmary: Dr. Edwin E. Jack, Ophthalmic Surgeon; Drs. Edmund W. Clap, Fred M. Spalding and A. Gardner Morse, Assistant Ophthalmic Surgeons; Dr. George A. Webster, Assistant Aural Surgeon.

BOOKS AND PAMPHLETS RECEIVED.

The Alleged Increase of Cancer in Massachusetts. By William F. Whitney, M.D., of Boston. Illustrated. Reprint. 1901.

Foreign Bodies in the Rectum, With Report of a Case. By Lewis H. Adler, Jr., M.D., of Philadelphia. Illustrated. Reprint. 1901.

Primary Pharyngeal and Laryngeal Tuberculosis. Two Cases Cured. By J. W. Gleitsman, M.D., New York. Reprint. 1901.

The Earliest-Autumnal (Remittent) Malarial Fevers. By Charles F. Craig, M.D. Illustrated. New York: William Wood & Co. 1901.

Perforatus Anl, With Especial Reference to Its Local Treatment. By Lewis H. Adler, Jr., M.D., of Philadelphia. Reprint. 1901.

Original Articles.

UNDER WHAT CIRCUMSTANCES (EXCEPTING EMERGENCIES) IS IT DESIRABLE TO OPERATE UPON GALLSTONES FOR RADICAL CURE OR FOR RELIEF?¹

BY MAURICE H. RICHARDSON, M.D., BOSTON.

A CONSIDERATION of the surgery of gallstones is practically a consideration of operations for radical cure. Operations for relief are to be considered in those rare instances in which, as the result of prolonged ulceration in the common duct, a stricture is formed after expulsion of the stone—causing permanent jaundice. Such a lesion can be remedied only by cholecystenterostomy, or possibly by providing a new outlet for the duct above the stricture into the duodenum. And yet this rare lesion is not to be discussed in connection with the palliative treatment of gallstones, for the gallstone has escaped. It is one of the remote ill effects which gallstones occasionally produce, and for the prevention of which early operations upon gallstones are desirable.

The removal of gallstones as a palliative measure may be demanded in hopeless diseases associated with gallstones,—cases in which the suffering is dependent largely upon the gallstones themselves, or is at least aggravated by them. Removal of such gallstones is radical with reference to the gallstones, but palliative with reference to the hopeless disease. In a strict sense no palliative operations are possible upon gallstones themselves; they either are removed or they are not. The scope of this paper, however, does not include a discussion of the palliation of malignant or otherwise hopeless disease by the removal of pain-causing gallstones. Suffice it to say, that under some circumstances such a procedure may be justifiable.

The proposition to be discussed in the following pages is as follows: Gallstones should be removed at the earliest favorable moment after the diagnosis has been made, unless there are contraindications in other viscera or in the patient's general condition.

Inasmuch as the diagnosis of gallstones can be made only when they begin to offend (excepting of course during abdominal operations for other causes), gallstones should be removed either as soon as they begin to offend or at the most favorable period after their immediate ill effects have had time to subside. By the earliest favorable moment I mean that period of time when there is no infection of the gall bladder to contaminate the field, no impaction in the common duct to increase the difficulties and dangers of dissection, and no jaundice to induce hemorrhage or to impair the patient's power of recovery. In many cases the favorable moment follows recovery from the disturbances of a transitory biliary colic unattended by jaundice; in others it follows the dis-

appearance of jaundice after passage of the stone; in others, the subsidence of fever and other signs of a biliary affection. In all cases of jaundice one should wait a reasonable time for that favorable moment, in the hope that the stone may escape from the common duct into the duodenum, and that bile may reappear in the stools.

The arguments in favor of this proposition are:

(1) The operation is as a rule easy and safe, and all stones are quickly removed.

(2) The remote dangers of gallstones are either avoided or lessened. These are serious disabilities, grave emergencies and malignant disease.

(3) If the diagnosis of gallstones proves to be wrong, other lesions may be discovered and remedied,—lesions perhaps even more serious than those of gallstones.

(4) Late operations upon gallstones are, as a rule, difficult and dangerous. Operations made imperative by progressive and lethal symptoms must be performed under great disadvantages and dangers; the gallstones are generally more inaccessible, the dissections deeper, and the patient's power of resistance lessened.

Against the proposition are the following arguments:

(1) There is some danger in the operation, though it is but slight.

(2) The diagnosis may be wrong, and the exploration unnecessary.

(3) There is the possibility of hernia in the scar.

(4) There is the possibility that gallstones may recur.

(5) There is the possibility of spontaneous cure.

(6) There is also the possibility that, after offending enough to prove the diagnosis, gallstones may give no further trouble.

(7) The last and decisive attack of biliary colic may have been caused by the last remaining gallstone, exploration showing that none of them remain.

Unfortunately, the manifestations of gallstones are extremely varied. We cannot assume that the early-diagnosed cases are of the simple, easily accessible and safely operable kind, and the late of the inaccessible and dangerous kind; for the very earliest manifestations of gallstones may place some of the cases immediately in the dangerous category, whereas the latest may place them in the simplest and most easily operable variety. The arguments of simplicity and safety in operations performed as soon as the diagnosis is made will, therefore, not apply in cases of common duct impaction, for the operation will not be either easy or safe. Moreover, the late operations will not be necessarily hazardous in all cases, for the gallstones may be confined to an easily accessible gall bladder. Presumably, however, gallstones when they begin to offend are confined to a normal or comparatively normal gall bladder in a patient of good general condition, while later in their history they will be deeply situated in patients of poor general condition.

¹ Read by invitation before the Massachusetts Medical Society, June 11, 1901, as a part of the general topic, "In What Cases of Diseases of the Alimentary Tract, Not Emergencies, Should Operation be Advised for Relief or Cure?"

(1) Gallstones should be removed at the earliest possible moment after the diagnosis is made, in the absence of contra-indications, because the operation is as a rule easy and safe, rapid and effectual.

This argument needs no amplification to those familiar with the surgery of gallstones. To those who are not familiar with the operative treatment of gallstones, it should be said that when the gallstones are confined to the normal gall bladder, it is always possible to bring the gall bladder to the wound, and to remove the gallstones without contamination of the field, except, perhaps, to a very slight degree. If bile does escape into the field of operation, that bile is usually sterile, and does no harm. The gall bladder can be stitched to the abdominal wound, and it can be drained as long as desirable. The mortality is so small in healthy individuals that it need hardly be considered. The danger is less than that of the passage of a single stone from the gall bladder to the duodenum, and it is less than the danger, constantly present, of infections of the gall bladder through the irritation of the gallstones themselves. Robson has recently stated that he has never lost a case of cholecystotomy for gallstones undertaken under these circumstances. Though my experience is much smaller than Robson's,—probably not over a hundred operations that belong to this category,—I have had in simple cholecystotomies no deaths whatever. It is safe to say that such is the experience of most operators.

In the great majority of cases the diagnosis of gallstones depends upon repeated attacks of biliary colic, the history often embracing many years. The application of common-sense principles of surgery is fortunately diminishing the number of cases of prolonged and repeated gallstone attacks. Patients now do not wait until they are compelled to submit to operation by unbearable pain and ever-increasing disability. Still, in far too many cases the favorable moment is lost by waiting through many recurring attacks of pain for the diagnosis of gallstones to be made. When operation is undertaken after a few attacks, and when there have been no periods of prolonged jaundice; when, if there has been jaundice, it has entirely disappeared at the time of operation, the gallstones, if any remain, will be found in the gall bladder, and the case will probably belong to the category of the safe, easy and successful operations. When the very first attack of biliary colic is quickly followed by a permanent jaundice, if the diagnosis is at once made and the patient at once operated upon, the prognosis is still favorable, because the great changes wrought in the gall bladder and the contiguous viscera by prolonged cholelithiasis will not have taken place. The gall bladder will be but little changed; its walls will be elastic, distensible, easily attached to the abdominal wound; and there will be no adhesions about it. Dissection and isolation of the common duct will be easy; crushing of the stone in the duct between the thumb and finger will

often be feasible because of the presumable softness of a recently formed stone.

In some rare instances a stone of great size and of great age that has lain innocuous, perhaps for many years, will give the first signs of its presence by obstruction to the biliary flow. Jaundice—perhaps without pain, or with merely a feeling of distress—will be the only symptom upon which to base an opinion. The diagnosis in such cases is always doubtful. Often the surgeon will find malignant disease of the pancreas, cancer of the gall bladder, or some other hopeless condition. The argument of safety, feasibility and success will not apply to such a case; the operation may be of the greatest difficulty, the greatest magnitude, and the greatest danger. Still, great as the difficulties and dangers of this operation must be, they will be less if the operation is performed as soon as the diagnosis is made, than if it is performed at a later time.

(2) Because the remote dangers of gallstones are either avoided or lessened.

The remote dangers of gallstones are not sufficiently appreciated. Many of those who oppose the surgical treatment of gallstones as a routine measure do so because gallstones which have given no sign of their presence are so frequently found at the autopsy table. I doubt if those who rely upon the records of autopsies for this argument appreciate that other argument, demonstrated so frequently upon the operating table, that the remote effects of gallstones may be—and frequently are—of the most serious and lethal nature. I have not often seen these things demonstrated post-mortem, but I have so many times demonstrated them myself at operations that I am deeply impressed by their significance. When gallstones begin to offend, in many instances they do so by infection of the biliary passages. The proportion of cases of infection it is impossible to give, but I have no doubt that it is a large one. The infection is not necessarily a serious one; it doubtless often exists without marked symptoms. Gallstone attacks, accompanied by fever and tenderness in the gall bladder, are in reality infections of the gall bladder. These infections result, in some cases, in an acute cholecystitis of the most serious character, often ending in abscess of the gall bladder or in gangrene and rupture. In the great majority of cases, however, it results in a subacute inflammation, with thickening of the gall bladder walls, and a peritonitis with adhesions to contiguous viscera. In many cases the thickened and friable gall bladder is found contracted upon gallstones, and contains also highly infectious fluids. In such cases it is impossible to bring the gall bladder to the abdominal wound; moreover, the walls are so friable that they do not permit suture. Removal of a stone from such a gall bladder makes the field septic, for the gall bladder contents are septic. The dangers of peritonitis are much increased; the dangers of hemorrhage are much increased, especially if the patient is jaundiced; the danger of shock and exhaustion are much increased. The blood vessels

are friable; the mucous membrane bleeds freely; the bleeding may be hard to check,—it may even be fatal, especially if the patient is jaundiced. Plastic operations upon the gall bladder are impossible. Adhesions to the stomach, to the pylorus, to the duodenum, to the liver, to the transverse colon, are sometimes so firm that isolation of the gall bladder and of the common duct is extremely difficult and bloody.

A not uncommon remote effect of this condition is malignant disease. I have seen—time and again—a malignant tumor filling the gall bladder and confined apparently to it. I have seen the liver a mass of malignant disease starting presumably in luxuriant new growths bursting from the gall bladder itself.

In many instances the gall bladder shows evidences of having discharged a stone by direct ulceration through its walls into the duodenum, with subsequent spontaneous cure. In many the ulceration leads directly into the peritoneal cavity and causes fatal peritonitis; in some it results, through adhesions, in abscess of the abdominal wall and expulsion of the stone.

Remote changes in the common duct, in the hepatic duct, in the liver, dependent upon gallstones, are too frequent to need comment. Infectious processes, if they do not invade the gall bladder, may extend into the radicles of the hepatic duct. In impactions of the common duct the hepatic and common ducts above the impaction are dilated and thickened, and the walls friable. The gentlest manipulations sometimes tear them, so that suture is difficult, if not impossible.

Finally, owing to gallstones, there are those changes in the pancreas, the nature of which we know as yet so little, but which recent investigations seem to prove of the utmost importance—acute and chronic pancreatitis, pancreatic hemorrhage and fat necrosis.

A condition of the most serious nature, directly dependent upon gallstones, we see in the constitutional effects of jaundice. When, as the result of impactions in the common or in the hepatic duct, the patient has suffered for many months from profound jaundice, the operation will present unusual difficulties; removal of the stone will require the deep, extensive, and hazardous dissections of choledochotomy; incision into the duct will endanger the portal vein and other structures; repair of the incised duct will demand great patience and manual dexterity; and, finally, these dangers will be imposed upon a patient so depressed by prolonged jaundice as not easily to withstand them. Worst of all, the surgeon may be confronted by that grave complication of surgery—hemorrhage—and possibly a hemorrhage which he will be unable to control.

To illustrate some of the foregoing statements by recent examples: I recall the death of a strong man of middle age within the past year from uncontrollable capillary hemorrhage after the removal of a stone from the common duct. Years ago I drained the gall bladder for acute infection.

In 1900 I removed a stone from the cystic duct without detecting anything in the common duct. A persistent biliary fistula, with absence of bile from the stools, proved an obstruction of the common duct, where, in 1901, I found the stone and removed it. Not a single spurting artery was met with in the dissection. As the operation progressed, however, every capillary began to bleed. As fast as the bleeding points were tied, others appeared. The man died in the course of 24 hours, of capillary oozing, which we were unable to check.

Within the last six weeks I have operated for gallstones, and have found them associated with cancer of the gall bladder. The operation was followed soon by a disseminated carcinomatosis which proved fatal. In another case six stones were removed from the common duct (operation in Springfield on June 5), and three large stones from a contracted gall bladder. Another was crushed in the common duct between the fingers. This patient died of exhaustion on the third day. In June (in Newton) I removed an apparently malignant gall bladder which contained a single gallstone and a dark lardaceous substance resembling inspissated pus mixed with fat. Dr. Whitney reported the gall bladder nonmalignant. This patient has made a splendid convalescence.

In all these cases there had been long-standing symptoms of gallstones; there had been repeated attacks of pain. The gall bladders were contracted, thickened, friable; the parts were glued together, and everything was obscure. The operations were of the greatest difficulty. There was no chance whatever of spontaneous cure. If these patients had been operated upon early, the conditions found at the time of operation would have been very different, and the operations undoubtedly successful. This is the kind of operation to which the palliative treatment of gallstones drives the patient. It is in this formidable class that the danger and the mortality lie. Unfortunately, the responsibility for failure is placed too often at the surgeon's door,—where it surely does not belong.

(3) If the diagnosis of gallstones proves to be wrong, other lesions may be discovered and remedied,—lesions perhaps even more serious than those of gallstones.

The strength of this argument lies in the difficulties of exact diagnosis, when the symptoms point to the epigastrium and right upper quadrant. The diagnosis of gallstones is in typical cases easy,—dependent upon a history of repeated biliary colics, with or without jaundice. The diagnosis, however, even in cases which are apparently the plainest, may be mistaken, unless, after a transitory colic, one or more gallstones are found in the stools. Even when the diagnosis of gallstones is apparently proved by the discovery of them in the stools, there may exist other lesions as serious as that of the gallstone itself,—or even more serious:—acute or chronic pancreatitis, gastric ulcer, duodenal ulcer, obstructions at the pylorus, new growths, faulty adhesions.

The wider a man's experience in actually exploring the regions of the gall bladder and pylorus, the more he is impressed by the difficulties of exact discrimination between lesions in this locality causing pain. If, then, it is maintained that explorations should be made as soon as the diagnosis of gallstones is made, it becomes important to discuss those lesions which may be found in case the diagnosis of gallstones is wrong. If under that mistaken diagnosis exploration should prove invariably harmful or even useless, the possibility of such mistake would be, in doubtful cases, a strong argument against exploration. Fortunately, some good will be accomplished by the exploration, even if the supposed cause—gallstones—is not present, for there are few causes of pain simulating gallstones strongly enough to justify a diagnosis which in themselves do not sooner or later demand operation. Many of them require operation at the earliest possible moment, if operation is to be of any real benefit. To this category belong, for example, tumors of the pylorus, of the gall bladder, of the intestine, and even of the kidney. In my last service at the Massachusetts General Hospital I explored in one case the region of the gall bladder for frequent attacks of intense pain. No lesion whatever was found, except a flattened tumor of the anterior wall of the pylorus. The tumor, which I removed by resection of the pylorus, proved to be a beginning carcinoma. It was, as I say, at its very beginning, and was a flattened, warty growth which suggested the keratosis of the back of the hand seen years before the characteristic appearances of epithelial cancer have shown themselves. The exploration in this case gave the young woman—she was only twenty-one—the very best chance to escape the horrors of pyloric cancer. The diagnosis of gallstones was never positive; but it led the surgeon directly to intervention at the most favorable moment in pyloric cancer.

In a patient with supposed tumor of the gall bladder dependent upon gallstones I found a pyonephrosis, with completely disorganized kidney. Operation on the kidney was brilliantly successful, and the patient remains well. In several instances exploration has shown constriction of the pylorus.

I have never met with duodenal ulcer or other disease of the duodenum suggesting gallstones; but there is always this possibility to be borne in mind.

Early explorations will occasionally show a tumor of the gall bladder itself, admitting of extirpation, or a tumor of the liver close to the gall bladder. In one instance I found, on exploring what was supposed to be a diseased gall bladder, a carcinoma of the hepatic flexure of the colon, and this at a stage when extirpation was quite feasible.

More important, perhaps, than any other lesion suggesting gallstones, and relieved by operation, are the chronic inflammations of the pancreas. I have found in a number of patients what seemed to be a tumor of the pancreas associated with a jaundice supposed to be the result either of gall-

stones or of pancreatic cancer. A hard, irregular tumor at the head of the pancreas, perceptible by palpation after opening the abdomen—especially if the history has been one of jaundice and emaciation without pain—has always seemed sufficient evidence of pancreatic cancer to justify abandonment of the operation. The experiences of the past year have led me to suspect that, in some of these cases at least, the evidence obtained by palpation is insufficient to establish the diagnosis of cancer; that jaundice and its accompanying symptoms may be due to the impaction of a stone in that part of the common duct surrounded by the head of the pancreas, and that the stone there impacted may cause a sensation of irregularity and resistance very strongly suggestive of malignant disease. I fear that I may have left the patient unrelieved in several of these cases. In a recent one (June 5) at Springfield, a patient of Dr. Chapin's, after removing several stones from the gall bladder, and six from the common and hepatic ducts, I felt in the head of the pancreas a hard and irregular tumor that seemed to be a nodule of cancer. I was determined to be sure, however, and found after repeated manipulations, that this tumor was caused by the impaction of several gallstones in the pancreatic portion of the common duct. One of these I squeezed back and out of the incision; the others I crushed between my thumb and fingers into a mass of fine detritus, and delivered in the same manner. After this procedure the head of the pancreas felt perfectly normal. This patient died of exhaustion on the third day.

In another case, operated upon in Fall River, in May, 1901, I felt a similar tumor in the head of the pancreas. This hard mass resolved itself into a doughy one after manipulations with the thumb and forefinger, and demonstrated the probability of an impacted stone at that point. Renewing a few moments later the process of crushing, I could feel nothing whatever. This fact led me to believe that the detritus had all passed into the duodenum. This patient is now well.

In another case, already published in the *Philadelphia Medical Journal* of Oct. 6, 1900, I found on exploration a large tumor of the head of the pancreas. The symptoms had been pain and transitory jaundice, and there was an ill-defined resistance near the usual situation of the gall bladder. The diagnosis was gallstones, but no suspicion of involvement of the pancreas was entertained. When exposed, the suspected gall bladder proved to be an enlarged and resistant pancreas. The tumor, which involved chiefly the head of the pancreas, was supposed to be carcinoma and inoperable, though no actual demonstration of the tumor was made other than by digital exploration. A few small gallstones were removed from the gall bladder, and drainage was established. This operation was performed before the publication of Robson's article on the subject of chronic pancreatitis, and I was therefore much gratified, when discussing the subject with him

shortly afterward in London, to be assured that there was a possibility in the case of a permanent recovery after temporary drainage of the gall bladder. The patient has made a brilliant and thus far permanent recovery.

I could bring forward many other cases tending to prove the truth of my proposition. It seems, however, needless to go further in establishing what experience and common sense show; that the practical application of this proposition would mean the safest and most efficacious remedy at the earliest possible moment, not only for gallstones and for their immediate and remote effects, but for tumors of the pylorus, benign and cancerous; for extensive and faulty adhesions of the parts about the gall bladder, the liver, the stomach, the pylorus, the duodenum, the colon; for ulcers, and other affections of the duodenum; for new growths of the gall bladder itself; for tumors of the liver simulating tumors of the gall bladder; for tumors—benign and cancerous—of the hepatic flexure of the colon; for acute and chronic diseases of the pancreas suggesting gallstones; for tumors of the kidney simulating tumors of the gall bladder. With the exception of diseases of the duodenum, I have found and, in cases not essentially hopeless and not too far advanced, have been able to remedy, all these lesions, when the diagnosis has been perhaps as much in favor of gallstones as of the exact disease found.

(4) Late operations upon gallstones are difficult and dangerous.

Every one experienced in the surgery of gallstones will admit, I think, that the mortality in gall bladder surgery is almost wholly confined to those cases in which intervention is a late or a last resort. Many physicians, however, who perhaps have not seen much of the surgical treatment of gallstones in their early stages have been led to believe that the large mortality is the result of the operation rather than the result of delay. Such must be reminded, again and again, that all surgical measures—no matter how trivial in themselves—may be extremely dangerous when made imperative by certain conditions dependent upon gallstones.

The common source of increased danger is jaundice, which enfeebles the patient, induces hemorrhage, and in other ways increases the risk and the mortality of operations. In prolonged jaundice the patient may succumb, in the natural evolution of the disease, to hemorrhage from the mucous membranes, to secondary disease of the kidneys, or to acute affections, which in a state of health the patient could easily withstand. If operated upon, he may die from excessive and uncontrollable capillary hemorrhages. A second source of increased danger is the extensive dissections necessary for the removal of gallstones from the deep biliary passages. Furthermore, these dissections must be made during the systematic depression of more or less prolonged jaundice, as a rule, in close contiguity with the portal vein, the inferior cava, the pylorus and the duodenum. They are especially hazardous if the long-contin-

ued presence of gallstones has resulted in the formation of firm and dense adhesions. In a word, the operations are in themselves more difficult and extensive, the patient's power of resistance diminished, and the mortality therefore increased.

On the other hand, when the hepatic and common ducts are free, late operations upon the comparatively normal gall bladder may be as easy and as safe as operations performed as soon as the diagnosis is made. When, however, as the result of prolonged gallstone irritations, the gall bladder is contracted and friable, when its walls are thickened and adherent, when its contents are infected and purulent, the dangers are great, not only from the increased technical difficulties, but from the liability to wound infection and to peritonitis.

In many instances it may be necessary to remove the gall bladder entirely. This operation, though usually successful, is often difficult, and may be fatal. In one of my cases death followed total extirpation of a contracted and thickened gall bladder. Even if extirpation is not indicated, the contracted gall bladder must be drained after removal of its stones. Removal of gallstones from a long-inflamed gall bladder is not always easy. I have found hour-glass contractions requiring lateral and difficult incisions, stones encapsulated in ulcerated and thin-walled diverticula, stones impacted deep in the cystic duct, abnormalities of position in the gall bladder itself, with adhesions so dense and thick that dissections were necessarily blind and hazardous. In one instance attempts to remove an impacted stone through a contracted gall bladder resulted in the escape of the stone through the walls of its nidus into the depths of the subphrenic space, whence it was removed with the greatest difficulty,—an operation of the most formidable kind, and one which proved fatal. The physician who sent me this patient had previously referred to me an old lady with jaundice. Her gall bladder was empty, and a permanent biliary fistula followed cholecystotomy. She had some obstruction in the common duct, which the operation failed to relieve, and she never quite forgave the surgeon, though the operation, by relieving the jaundice, even at the expense of a biliary fistula, prolonged her life. Based upon these two cases, a physician's experience might well make him skeptical about the late gall bladder surgery, though it should be a potent argument in favor of early. Even, however, in the late operations upon the inflamed and contracted gall bladder the success is, as a rule, great. The analogy between operations upon the gall bladder and operations upon the vermiform appendix is striking. Could every appendix be removed at the time when it is possible to close the abdomen without drainage, there would be practically no mortality in appendicitis. Could every gallstone be removed when it is contained in a normal gall bladder, there would be practically no mortality in gallstones. The moment, however, that the infection breaks through the appendix, the fatal element of sepsis comes in. So in gall bladder surgery the moment the gall bladder becomes it-

self infected, or as soon as the gallstone—impacted in the common duct—obstructs the biliary flow, the grave dangers of sepsis or of jaundice appear. No other argument than the argument of increased danger is really necessary to demonstrate the truth of my proposition. But, as will be discussed later, many patients with gallstones recover spontaneously,—or apparently recover,—and the physician who sees patients recover after transitory colics may be led to expect them to recover after the jaundice of permanent impactions. Instead of condemning that palliative course which has made a late, dangerous, and perhaps fatal, operation imperative, they condemn as unwarranted that operation which gives the only reasonable hope of recovery.

I recall the remark of a physician who had allowed a patient to drift through months of hopeless jaundice,—with all that that condition implies,—for the relief of which a delayed operation proved fatal from hemorrhage: "I shall never forgive myself for allowing this operation." Those of us who heard the remark thought that it would have been more appropriate if he had said: "I shall never forgive myself for not having advised this operation earlier."

The argument based upon the great dangers and mortality of late operations would need no such amplification as has here been given were it not for the belief, more or less prevalent, that medical treatment, which—in my opinion at least—can have no effect whatever upon the gallstones, does in fact cure them, and that there is enough expectation of spontaneous cure to justify the immediate if not the remote dangers of delay.

That medical treatment has the least beneficial effect in aiding the mechanical expulsion of a stone through the biliary passages from the gall bladder to the duodenum, either in diminishing the size of the stone, in increasing the lumen of the passage, or in increasing the force of expulsion, seems to me absurd. To allow the patient to undergo, once or twice, the slight dangers of a biliary colic, in the hope that the last stone has been passed, or for the establishment of the diagnosis, seems reasonable enough, for the dangers are not great. Small as they are, however, they are greater than the dangers of an early cholecystotomy. To persist in palliation when there has been the least sign of a gall bladder infection, of a common duct impaction (jaundice); or when, from the discovery of faceted stones in the stools there is good reason to suppose that more remain, is to restrain the patient from the course of safety, and to force him into the course of danger. It is against reason, experience and common sense.

The lesions of gallstones are mechanical; their treatment should be mechanical.

Against the foregoing proposition are to be considered the following arguments, some of which have already received brief mention:

(1) There is some danger in the operation, though it is but slight.

It is well always to emphasize this argument; and it is, I think, safe to say that the greater a

man's experience, the more he appreciates its force. The risks in operations for gallstones undertaken at the most favorable time are the risks of anesthesia, the risks of simply opening the abdomen, and finally, the risks of opening the gall bladder itself. The risk of opening the abdomen under our present methods of asepsis is slight, but still it exists. The risk comprises unperceived errors in asepsis; inadequate preparation of the field; errors in the sterilization of the instruments, gauzes, linen, and especially of the hands; if gloves are worn, the risk includes imperfect sterilization of the glove, the tearing or pricking of the glove, and the escape into the wound of fluids that during the operation have been macerating the fingers; if no face mask is used, it includes the dropping of perspiration and of hairs into the field,—the coughing, sneezing, or talking of particles of buccal or of nasal fluids into the wound. There are the accidents of technique—the cutting or tearing of the intestine, the possible contamination of the wound with infected bile; the dangers from the operator's technical treatment of the gall bladder. There are also the dangers depending upon the idiosyncracies of the patient; his inability to coagulate his blood,—perhaps an inherited tendency to hemorrhage.

Taking all these dangers together, they do not, in my opinion, equal the dangers attending the passage of a single stone from the gall bladder to the duodenum.

The scope of this paper does not permit a discussion of methods of asepsis, as it is taken for granted that he who is to operate for gallstones is a surgeon of experience who uses only most thorough methods of asepsis. If the man who proposes to treat gallstones surgically has had no experience in abdominal surgery, or such limited experience as practice in a narrow field affords,—and especially if he has not had the opportunity of assisting in a large number of cases,—the dangers of the operation will, in my judgment, exceed the dangers of palliative treatment, and the operation should not be undertaken. Operations upon the gall bladder for gallstones—like most operations upon the abdominal viscera—may suddenly demand resources that only large experience and great skill affords; the operator must be prepared to meet, in what are apparently the simplest cases, the gravest emergencies of abdominal surgery.

(2) The diagnosis may be wrong and the exploration unnecessary.

This topic has been considered under a previous argument. The diagnosis is frequently wrong. The exploration will have been proven unnecessary, however, only when it is performed after the expulsion of the last stone; even then the operation will not have been absolutely unfruitful, for the demonstration of the true condition will not be without value. In my experience there have been but one or two cases in which the last colic occurred during the expulsion of the last stone. If the diagnosis is clearly established by the discovery of a stone in the stools, or if the

facetting of that stone indicates that others remain, exploration is advisable, even with the chance that the last stone has escaped. The discovery of a nonfacetted stone does not disprove the existence of other nonfacetted stones. I have found many stones, especially of the finely nodular variety, without a single facette. The slight chance of operating after the escape of the last stone must always be taken. The exploration may be proved unnecessary, too, by the discovery of hopeless disease,—cancer of the pancreas, stomach, colon or liver. The demonstration of hopelessness, however, is not without value—as, indeed, the demonstration of an empty gall bladder is not without value. To discover that the last stone has escaped, to demonstrate in malignant disease that nothing remains to be done, these truths surely justify the slight risks of exploration. For one such example of needless or of hopeless intervention, there will be many permanent cures.

(3) Hernia in the scar may result.

In simple explorations, in the separation of adhesions, in operations which open neither the biliary nor the alimentary tract nor a septic focus, the abdominal wound can be closed immediately, and hernia will rarely result. Wounds which must be drained for a few weeks are not infrequently followed by hernia, which results partly from retraction of the oblique and transversalis muscles, partly from division of motor nerves. Hernias high up in the abdomen, however, rarely cause serious disability. Gravity diminishes the intra-abdominal pressure upon the scar, and it is only in straining that the bulging appears. The liability to hernia, is, however, a disadvantage.

(4) There is the possibility that gallstones may recur.

This subject is one of great interest. The conditions which led to the formation of gallstones in the first place would naturally lead to their reformation. If they were in the first instance caused by infections of bile, it would be necessary for their reformation that there be a renewed infection. Such a recurrence of infection would, however, seem on the chances unlikely to take place. That gallstones are originally thus dependent, seems to have been shown by the discovery of micro-organisms in their centre—a fact which has already been noted by others, and which in my cases has been demonstrated by Dr. Mark W. Richardson. If the germ origin of gallstones is true, the advisability of cholecystotomy and drainage is unquestionable; for thus would be insured not only the expulsion of the gallstones, but of the prime cause itself. Indeed, drainage at the time of primary infection would probably have prevented in the first instance the formation of gallstones. I have never seen or had reason to suspect the recurrence of gallstones after cholecystotomy and drainage. This argument against intervention seems, therefore, to have little weight.

(5) There is possibility of spontaneous cure.

That gallstones may escape completely and permanently through natural processes cannot be

doubted. That this fact should have great weight as an argument against intervention when gallstones begin to offend, is, in my judgment, contravened by experience and by common sense.

The question of spontaneous cure is a purely mechanical one. Certain gallstones permit a safe spontaneous cure, and only certain ones,—namely, those small enough and smooth enough to pass through the cystic and common ducts and through the duodenal papilla into the duodenum. All the gallstones must be no larger than this certain size to be safely evacuated. In some instances, however, even when the stones are all of about the same size and small enough to be expelled, only a few will escape with each attack of biliary colic. In a case in which I saw a dozen or more gallstones, about as large as a medium-sized pea, pass during one attack, I subsequently opened the gall bladder and found large numbers of similar stones. In some cases I have found a great number of gallstones of the same shape and size with some very large ones. There may be one or two as large as an olive or a filbert, many the size of a pea, and many extremely small. The expulsion of the smaller stones may take place without symptoms; of the medium-sized with repeated attacks of biliary colic; but expulsion of the larger ones can take place only by direct ulceration through the gall bladder walls. The patient may live for years, and undergo numerous attacks of colic, without impaction of the larger stones. No one can predict, however, even when numerous small stones have been demonstrated in the stools, when the impaction of a large stone will cause a permanent jaundice. Many stones may exist in the gall bladder without offending. While they are in the gall bladder, however, we must always be prepared for infections of the gall bladder through the irritation which they cause. The emergencies of acute gall bladder infections are by no means uncommon. They occur in a large proportion of cases without previous evidence of their presence. The very first symptom may be a fulminating infection of the gall bladder, resulting in gangrene,—it may be a sudden perforation, with extensive and fatal flooding of the whole abdomen. Though we cannot prevent the occurrence of such disasters when gallstones are unsuspected, we can anticipate them and provide against them when they are suspected, and that, too, at a very small risk.

Spontaneous cure through the dangerous process of adhesive peritonitis and evacuation into the intestine is possible. I have already mentioned the escape of a gallstone into the intestine, with complete intestinal obstruction, in a man who had never had a moment's pain. The stone may in rare instances escape through the abdominal wall. For one recovery through so clumsy and dangerous a method of spontaneous mechanical cure, however, there are many deaths. In relying upon it, the physician relies upon weakness, when, by the art of surgery, he might rely upon strength.

Once gallstones begin to offend, then the only

possibility of spontaneous cure lies in the successful expulsion of the stones through the biliary passages, or in the successful ulceration into the alimentary canal,—or, in very rare instances, in the successful ulceration through the abdominal wall.

The foregoing statement of facts concerning the spontaneous cure of offending gallstones includes the only argument of importance against surgical intervention. But we have, under the most favorable circumstances, painful, perhaps often repeated and prolonged, colics, with a strong probability that they will continue indefinitely, with no certainty of permanent cure,—with every probability that with increasing age of the patient and increasing size of the stone, the difficulties and dangers of passage will also increase.

We have on one hand the painful, dangerous and uncertain processes of ulceration,—processes which may require years for their completion, and which invite the disasters of localized infection, biliary extravasation, general peritonitis, faulty adhesions, liver and pancreatic infections, and new growths,—the clumsy, dangerous and ineffectual methods of nature. We have on the other hand the safe, rapid, intelligent and scientific work of a few minutes, with absolute demonstration, not only that the gallstones themselves have been removed, but that complicating conditions have, if possible, been relieved.

(6) There is also the possibility that, after offending enough to prove the diagnosis, gallstones may give no further trouble.

The possibility that gallstones which have once offended may never again offend cannot be denied. The fact that in a given case it is impossible to tell what the future will be makes this argument of little weight. If in any case there are distinct contra-indications to operation, the possibility that there will be no further trouble may be looked upon with a certain satisfaction; but, as an argument against intervention, this possibility should receive but little consideration.

(7) The last and decisive attack of biliary colic may have been caused by the last remaining gallstone, exploration showing that none remain.

This argument has already been discussed.

As time goes by, the difficulties and doubts which many of us felt in the beginning as to the best treatment of gallstones become dissipated in the light of renewed experience. Aided by numerous explorations upon the living, especially in cases of doubt, we are becoming more and more accurate in diagnosing the lesion. We have demonstrated, by thousands of operations upon the abdominal cavity, the safety of simple explorations. At the same time we have demonstrated in hundreds of cases the pathological appearances of gallstone lesions in their earliest stages. We have seen the changes, after years of natural efforts at expulsion, in the thickened, contracted and friable gall bladder; in the gall bladder buried in extensive adhesions of the right upper quadrant, contracted upon large stones, ulcerated,

and filled with septic fluids. We have seen the perforations from the gall bladder into the intestine, the peritoneal cavity, the abdominal wall; obstructions of the cystic, hepatic and common ducts; strictures at the duodenal papilla; biliary fistula; the acute infections of the gall bladder varying between simple distentions with mildly septic fluids and total gangrene of the gall bladder wall. We have seen the gall bladder distended with the chronic puriform fluids of long continued inflammation, or infected by the highly septic fluids of an acute cholecystitis. We have observed, only too often, malignant new growths of the interior of the gall bladder itself; cancer of the liver secondary to cancer of the gall bladder; acute and chronic infections of the pancreas. In a word, we have seen a great variety of lesions, owing directly or indirectly to the presence of gallstones, lesions which in the early stages would have been safely prevented by surgical treatment.

The spontaneous cure, whether or not it is aided by medicinal treatment, is clumsy, dangerous, ineffectual and contrary to common sense. Once gallstones begin to offend, there is no way of telling how the process will end, except that, on the chances, it will end either in permanent disability or in death. Treated mechanically, as they are by surgical art, gallstones are quickly, safely and permanently removed, at the least possible expense in suffering and in danger.

OBSTRUCTIVE DISEASES OF THE LOWER BOWEL.¹

BY HENRY O. MARCY, M.D., BOSTON.

THE diseases of the pelvic viscera, which culminate in obstructive interference of the function of the lower bowel and bring into consideration surgical measures for relief or cure, constitute one of the most interesting chapters in the history of pelvic diseases.

The pathologic changes incident to such conditions are, for the most part, chronic, and are usually accompanied by discomfort, pain and suffering of an extreme character. The limitation of time at my disposal absolutely prevents an exhaustive treatment of the subject. For the sake of convenience, it may be well to subdivide it: (1) The conditions extraneous to the bowel; (2) the obstruction caused by its contents; and (3) the pathologic conditions belonging to the viscera itself.

The changes incident to injuries of the pelvis, causing obstructive interference with the function of the lower bowel, are usually of an acute character and, as a consequent, do not come within the scope of the present discussion.

As the result of injuries, however, changes may supervene which materially impair the function of the lower intestine and, although not produc-

¹ Read by invitation before the Massachusetts Medical Society, June 11, 1901, as a part of the general topic, "In What Cases of Disease of the Alimentary Tract, Not Emergencies, Should Operation be Advised for Relief or Cure?"

ing a positive obstruction, demand operative intervention.

Fracture of the coccyx is a well-recognized illustration of such a condition. Deformation of the pelvis and osteoplastic growths also deserve mention.

In the male, diseases of the seminal vesicles and prostate frequently bring about such an irritated condition of the lower bowel as to induce most painful suffering and impair the function of defecation to a degree closely simulating intestinal obstruction. This is also true in old cases of stone in the bladder. Fortunately, owing to earlier surgical intervention, these conditions are far less common than formerly. Rarely chronic distention of the bladder may induce the most pronounced type of rectal irritation and be interpreted as a constant desire for defecation.

Incident to diseases of the reproductive organs in the female, interference of the function of the lower bowel to a degree demanding surgical intervention is by no means rare. The infectious diseases of the Fallopian tubes, with the secondary conditions dependent thereon, have, as a very common symptom, the disturbance of the intestinal function so as to produce the most acute suffering and, on this account, demand surgical intervention.

Small cystic tumors of the ovary or broad ligament not seldom bring about a train of functional disturbances of the lower bowel, seriously interfering with defecation, and occasionally by mechanical pressure make urgent demand for surgical relief. The retroversion of the gravid uterus sometimes produces the most marked tenesmus and straining, causing the patient, among other symptoms, an intense and unrelieved desire for defecation. Uterine tumors not seldom so block the pelvis as to arrest the function of the lower bowel, and for this reason render surgical intervention necessary. Unfortunately, this latter condition may come on so gradually as not to be suspected by the patient, and may be easily overlooked by the physician. Instances of this type are by no means rare. I have operated upon a number of patients where the impairment of the intestinal function was the more prominent symptom because of a small uterine myoma having become firmly wedged in the lower pelvic strait. An illustrative case of this type is the following: Miss H., age 58. Menstruation ceased about 10 years ago. Menorrhagia for some years was very pronounced. At 40 she suffered severely from weight and distention caused by a large symmetrical fibroid tumor, distending the abdomen almost to that of full term of pregnancy. This slowly lessened in size after the menopause until it was believed by herself and her physician to have entirely disappeared. Six months previous to operation, vesical tenesmus and intestinal obstruction became so marked that she was obliged to take her bed and was too sick to leave it, her life being despaired of. I removed, with the greatest of difficulty, a calcified uterine tumor almost completely filling the pelvis and so firmly wedged in

the lower strait that it required nearly my entire strength, aided by the Trendelenburg position, to dislodge it. Months followed before the intestinal function was completely restored.

The pathologic changes which occur in the hemorrhoidal plexus of vessels are sometimes so pronounced as to require surgical treatment, not alone because of the local conditions of pain and suffering, but that, coassociated with dilatation of the rectum, obstructive conditions of the lower bowel supervene. I have several times met with displacement of the pelvic viscera, causing an arrest of intestinal function to such a degree as to demand operation. Two cases of this character were incident upon hernia of the bladder, one in which for some days intestinal obstruction had been complete. The patient's condition was *in extremis* incident upon an old hernia in which 8 or 10 inches of the large intestine had long been incarcerated in the sac.

The medical practitioner is not seldom called upon to relieve acute distress from the accumulation of foreign material lodged in the lower canal. This is an experience common to all practitioners, and yet it is occasionally of a type and character demanding surgical intervention. Fecal accumulations are by far the most common, and the suffering incident thereto is often intense. This is more frequent in women, owing to the pathologic conditions of her pelvic viscera, dependent upon the result of the loss of perineal support, following childbirth, impairing the function of the lower bowel and inducing rectocele.

This condition is, however, not seldom met with in men and in women without other pelvic complications.

Some time since, I operated upon a woman with a history of more than 30 days having passed without defecation. The suffering was less than might have been supposed, and yet the entire lower bowel was blocked with such a mass of dried feces that, after complete etherization, the accumulated material was removed with much difficulty. Two cases have been reported to me in which the period of nondefecation was yet longer, and a considerable number of such cases are on record. It is very probable, however, that these conditions have been preceded by a long period of comparative functional inaction of the lower bowel, with previous distention, etc.

Foreign bodies are by no means rarely found interfering with defecation, demanding the intervention of the surgeon. It is remarkable that an individual may swallow accidentally such articles without knowledge thereof until arrested by the sphincter muscle. Pieces of bone are probably the more common. On one occasion the most acute distress, demanding immediate relief, was caused by a sharp thorn more than an inch in length, which I removed after it had penetrated the lower border of the sphincter muscle. Spasmodic contraction of the muscle was almost continuous, producing the most intense suffering. The patient had no knowledge of its presence in the alimentary canal until thus caught in the act

of defecation. Some time since a very intelligent lawyer brought me a round steel nail 1½ inches in length, bent at an angle of 45°. He was hastily eating in a railroad restaurant, almost at the same time, a hot bisquit and a baked apple. He felt a slight scraping in the throat, which he attributed to swallowing the stem of the apple. He had no knowledge of the nail until caught by the sphincter muscle in the act of defecation, producing intense suffering. Some years ago two immense gallstones were brought me for examination, having been lodged in the lower bowel, from whence they were removed by the family physician. For months it had been believed that the patient was dying from cancer of the liver, so intense were her jaundice and the local suffering. Immediate relief was experienced, and the patient began slowly to improve when, nearly 6 weeks later, the removal of these gallstones, measuring over an inch in diameter, aided in making a more correct diagnosis. At the pathologic exhibit of the American Medical Association at St. Paul, in June, 1901, there was a calcareous concretion, so-called bowel stone, quite 3 inches in diameter, which had caused obstruction.

A most heterogeneous collection of foreign materials are reported as having been removed from the rectum, many having been placed there by the sufferers themselves while not in stable mental condition.

The most important subdivision of the subject remains for consideration; namely, structural changes in the wall of the intestine, due to malignant growths. Since cancer of the intestine has been the subject of the two preceding essayists, it would be a fruitless repetition for me to enter into the discussion of the pathologic conditions, except so far as relates to its surgical aspect. In a recent paper by E. N. Mason,² entitled "Some Remarks from an Analysis of 5,000 Cases of Malignant Disease," the author draws some very interesting deductions. Sixty-three per cent. of the cases were females. This is shown to be due to the greater tendency of cancer to occur in the breast and in the uterus. The demonstration is made that by excluding all the cases of malignant disease occurring in organs peculiar to either sex, cancer is more common in the male, in the proportion of about 53 to 47%. This the author traces more especially to trauma and syphilis. About three-fourths of all the cases of cancer in the male occur in the alimentary tract. His tables show that, in 7% of the cases, the disease was located in the rectum, and that there were nearly twice as many males as females.

It is interesting to note that the committee, in discussing the predisposing causes of malignant disease, give the first place "to prolonged local irritation due to various causes, setting up inflammatory changes in the irritated tissues."

By far the greater emphasis is to be placed upon the early recognition of the malignant changes in the lower bowel, since in the treatment of cancer of the rectum little can be hoped

for except from prompt surgical intervention before the disease has deeply invaded the tissues. I cannot emphasize too strongly the importance of a careful examination of the lower bowel in a large class of cases which are generally overlooked by the family physician. Unfortunately, the great majority of the sufferers from cancer of the rectum come to the surgeon when it is too late to hope for cure by complete removal of the diseased structures. When cancer has advanced to come within the strict limitation of my subject — obstructive disease of the lower bowel — little can be hoped for except palliation by colostomy. The usual place of selection is below the left anterior superior iliac spine above Poupart's ligament. In this operation, it is usually the better way to make a funnel-shaped incision through the abdominal wall, parallel to Poupart's ligament, commencing just below the spine of the ileum. The sigmoid flexure of the intestine is easily found and is carefully sutured to the peritoneum, the needle being made to penetrate the connective tissue coat of the intestine. Good surgeons vary in the method of suturing. I much prefer fixation by two lines of fine continuous tendon sutures. Unless imperative, the intestine should not be opened until after 24 hours, when peritoneal union will be found to have taken place. The division of the bowel is best effected with the cautery knife. The mucous membrane may be drawn out and sutured to the skin, and the redundant rosette of the mucosa, which sometimes occurs, when this has not been done, is usually not painful or troublesome and aids materially in the retention of the feces.

The removal of malignant growths of the rectum is now advised in a very large percentage of cases not considered amenable to operation a few years ago.

The technic of these operations is well described in most of our modern textbooks, and need not be repeated. In the review of my own surgical experience I find that I have steadily enlarged the class of cases considered operable and am governed very much more by the evidence that the disease is absolutely local, that is, circumscribed within the periphery of the bowel at its original site of invasion, than by the precise location of the part involved. It is generally recognized that a circumscribed growth, limited to a portion of the bowel within reach of the finger, in either sex, is operable. If there is distinct evidence of glandular infiltration as a secondary development to the primary growth, it is very doubtful if operation is advised. This is the class of cases in which great relief is experienced and life prolonged by a colostomy, since thereby the part affected is given comparative physiologic rest and can be kept from fecal defilement. We are indebted to Kocher for pointing out the very considerable increase of space obtained by the removal of the coecyx.

Little by little portions of the sacrum were removed, and a most noteworthy contribution was given, more especially by Kraske, after whom the

² British Medical Journal, May 18, 1901.

operation is now named. In a number of instances, I have thought I obtained a decided advantage by first establishing an artificial anus, since by this means the pelvic structures are given a more nearly physiologic rest and can be operated on much more safely. One who has seen, for the first time, the operation for the removal of a considerable segment of the lower bowel performed by a free opening through the sacral region, especially in a moderately thin subject, is surprised at the wide field of operation thus obtained. The bowel may be enucleated with the clear guidance of vision, and even the peritoneal cavity entered from below, freeing the intestines sufficiently to bring down a very considerable loop of the intestine. In this way I have several times resected a portion of the lower bowel, saving the normal anal aperture with the sphincter muscle.

In 1893 I first used a large Murphy button, for the coaptation of the segment, which came away the twelfth day. The thick intestinal wall rendered its application difficult, although the patient did very well. I have since had recourse to suture in addition.

This I believe to have been the first use of the Murphy button in this portion of the bowel, but its applicability was suggested to me by my friend, Dr. H. O. Walker of Detroit. It will frequently be found impossible to save the distal end of the bowel, and then it will be necessary to free the upper portion sufficiently to bring the resected end easily out at the sacral portion of the wound and suture it there. If this has been done aseptically, I think it preferable to close the entire lower segment with lines of buried sutures, thus evenly coapting the soft parts.

Although the wound is a large one, the vascularization is ample, and the union of the aseptic wound is primal. Special care should be taken in closing the skin with a light-running buried suture which should include only in the deeper portion of it, since otherwise the exceptionally large follicles of the skin may prove a source of infection. This portion of the wound is carefully sealed with iodoform collodion.

Another advantage of this operation, by a wide invasion of the pelvis from below, lies in the possible removal of many of the pelvic glands, a common source of secondary infection. The artificial anus in the sacral region is quite as troublesome as in the iliac region. The mortality following these operations is much less large than even a decade ago, while the results are much more satisfactory. First, because of a better aseptic technic; and, secondly, because the cases operated upon are brought to the surgeon as soon as the diagnosis has been made, without the fatal delay of tentative treatment which prevailed at an earlier period. The future of this class of operations gives yet better promise, since many details of the surgical technic come within the limit of great possible improvement. It is very probable also that a further specialization of this regional surgery will obtain, since the severer operations are likely to tax the resources of the best surgeons, and a

greater familiarity with the local technic aids materially in securing an effective result.

Probably the most valuable contribution to the surgery of the lower bowel is due to the teaching of the gynecic surgeon. The invasion of the abdominal cavity and life-saving results dependent thereon form one of the most brilliant chapters of modern science.

The opening of the abdomen, with the patient in the Trendelenburg position, places the entire pelvic viscera under easy inspection. The small intestines are walled off from above, the peritoneum is opened from below, and the lower portion of the bowel is freed from its attachments. Usually one or two branches of the sacral arteries are divided and require ligature. Then the loop of the intestine is freed, and the diseased portion treated as the conditions demand. If the lower segment is free from disease sufficiently large to permit of its utilization, it should be preserved. If not, it must be removed. Then it will be necessary to doubly ligate the upper portion of the intestine and divide between the ligatures. The upper portion is cleansed and carefully protected from infecting the parts, while the lower segment is entirely removed. This having been done, the bleeding vessels are ligatured, and an artificial anus is made by securing the upper healthy bowel laterally as in a usual colostomy, and the entire pelvic wound is closed with buried sutures, much care being exercised in closing the peritoneum of the pelvic basin. If it has been possible to maintain an aseptic technic, it is better to close the pelvic wound without drainage; otherwise drain. If the upper loop of intestine is of sufficient length, it may be wise to make the artificial anus in the normal site, possibly saving some of the sphincter muscle.

In woman the vagina may be utilized to "piece out" the abbreviated bowel. When this is done much care must be used in closing the pelvic peritoneum about the displaced intestine. When it is possible to resect the diseased portion of the bowel, the intestine is freed as above described, inclosed by ligatures and resected. Reunion of the healthy portions may be effected by retention apparatus, as the Murphy button already referred to, or by sutures. It must be remembered in either case that the connective tissue of the intestine is the important portion for coaptation. Dr. John B. Wyeth of New York, at the present June meeting of the American Medical Association, described a modification of the combined operation, which he had devised and used in three instances.

The sphincter is well dilated and, as far as may be, the lower bowel is emptied and disinfected. The abdomen is entered from above, the peritoneal attachment of the pelvic floor freed, the bowel separated, and the circumscribed portion of the diseased structures tied off and removed as already described. Through the lumen of the lower segment of healthy bowel long forceps are passed, and the upper portion of the freed bowel drawn down externally. This also everts the lower segment and makes easy the careful sutur-

ing of the two portions of the bowel. After this has been effected, the everted bowel is restored, the bleeding vessels are sutured, the peritoneum of the pelvis is carefully approximated, and the abdominal wound is closed. The perineal wound is drained.

I regard the resection of the lower bowel for cancer by approaching it from above in many instances as a very great advance in modern technic for a variety of reasons. The lymphatic glands of the pelvis can be examined and removed if necessary as by no other route. The resection may be made much more accurately, and in many instances the function of the lower bowel preserved or restored. Cancer of the rectum is one of the most deplorable of all diseases. The last decade has, however, added greatly to the improved surgical measures for its relief and cure, but no field of surgery demands greater improvement in skill and technic or promises greater triumph in the relief of suffering.

THE INDICATIONS FOR OPERATION IN MALIGNANT NEOPLASMS OF THE STOMACH.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

EVERY neoplasm of the stomach should be treated by resection as long as resection is technically possible, and the general condition of the patient is sufficiently satisfactory to allow the operation being done. The presence of evident metastases which cannot be removed does away with all possibility of a durable cure, and constitutes very bad conditions for the immediate success of the operation. These facts are admitted by many surgeons, but are by no means unanimously accepted. Billroth made many reserves in this matter, which Krönlein and Eiselsberg not long ago reviewed in a similar manner. The latter-mentioned gentleman says that he never operates on a pyloric carcinoma of any extent in which the fearful symptoms of stenosis are wanting, or where there were only symptoms of cachexia. Billroth believed that a surgical operation would not prolong the life of patients under these circumstances, on account of the natural evolution of carcinoma of the stomach which follows the same course as carcinoma in other organs.

Zawadzki and Solman believe that operation is only indicated in those patients whose general condition depends more on the presence of the mechanical stricture than to the cancerous cachexia. On this last point, however, I would observe that the distinction is not always easy to make, and at the same time the indications for operating, were this rule followed, would be extremely limited indeed.

But the question should be examined in a more general point of view. Now, either the surgeon simply proposes to perform the surgery necessitated by the accidents produced by carcinoma of

the stomach, in which case the above distinctions would be quite legitimate, or on the other hand, it is the malignant neoplasm itself that he proposes to deal with, in which case the only limits to the feasibility of extirpation of the growth is simply the material impossibility of performing a complete resection far out of the limits of a neoplastic infiltration and in healthy tissues.

Many researches have been undertaken to find out the proportion of operable cases in malignant neoplasms of the stomach, but the larger number of these researches consider only pylorotomy. The first of these were taken from the autopsy records with the following results: In 1876 Gusenbauer and von Winiwarter found, out of 542 carcinomata of the pylorus, that 41.1% had no metastases, and that 37.7% had neither metastases nor adhesions. Out of 39 cases, Ledderhose of Strasburg found only 10% as suitable for operative interference, while Streit of Berne found 25.9% of his cases could have been successfully operated upon and could have been followed by a cure.

In 1892 J. Lindsay Steven published a paper in the *British Medical Journal*, in which he records 19 cases of carcinoma of the stomach, 12 of which were localized to the pylorus, 1 at the cardia, and 6 involved the walls of the organ. Of these 19 neoplasms, 6 were free of all adhesions, or 31.1%; 1 only presented slight adhesions. Of the 19, complete absence of metastases existed in 3 cases; in 1 metastasis was only present in the lymphatic glands, while in another the omentum alone was secondarily involved.

The above quotations deserve only a relative merit, because they are simply post-mortem records, and the observations were naturally written by persons who in all probability did not examine the conditions in the surgical point of view. They nevertheless prove that a respectable number of subjects come to the autopsy table in a very satisfactory condition from the surgeon's point of view, and this number, according to the above records, may be placed at about 25 to 35%; or, in other words, from one-fourth to one-third of the total number of patients who die from carcinoma of the stomach.

If we now consult the researches which have been made in the living subject, we find the following: Rydygier, out of 52 patients who had been more or less selected for an operation, only found 5 who did not present metastases or adhesions; in other words, about 9.6%. Krämer, out of 51 cases chosen for operation, found 17 of them without adhesions; in other words, about 33% suitable for operation. Haberkant found, out of 59 patients who appeared in good condition to undergo an operation, 20 of them were without adhesions, making the operable cases 33.9%. Out of 52 patients, Carle and Fantino found the pylorus free from adhesions in more than 33% of the cases.

Although these researches are not devoid of interest, still I believe that they only give an inexact idea of what in reality takes place, and I

¹ Remarks made in a discussion on "Gastric Cancer" at the annual meeting of the Massachusetts Medical Society, June 11, 1901.

believe in considering this question we should proceed in a different manner. In 1895 Mikulicz, out of 75 patients afflicted with carcinoma of the stomach who were placed under his observation, refused to operate on 29 cases, and on 7 after having performed an exploratory laparotomy. On the remaining cases he performed gastro-enterostomy 21 times, and resected the growth 18 times. According to this author we see that only 24% of his cases were surgically fit for a radical operation. In 1896 Krönlein, out of 67 cases that he had under observation, refused to operate on 26, and only made an exploratory laparotomy on 22. Of the remaining cases he performed gastro-enterostomy 4 times and resection 15 times, thus giving 22.4% of cases suitable for radical operation. In 1893 Löbker, out of 41 patients seen in the same conditions, performed resection of the growth only 10 times, making 24.3% as his figure of operable cases.

If, in the case of Czerny and Roux, we take into consideration not all the cases of carcinoma of the stomach that they have seen (the number of which is unknown to us), but only those cases which have undergone either an exploratory laparotomy, gastro-enterostomy or resection, we find for the first-mentioned authority 20 resections out of 109 cases, making 18.3%, while for the second authority we find 15 resections out of a total of 65 patients, making his percentage of operative cases 23.

These last figures are naturally based on cases that have been carefully selected for operation, and consequently should be superior to the preceding ones; but on the contrary they are far lower. It is well known that of recent years Czerny has had more tendency to abandon radical operation, and that Roux has complained of the advanced stage of the disease which the patients presented when they came under his care. Carle appears to have been remarkably unfortunate in the latter conditions, for in the last 7 years he saw 134 cases of carcinoma of the stomach, 86 of which were too cachectic to undergo any operation, 10 were submitted to an exploratory incision, in 24 gastro-enterostomy was done, and in 14 only was resection attempted, showing 10.4 as his percentage of operative cases. Consequently, if we take into consideration those cases which he would have done better to have left alone, we find that it is about one-fifth of the cases rather than 25 or 33% that were in suitable condition to undergo resection of the neoplasm.

In 1898 Krönlein gave 20% as the proportion of operable cases in his own personal experience. The difference between 20%, which we arrive at very approximately, and the 30%, which is the fairly uniform conclusion of writers who have only considered the local conditions present, represents the proportion of patients suffering from carcinoma of the stomach, who, on account of careful and early advice, present themselves to the surgeon in the period of cachexia and die, although they are suitable subjects for operation, and all this is simply the result of delay in seek-

ing surgical measures of treatment either on the part of the patient, his family or his medical adviser.

The question also arises, can the surgeon, before he has opened the abdominal cavity, come to any exact conclusion by clinical examination as to the local condition of the neoplasm? That is to say, can he come to any definite idea regarding the presence of adhesions, the size and extent of the neoplasm, its anatomical situation, and whether or not metastasis has already taken place? This question has already been admirably considered by Guinard and Ewald. The former some years ago, the latter more recently.

As to the anatomical situation and extent of the neoplasm, as well as the presence or absence of metastases, I think I may say with absolute certainty that before the abdominal cavity has been opened these conditions are more or less obscure. Medical exploration and chemical analysis certainly allow us to make certain presumptions, but not absolute demonstrations. It may be said that by using precision we may localize a growth at the pylorus or the cardia, on the larger or the lesser curve of the stomach, or determine if it is developing in the anterior or the posterior wall of the organ. If the metastases are very large, especially if they occur in the liver, they certainly can be detected; but as to knowing to what extent the primary neoplasm in the stomach has developed, and what chances there are of performing complete extirpation of the growth, I believe that in each and every case the question will remain in doubt until a direct view of the condition of affairs is obtained through the abdominal incision.

It is only after the abdomen has been opened that it will be discovered that those neoplasms which appeared movable and distinctly limited before operation are so adherent that resection is out of the question, and in the greater part of the cases the surgeon will meet with numerous adhesions binding the growth to the neighboring organs, principally the liver and the retroperitoneal tissue, and which are placed in such a manner that they allow a certain mobility of the tumor. Ewald says that he has seen cases in which the neoplasm, after insufflation of the stomach, became movable from the region of the gall bladder down to the anterior superior iliac spine, and nevertheless it was bound on its posterior aspect by large and tough adhesions.

Then, again, we have those cases of small and apparently distinctly limited neoplasms, but which are occasionally accompanied by such a host of cancerous nodules in the walls of the stomach that it would really be difficult to find a spot on the organ sufficiently free from disease to even perform gastro-enterostomy.

It is evident that, without an exploratory incision, we can come to a conclusion that resection of the neoplasm is impossible, or contra-indicated, in those subjects whose tumor is found distinctly bound down and immovable, and who present all the symptoms of the presence of metastases by

jaundice or ascites or the presence of appreciable nodules in other organs besides the stomach, such as the liver and omentum, but nevertheless a very large proportion of patients who, *a priori*, appear in good condition to undergo resection are in reality decidedly bad for it. For this reason it is unwise, before the abdomen is opened, to decide what operation can be done; to a certain extent we may foresee the indication of a gastro-enterostomy but never a resection. The surgeon should come to the operating table prepared for any emergency.

Instead of relying on the sterile principle of a precocious diagnosis, I believe we should substitute that of an early exploratory incision. The delicate point consists in establishing the formula on which to base one's self when proposing surgical measures at an early date. All surgeons are unanimous in agreeing that an operation is indicated when there is stenosis of the pylorus, and in every case of this description there is an appreciable dilatation of the stomach before any growth can be felt. I do not wish to be understood as recommending gastro-enterostomy in each and every case of dilatation of the stomach, but only in those rebellious cases which resist all well-applied therapeutic measures, and in which, consequently, a mechanical obstacle either at the pylorus or the duodenum is suspected. In such cases I believe that the dilatation of the stomach alone, even when no tumor can be felt, is a decided indication for immediate laparotomy. The same way of thinking has already been recommended by Weir, Doyen, Kraske, Chaput, Bircher, Jeannel and others.

The operative results will naturally become nearer perfect when we are allowed to operate on carcinoma of the stomach at the time when no appreciable tumor can be made out, and when the diagnosis of carcinoma is still uncertain. The indications for early laparotomy, based on the signs of pyloric stenosis, with or without appreciable dilatation of the stomach, will allow us to get at a considerable number of neoplasms at their very beginning. We know that all cases of carcinoma of the stomach, especially in the beginning, have no stenosis, and we must look for other indications, but in many cases we can have more than a suspicion of the condition of affairs. Here is an example: This winter a male patient was brought to me suffering from slight dyspeptic symptoms and a general feeling of lassitude which had been present for a few months. I could obtain nothing by palpation, which was an easy matter, as the subject was a man of spare build. Gastric analysis showed absence of hydrochloric acid and pepsin and the presence of lactic acid. The stomach was not dilated, and there were no signs of pyloric stenosis. I advised immediate exploratory incision, but the patient and his physician thought such radical measures were not necessary. Two months later that patient was dead. An autopsy revealed a carcinomatous infiltration of about half of the stomach.

On the other hand the diagnosis of a well-

advanced carcinoma of the stomach is not always an easy matter, and I remember particularly one case where I made an exploratory incision a year or two ago, where the diagnosis wavered between a gastric carcinoma and a peritoneal tuberculosis. On opening the abdomen the former condition in a very advanced state was found.

I think it is safe to say that when there is either motor or chemical gastric insufficiency, when a carefully applied medical and mechanical treatment is without result and incapable of suppressing the subjective symptoms of the patient and to durably keep the body weight at its normal standard, the surgeon should be called, and the diagnosis settled by an exploratory incision. We can then easily decide, by what we find, whether the symptoms may be done away with by an excision of a tumor or an ulcer, or by gastro-enterostomy or by pylorotomy. We should, however, bear in mind that motor insufficiency does not exist in carcinoma involving the body of the stomach, and we should also bear in mind the important fact that many cases of cancer of the stomach in the early stages may be benefitted by medical treatment which will suppress for a certain time, or improve for quite a long period, the symptoms, even when the case is one of carcinoma; and I believe that the elements which we should take into serious consideration as indicating exploratory incision in gastric affections are as follows:

- (1) Distinctly appreciable changes in the gastric juice and particularly the absence of pepsin and the presence of lactic acid after a test meal, and
- (2) the impossibility to rapidly increase and durably maintain the body weight at its normal standard by a well-conducted medical treatment.

In other terms, we should look for a continued progress of the disease in spite of all medical treatment, but without any consideration as to the subjective condition of the patient. The second proposition appears to me the most important, because it covers both malignant and nonmalignant diseases of the stomach and the indication for operative interference. There is another element in the diagnosis of carcinoma in general that I find misguides many men, and that is the age of the patient. Youth means nothing, and there have been recorded 2 cases of carcinoma of the stomach in the female occurring between the ages of 21 and 25 years, and 10 cases where it occurred between 26 and 30 years of age, 2 of these being male. From 31 to 35 years of age I have been able to collect 25 cases, 10 of which were males.

Of the value of blood examinations in the diagnosis of carcinoma of the stomach I shall say nothing, because up to the present time no exact conclusions can be formulated, but in the future, after more study in this direction, I believe we may be aided by this means.

I would raise my voice against palpation under anesthesia as a method most fallacious and of no value whatsoever.

It is very evident that many years will yet elapse before the practice that I advocate will probably be observed, because we must take into

consideration the dislike that all patients have to submit to an operation, and I am sorry to say I feel that many practitioners are loath to confide their patients to surgical care until the symptoms are unfortunately only too manifest, when it is too late to do anything radical. It is true that this repugnance appears to be slowly decreasing, but has not yet reached that point where all the benefit may be given that is due to the patient. The surgical treatment of carcinoma of the stomach which will in the future give brilliant results will be due less to any improvement that we can give to our surgical technique than to the willing help of our medical *confrères*.

To sum up I would say that the surgical treatment of carcinoma of the stomach is indicated not only when stenosis is present, but also as a radical cure of the cancer itself. If under the actual conditions, which are bad, resection has only radically cured a few patients, it has at least given, in more than 33% of the patients operated upon, a new lease of life, without suffering, of from 1 to 8 years. Under the same conditions the operative mortality has been reduced to 20, 15 and even 10%.

In every case where carcinoma of the stomach is suspected, an immediate exploratory laparotomy should be advised, and every neoplasm that can be removed from the stomach should be excised, no matter what its nature may be.

In order to successfully perform resection of the stomach, and in order that its results shall attain the maximum of efficaciousness, the surgeon should not wait for a clinically confirmed diagnosis of cancer of the stomach, because an exploratory laparotomy is justified in every case where the patient is afflicted with gastric troubles, when (1) analysis of the gastric juice shows an absence of pepsin and the presence of lactic acid, and (2) when medical treatment carefully conducted is incapable of increasing the body weight and retaining it there.

The contra-indications of resection of the growth are to be drawn from the general condition of the patient, as well as by the presence of visceral metastases demonstrated by palpation or by exploratory incision, as well as from the immobility and adhesions of the tumor and the propagation of the neoplasm beyond the movable portions of the duodenum or the esophagus. The age of the patient, the presence of some enlarged glands, the size, the anatomical position, and the extent of the neoplasm in the walls of the stomach, in no way contra-indicate resection.

HUNDREDS of cases of conjunctivitis, directly traceable to bathing in public bath houses, were treated in the Philadelphia hospitals last summer, and a similar condition of affairs is again reported. The public pools, where thousands bathe, are considered the source of the trouble. Medical experts everywhere recommend the rain or shower bath as the most sanitary. With the latter the bather secures a private ablution, but in the pool baths many persons must use the same water. — *American Medicine*.

REMARKS ON TUBERCULOSIS AND ITS TREATMENT.¹

BY DR. BARADAT,

Consulting Physician at Cannes (French Riviera).

In the case of tuberculosis, as in that of every infectious disease, two factors must be taken into consideration. The first of these is the infectious agent, the morphological and biological characters of which are so well known nowadays; the second is the soil which the agent has developed itself in, and whose characteristics are either acquired or hereditary. All rational medication must, to be complete and really efficacious, apply to these two factors, and take into account all the elements which arise in a given case. For, as Leudet says, tuberculosis presents, in its varied manifestations, special idiosyncrasies, differing absolutely from one individual to another. Under these conditions only can we hope to be victorious over this dread disease.

As a matter of fact, a review of the new methods of treatment employed in dealing with tuberculosis reveals to us the fact that, although these methods are, without doubt, of real value, they are only efficacious against certain given systems, and possess no influence over the whole of the phenomena which are to be overcome; certainly they have special indications, but they are insufficient, because their field of action is but a limited one.

Amongst these indications, the comparative effects of which we shall examine later on, some are destined to improve and to strengthen the soil; others, on the contrary, are specific agents — they give rise to the diapedesis of the white globules, thus multiplying the means of defence with which the organism is provided in its struggle against the bacilli.

A thoroughly rational treatment should take both factors into account; that is to say, the medication employed should act in two ways, both as a dynamogenetic agent and as a specific. One is generally inclined to look upon each new method of treating tuberculosis as one that will immediately effect a radical cure of this terrible disease, without taking into account either the infectious agent and its toxin, or the soil on which these latter react. We must oppose this tendency and attempt a true, careful and impartial appreciation of the new medications.

Let us, for instance, take the case of an anemic patient: The Koch bacillus has invaded his organism, but still remains latent; if we leave this patient to himself his anemia will increase, his digestive activity will diminish, his strength dwindle away, and assimilation will be reduced to a minimum; there will be, as has truthfully been said, a failure of the whole organism.

What must be done to meet such a case? Firstly, the organism must be strengthened, nutrition favored; it is here that a use is found for medications tending to produce these effects, such as arsenic in its more easily assimilable forms

¹ Read before the British Congress on Tuberculosis, July 25, 1901.

(cacodylates), tannin, iodine, cod liver oil, salt lotions, alcohol frictions, sea baths, a hygienic treatment. By these means the bacilli will be kept under, their action neutralized, and as long as an equilibrium is maintained between the means of defence and the attack the patient will live.

But a fatal time will come when the bacilli will gain the upper hand, and this under the influence of varied causes, to which an organism already infected will have to pay a large tribute, such as physiological troubles, grief, repeated bronchitis, influenza, measles, scarlatina and, especially in the case of young subjects, intense physical and intellectual strain—too much bicycling, too much fast living, an excess of emulation and rivalry in examinations and competitions. So that this treatment of the soil, if we may be allowed this expression, which seemed at first so efficacious, had but an ephemeral effect; enough had not been accomplished; the disease should have been attacked in its very essence, the bacilli and their toxins destroyed. It is the same with all medications in the case of tuberculosis, and I should willingly call them partial medications.

Let us consider those that address themselves to the soil, the constitution of the subject. Firstly, we hold that a hygienic treatment should be the basis, the indispensable foundation stone of every medication; without it, they will all fail. As Professor Letulle so picturesquely puts it, the patient must be "*centrifuged*," he must be taken away from large towns, from the centres where diseased persons are collected; he must be given the pure, fresh, invigorating air of the seaside or of the mountains; he must have in profusion sunlight, an agent as salutary to man as it is destructive to microbes. In our opinion this hygienic treatment will best be realized by means of *free sanatoria*, Landouzy's home sanatoria, such as we find them scattered, in the shape of villas, along our sun-bathed Mediterranean shores. There all the required conditions, not only hygienic but moral and inspiring as well, can be fulfilled.

In private sanatoria for the rich, the culinary arrangements for such a large number of people are necessarily unsatisfactory, the cooking is less carefully attended to, the dishes less carefully prepared and less adapted to individual wants, to stomachs often fatigued and upset. As a matter of fact, the question of food is of vital importance in the treatment of a disease in which superalimentation plays such an important part.

The private sanatorium should be reserved for the impulsive, for those who are incapable of energy and self-direction. Besides, how many of these sanatoria are carelessly conducted! How many paying sanatoria are under the control of commercial managers who allow alcohol in all its forms to be freely distributed! who close their eyes to promiscuities which are dangerous, often immoral, and always harmful to patients who must carefully husband their strength. On the contrary, we willingly acknowledge the usefulness of the sanatorium destined to the poor. In their

case hygienic discipline will always be maintained, for there will be no reason for unbending before the perspective of rapid gains and big dividends; on the other hand, the poor will always find at a sanatorium better feeding than at home.

As for the medical treatment, much has been said of cacodylate of sodium. We shall not attempt a complete study of this substance. The most important thing for us is to be thoroughly acquainted with its real value. Its action and its efficiency must be measured by the light of the experience of numerous observers, and of our own. Its promoters were wrong, in our opinion, to call cacodylate of sodium a specific agent against tuberculosis. As against the numerous favorable observations—and which we do not doubt in the least—of Messrs. A. Gauthier, Renaud, Rendu, Letulle and others, we have to set off many others, equally unimpeachable, and where the results on tuberculosis have been *nil*. In the course of our practice we currently employ cacodylate of sodium; its effects have proved excellent in cases of anemia, of ganglionic and lymphatic persons, of chlorosis; in such cases we have observed a regular revival of the physiological functions, an increase of appetite, a resorption of ganglia. On the contrary, we have obtained less favorable results in cases of ulcerous and cavitary tuberculosis.

Burlureau, in a recent and thoroughly complete study on cacodylate, has come to the same conclusion. "As for tuberculosis," he says, "I regret to have to say that, contrary to the opinion of Professor Gauthier, it is in this disease that cacodylate has given me the least favorable results. Out of 29 cases of pulmonary tuberculosis I have only once obtained a really favorable effect, and that was but temporary."

Cacodylate will be specially useful for the pre-disposed, for those incipient cases which were so difficult to diagnose, and which we have now learned to recognize.²

As for the vanadates, they have not fulfilled the expectations formed of them; but this is partly due to the difficulty experienced in obtaining thoroughly determined products.

The same must be said of certain artificial serums, which must be classed among the soil strengtheners and are wanting in bactericidal powers, or rather in the power of exciting diapedesis and phagocytosis.

We now come to the raw meat treatment. The experimental researches of Richet and Héricourt have proved that raw meat juice acts, not as a strengthening agent, but as an antitoxin. This antitoxin would neutralize the effects of the tuberculosis toxin. This juice is the muscular plasma,

² For instance, Landouzy, Grancher, Sanchez have revealed to us the delicate stethoscopic signs of the period of germination; Hard and Falcade have showed us the importance of the cardiac rhythm, of tachycardia; Roussel and Boix that of the scapulo-thoracic amytropia; Bonchard, Beclere, Kelsch, Maragliano have taught us the radioscopic signs of incipient tuberculosis; Arloing, Monod, Courmont have established on a sure basis the early diagnosis of tuberculosis by serological diagnosis by agglutination; Albert Robin and Binet give us the same certitude by the analysis of the respiratory chemism; Siret and Fink by the observations of the effects produced by injections of artificial serum; Gaube (de Gers) by the study of the demineralization of the tissues.

obtained either by the press or by congelation followed by very rapid thawing of the muscular tissue.

The following is the method I have adopted at Cannes in the case of patients whom I submit to this treatment: The daily quantity of mashed meat is 800 gm. (28 oz. about); the patient takes as much as he can, the rest of the meat is pressed, in order that the juice may be extracted. The plasma must be taken immediately after having been prepared, otherwise one risks swallowing a putrefied and toxic substance. Although this method has given me excellent results, I consider it difficult to put into every-day practice. It possesses many inconveniences; for one thing, it is not within everybody's reach; it is costly in preparation, and requires 800 to 1,500 gm. of meat daily; it is supported with difficulty by many patients; it requires constant supervision, for this meat juice soon putrefies and becomes toxic. Injected under the skin of an animal, it causes death in a few minutes.

Experiments with this antituberculous plasma have been made in the laboratory of Messrs. Richet and Héricourt. These attempts at hypodermic injections of an immunizing and even curative liquid led us to read once more the already old but very complete works on the bactericidal or antitoxic properties of the blood of animals that are refractory, or seemingly refractory, to tuberculosis.

The medical literature of 1890 to 1895 shows us how this question has been strenuously discussed and deeply criticized. However, from these works we glean the following fact: That the blood of certain animals confers on other animals immunity from tuberculosis and may even cure this disease. "As far back as 1888," says Professor Bouchard in writing to Mr. Bertin, one of the promoters of antituberculosis serotherapy, "I expressed the idea that vaccines were destined to play a part, not only in the prophylaxis, but also in the treatment of this disease."

For my own part I have no hesitation in attaching myself to the method of antituberculous serotherapy introduced, at about the same time, in 1889, by Richet and Héricourt, and by Bertin and Picq, for I think that therein lies the solution, so long sought, of the problem of the cure of tuberculosis.

Naturally, with this medication just as with any other, we must not wait for the patient to be emaciated, to present digestive troubles and cachexia before treating him. For, we insist on this point, tuberculosis is not consumption. A consumptive or phthisical person is one in whose case the Koch bacillus, after having terminated its progressive career, has slowly brought on the suppurative destruction of the cells attacked, and in this mass of destroyed matter you will find all the processes provoked by the staphylo-, the strepto- and the pneumococcus, working together with the Koch bacillus.

In this case you have phthisis, consumption, the hectic fever which brings on a fatal issue; imagine that by some means you could at this

period destroy the bacilli of tuberculosis, your patient would still succumb to the strepto-, the staphylo- and the pneumococcus.

As a matter of fact, says Landouzy, it is this idea of helping those who are in the incipient stage, at a time when the germs of secondary infection have not yet attacked them, that has led medical men to make use of "the immunizing agents that are antitoxic or bactericidal owing to their strengthening action on phagocytosis."

This science of serotherapy, which we owe entirely to the French school, has been perfected by Pasteur's most renowned disciples,—by Drs. Duclaux, Roux, Grancher, Nocard, Metschnikoff, Yersin, Calmette, Leroux, Charrin, Marmorek, Boinet and many others, among whom we must mention Bertin and Picq, who were, together with Richet and Héricourt, the promoters of modern serotherapy.

The use of natural serum has given me unexpected results in serious cases of tuberculosis, and I have always been surprised to find that this method of treatment is not better known; natural serum seems to me to fulfill all the required conditions, for it is both dynamic and bactericidal.

As we know, in the case of tuberculosis the bacillus acts as a destructive force, but its action is strengthened by that of other destructive forces due to the soil. In one case it will be anemia, in another heredity, in another influenza or intellectual or physical strain. So, with these generalities, what are the characters required of a therapeutic agent against tuberculosis? We admit the stimulating and regenerative properties of the general tonics, cacodylates, phosphates, cod liver oil, etc.; we will even allow the antitoxic property of meat juice, but has anyone the right to say that each of these agents fulfills the two conditions necessary to the cure of tuberculosis? Certainly not, for they are either simply stimulating and strengthening or simply antitoxic. Bertin and Picq's serum (goat's serum) seems to me, on the other hand, to be at the same time tonic, antitoxic and bactericidal; it is the one we make use of.

As a matter of fact, daily experience tends to prove that every serum is dynamogenetic, and therefore a general strengthening agent. This is proved daily by the use of artificial serum in the case of serious hemorrhage, of anemia subsequent to chronic diseases, of traumatic shock consecutive to operations. In taking into account, however, the comparative value of the two serums, natural and artificial, we find that a very small quantity of the former produces an intense therapeutic effect, while the same effect can only be obtained by employing a double or even triple dose of artificial serum. There is here a *quid divinum*, due evidently to the intimate composition of natural serum. No one nowadays denies the dynamogenetic action of serum—it is a recognized fact. All we have to do is to repeat this action as often as required in order to maintain to a remarkable degree the resistance and the vitality of the patient.

While awaiting experiments destined to throw light on the still obscure question of the mode of action of serums, we give preference to the theory propounded by Metschnikoff, who looks upon them not as antitoxic but as stimulating agents of phagocytosis; in other words, as *stimulus*, provokers of organic resistance.

Therefore, as we admit that the microbial destruction and the arrest of infection are due to phagocytosis, the aim of our therapy must be to increase the activity of the phagocytes, in order that they may the more easily accomplish their mission. Moreover, the happy results that we have obtained this winter by means of natural serotherapy lead us to believe that this is the real and only effective method of realizing the cure of tuberculosis, especially in its early stages, now that the means of diagnosis which we possess permit us to discover the very earliest symptoms of incipient tuberculosis.

This treatment is absolutely innocuous and easily applied; one hypodermic injection of 2 cc. every other day. In some cases, however, in the case of nerve patients especially, I have observed after each injection an exaggeration of cellular activity, showing itself in the shape of fever, erythema and dyspnea; in such cases I administer the serum internally. But, in order to obtain the same tonic and stimulating effects, I have to increase the dose and administer 10 cc. instead of 2, as in the case of hypodermic injections.

These results agree with those obtained by Grasset, who concludes by saying that the administration of serum internally is the method of choice, because it is free from danger and gives rise to no accidents. Nevertheless, even with Bertin's serum, we are of opinion that the cacodylate medication should be employed as a precious adjuvant in most cases on the same level as tannin, iodine and cod liver oil.

THE CHEMICAL PROPERTIES OF LEUCOCYTES.

BY EDWARD E. WILLIAMS, M.D., BOSTON.

THE subdivision of the leucocytes by Ehrlich and his followers into over half a dozen different species, distinguished mainly by their reaction to staining agents, makes their study a somewhat difficult task. This difficulty is increased to the common mind by the artificial nomenclature adopted by recent writers on the subject. Professor Ewing of New York, in his late work on the blood,¹ divides the leucocytes into three classes, basophile, neutrophile and oxyphile. The basophiles are distinguished by their affinity for alkaline dyes, the neutrophiles are indifferent, while the oxyphiles stain only with acid dyes, like eosin, or acid-fuchsin (Ehrlich's triple stain).

Now basophile, base-loving, means in plain English acid; for that which loves a base is acid. Oxyphile, acid-loving, means alkaline. Neutro-

phile is neutral. It would seem wise, therefore, to change the names of Professor Ewing's three classes and say simply, acid, neutral and alkaline leucocytes. This assists comprehension and fixes their staining affinities more clearly in the mind.

The nuclei of all three classes stain best with alkaline dyes, as methylene-blue, methyl-green or dahlia. They are, therefore, acid. The bodies of the normal, single-nucleated leucocytes take the same dyes. This proves them to be acid. The bodies of the normal, many-nucleated leucocytes are neutral to dyes. They come under the neutral class, which includes also the neutral myelocytes (a doubtful name), which are found only in disease. The bodies of the so-called eosinophile leucocytes and eosinophile myelocytes take only the acid dyes. They are, therefore, alkaline.

The alkaline leucocytes occur chiefly in disease. There are, to be sure, a few eosins in normal blood (about 3% of all leucocytes, according to Ewing), but any marked increase in their number is sure to be a symptom of disease. This is especially characteristic in leucocythæmia, trichiniasis and some other diseases. The iodine-staining leucocytes may be conveniently classed as alkaline, since iodine acts as an acid with alkalies. On the other hand the fodder-cells (mast-cells) may be classed with the acid group, since they stain only with Ehrlich's dahlia solution, a basic dye.

It is doubtless impossible in our present state of knowledge to explain precisely the causes of these diverse reactions. It may be possible to make a plausible guess. We have seen that all nuclei are acid. They owe this property, without doubt, to the nuclein which they contain. Nuclein is acid. When boiled with alkalies it yields phosphoric acid.² Phosphoric acid, it may be remarked, is the only mineral acid which does not coagulate albumin. It is the presence of this acid undoubtedly which makes nuclein acid. According to the experiments of Kossel, quoted by Vaughan and Novy,³ nuclein when boiled with acids yields certain organic, albuminoid bases, as adenine, sarcine, xanthine, spermine and others. They belong to the numerous class of putrefactive alkaloids invariably produced by the decomposition of albuminous or proteid substances whether animal or vegetable. We must conceive, therefore, of nuclein as some sort of a phospho-albumin, whose composition has not been precisely determined. Probably there are many nucleins.

It may be reasonably conceived that the cell bodies of the acid, single-nucleated leucocytes also contain nuclein. These form over 20% of the whole number of leucocytes (Ewing). They are probably the youngest of the leucocytes, since they are formed mainly in the lymph glands, and according to the old doctrine ultimately develop into multinuclears by division of the nucleus. Ewing rejects this hypothesis; yet it is hard to conceive, as he seems to do, that every variety of leucocyte is a fixed and definite anatomical ele-

¹ Clinical Pathology of the Blood; Lea Brothers & Co., Philadelphia, 1901.

² Merck's Index, New York, 1900; sub voce.
³ Putrefactive and Leucamines; Lea Brothers & Co., Philadelphia, 1901.

ment. If the uninuclears contain nuclein, their affinity for basic dyes is readily understood.

The cell bodies of the multinuclears are neutral to dyes. Hence nuclein is absent. If ever present it has disappeared, possibly as the result of decomposition. Warren,⁴ Cornil and Ranvier,⁵ Wharton Jones⁶ and other authorities have declared their opinion that the multinuclears are in a state of decomposition.

The alkaline leucocytes certainly seem to be dying forms. They are almost invariably the products of disease. We know that leucocytes (like other cells) are subject to degeneration. The fatty degeneration is extremely common. This is constantly seen in suppurative processes. The cells are full of oil drops and finally dissolve. Ewing admits seeing this himself and finding the oil drops blackened, as might be expected under osmic acid. Amyloid degeneration may very likely be one of the causes of the peculiar iodine staining of certain morbid leucocytes called by T. Dunham of New York⁷ iodophiles. Ewing calls this the glycogen reaction; still he considers it due to degeneration of the cell substance. Lastly, the eosinophiles, as previously remarked, are mainly the products of disease. They are often associated with spermine (Charcot-Leyden) crystals, which sometimes appear either in or upon them.⁸ This association has been particularly noticed in leucocythemia and asthma. Xanthine, too, is a common finding in leucocythemia. Now spermine and xanthine, as already mentioned, are products of the decomposition of nuclein. Hence it seems rational to infer that the eosinophiles also are undergoing decomposition. The cellular protoplasm is breaking up and resolving itself into nitrogenous alkaloids. Hence their alkalinity; hence their peculiar affinity for acid dyes. For these reasons I make bold to include all alkaline (oxyphile) leucocytes under the designation of necrotic cells.

At a future period I hope to bring forward some further evidence in support of this conclusion.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

ARSENICAL MELANODERMA.

Gaucher and Bernard¹ reported at the Société de Dermatologie et de Syphiligraphie the case of a woman of 32 who consulted them on account of a brown pigmentation, which was scattered over a large part of the body. She had first no-

ticed, 4 years previously, that her neck was becoming dark. She had had since her infancy some tendency to freckling of the face, which increased each year, but had never become excessive. Little by little the pigmentation of the neck increased, while at the same time dark spots appeared on other parts of the body subject to friction or abundant perspiration — the waist, axillae, etc. When seen the pigmentation had extended to almost the whole surface of the body. It was made up of spots of a more or less dark brown, rounded, and of various sizes, some no larger than a pin's head, others as large as a bean. In certain places these macules are isolated and separated by intervals of sound skin; in others they are confluent and form large brown or brownish-black plaques. They are marked on the face, forming a confluent mass over the forehead. Over the back and sides of the neck the pigmentation is very marked. The trunk is deeply pigmented with a maximum of intensity about the waist, where there is a large band of pigmentation with numerous outlying macules. It is marked on the upper part of the back and in the lumbar region. The extremities are almost entirely free from pigmentation, and show only a few light-colored patches, with the exception of the thighs, where the spots are more confluent. There is no pigmentation nor abnormality of the epidermis of the palms and soles. The mucous membrane of the mouth is unaffected.

Upon inquiry it was found that, for 6 consecutive years and up to 1 year ago, she had taken continuously, with the exception only of 8 days a month, Fowler's solution in the dose of 20 drops a day, because she had been told that it would improve her health and also give her a good color.

Lotions of sublimate, etc., were employed morning and evening for several months, during which time the patient was seen at intervals, but no change could be seen in the intensity or the extent of the pigmentation. The general condition remained good.

In this case, as in those of Mathieu and Richardiére, as well as those reported by Brouardel, the pigmentation appeared first on the neck, and extended from there to the trunk and abdomen. As in other cases, also, the pigmentation was most marked on parts exposed to pressure or friction; it had a predilection for the parts covered by the clothing, and did not affect the hands and feet, and the extremities in general very little. As in other cases, again, the skin presented a peculiar spotted appearance, that has been compared to a scattering of bits of tobacco. As is usual, there was no pigmentation of the mucous membranes. The melanoderma was extremely rebellious to treatment and to the stopping of the cause. The long persistence of the pigmentation is a rule in these cases, so that sometimes there is considerable difficulty in distinguishing it from Addison's disease. The predisposition to pigmentation shown by the previous freckling is to be noted in this case.

⁴ Surgical Pathology; Saunders, Philadelphia, 1895, p. 160.

⁵ Pathological Histology; Lea Brothers & Co., Philadelphia, 1880, p. 21.

⁶ The Blood Corpuscle in Its Different Phases of Development; Philosphical Transactions, 1846.

⁷ Iodophyllia; Boston Medical and Surgical Journal, June 13, 1901.

⁸ Ewing; Clinical Pathology of the Blood; Lea Brothers & Co., Philadelphia, 1901, p. 218.

¹ Ann. de Derm. et de Syph., April, 1901.

IS HERPES ZOSTER AN ACUTE INFECTIOUS DISEASE?²

Von Bärensprung in 1861-1863 published his important investigations on the subject of zoster, in which he showed by 56 carefully studied cases that the cutaneous eruption always corresponded to a nerve track, and from one microscopical examination that the trouble was seated in the ganglion belonging to the nerve. This view was strengthened by the theory of the existence of a trophic nervous system that was advanced soon after by Samuel. Hence it was argued that zoster was without doubt a trophoneurosis, and it was claimed that the existence of such a disease as zoster was a further proof that there was a trophic nervous system. Further researches claimed to confirm the existence of pathological changes in the spinal ganglia which corresponded to the territory where the eruption was seated, but no weight was given to the fact that these changes might represent old processes or the sequelae of such. Pfeiffer opposed the neuropathic theory, on the ground that the eruption in zoster does not in many cases follow the peripheral extension of especial nerves, while Naehot in 1889 pointed out that the course of the arteries of the skin was subject to much greater individual variation than that of the nerves, and hence advanced the hypothesis that it was the arteries and not the nerves that determined where the eruption had its seat. By this latter theory there is a cause that is carried in the circulation and localizes itself at the places where the smallest arteries end. Haslund thinks that there is little in favor of this latter theory as compared with von Bärensprung's, which is supported by the intense and often long-lasting neuralgia that accompanies zoster, as well as by the sensory disturbances, paralysis, muscle atrophy, etc. Pfeiffer's proposal to place zoster in the class of infectious diseases is much more attractive.

The similarity to the exanthemata is especially marked in the following respects:

(1) *The Clinical Course.*—The affection usually begins with a prodromal period that often lasts several days. Sometimes there is only local pain; at others there are moderate constitutional symptoms, such as fever, malaise and disturbed sleep.

(2) The fact that, as in the acute infectious diseases, zoster usually affects the same individual but once in his life; there seems to be an acquired immunity. There are occasional exceptions, it is true, where a number of recurrences have been noted.

(3) Certain seasons, as spring and autumn, bring with them an unusually large number of cases of zoster.

(4) Epidemics of zoster have frequently been reported, where a large number of cases have occurred within a given time. In 1883, 30 cases were observed in a hospital in Basle within a short space of time. Patients as well as physicians and attendants were attacked.

Attempts to inoculate with the serum from the vesicles have not succeeded, but there have been numerous instances in which a direct contagion seemed probable.

A circumstance that can only be explained on the theory of an infectious disease is the appearance of scattered vesicles and a generalized outbreak during the course of a zoster. This cannot be explained on the theory of a single diseased ganglion, while if we assume that the eruption is produced by some infectious agent, probably of microbic character, which circulates in the blood and usually finds lodgment in a peripheral nerve, a ganglion, or in some localized part of the central nervous system, it is easy to reach the conclusion that this infectious agent in some cases is present in so large a quantity that it may affect other places and other nerves.

Haslund considers from his own observations that aberrant vesicles occur very frequently in zoster, if the patient is very carefully examined. These are as a rule somewhat smaller than the vesicles of zoster itself but are very similar to them in appearance. A generalized eruption, where the lesions are found on numerous parts of the body, has been several times recorded, and Haslund has observed 2 cases. The first case is that of a woman of 59 who had a zoster of the thoracic region. Besides this, large numbers of vesicles of exactly the same appearance appeared soon after the zoster on the upper extremities, the trunk and face. Similar appearances were present on the mucous membrane of the gums and on the left border of the tongue. In the second case a woman of 73 developed, at the same time with a circumscribed pneumonia of the apex of the right lung, a thoracic zoster upon the left side. There were no appearances on the mucous membranes, but the whole skin was covered with lesions of the same character as those of the zoster.

In the cases in which zoster follows the ingestion of arsenic, the lesions are of the same character as in ordinary zoster. Haslund remarks that in other fields of pathology we find the same morphological elements produced by entirely different causes.

TREATMENT OF LEPROSY BY SUBCUTANEOUS INJECTION OF CHALMOOGRA OIL.

Hallopeau,³ in an article on this subject, declares that chaulmoogra oil is the drug most commonly used today in the treatment of leprosy, and the one from which the greatest benefits have been derived; yet it has many disadvantages, as it is often not well borne, and must often be suspended on account of the gastric disturbance that it causes. Tourtonlis-Bey of Cairo has advocated, therefore, its subcutaneous injection, and has reported a case of severe leprosy where its employment was followed by very favorable results. In this case the subcutaneous injections were made at first very frequently, about 20 times a month, 5 gm. at a time, and were con-

² Haslund: Kaposi's Festschrift, 1900.

³ Leprosy, June, 1901.

tinned at intervals for about 5 years. The injections were made on the extensor surfaces of the extremities, were not painful, and the swelling that they caused disappeared in 24 hours. The improvement began at once, until finally the patient could be regarded as cured, having only a few slight signs of the trouble left.

It seems probable that the quality of the drug varies very much, according to the source from which it comes, as it is very often adulterated in the markets of India. Tourtoulis has demonstrated that the injections can be borne at the dose of 5 gm. a day. If, however, it is well borne by the digestive tract, Hallopeau sees no need of resorting to the hypodermic method. He says that this drug has been in favorite usage at the St. Louis Hospital for a great many years. Besuier has often seen great improvement from its use; one of his cases that had severe destructive lesions can today be regarded as cured. A patient from Rio de Janeiro, whose leprosy was constantly progressing in her own country in spite of various methods of treatment, has shown a remarkable improvement under chaulmoogra oil, and this improvement has lasted for 18 months. For a year 9 lepers have been treated, either by the mouth or hypodermically, with chaulmoogra oil, and it seems that the result has not been negative, although in some instances new tubercles have made their appearance. In 1 case there has been an aggravation of the symptoms, but in that case the oil was not well borne. It must be remembered, however, that in the intervals of the attacks the disease has a tendency to improve spontaneously, so that all credit should not be given to the treatment employed. In some cases patients have had attacks during the whole period of hypodermic injections, and have experienced a notable improvement when they were omitted.

Hallopeau's conclusions are:

(1) Lepers treated with chaulmoogra oil, either hypodermically or by the mouth, may show such an improvement that they may be fairly regarded as cured.

(2) More often they continue to show signs of the affection, but these are usually of a benign character.

(3) In certain cases intense local and general exacerbations appear in spite of the treatment.

(4) It is probable that this drug has a favorable influence upon leprosy.

(5) This influence is not usually sufficient to cure the disease; it cannot in any way be compared to that of mercury or the iodide of potash in syphilis, nor to that of quinine in malaria.

(6) It is best given in hypodermic injections to patients who bear it well; it may give rise to febrile disturbances and to pulmonary emboli.

Du Castel, in the same publication, records his results in 4 cases. In the first case a patient who had not responded to various other modes of treatment, including chaulmoogra oil internally, was treated with this drug hypodermically, and showed a rapid improvement, the ulcers healing, and the tubercles diminishing in size. The injec-

tions gave great pain, however, left subcutaneous indurations, and in one instance a large abscess developed on the thigh. The injections were omitted on account of a pulmonary embolus that caused much anxiety. The manifestations then increased again, but did not attain the gravity that they had before the injections were made.

The second case was that of a man of 59, who had symptoms chiefly of the anesthetic variety. The injections caused a rapid disappearance of some rebellious erythematous patches, but had no effect on the other lesions. The third case was a native of Guadeloupe, a man of 28, who exhibited marked anesthetic symptoms which had increased in spite of the administration of chaulmoogra oil internally. The injections in the subcutaneous tissue of the thigh proved to be painful, and the patient was obliged to keep to his bed some of the time. There was a great deal of induration at the site of the injections. This man had at the time of writing been treated by the injections for nearly two years, and on the whole his condition was about the same as at the beginning of the treatment.

In the last case, a man of 30, a native of Brazil, was covered with large patches of erythema and showed marked muscular atrophy and anesthesia. There had been no previous treatment. The injections proved very painful and produced marked indurations. After several months of treatment the patient left the hospital with considerable improvement in the anesthesia, although there had been an appearance of tubercles during the course of the treatment. Twice there was dyspnea after the injections, with all the symptoms of pulmonary embolus.

His conclusions are that subcutaneous injections of chaulmoogra oil give rise to a marked inflammatory reaction of the subcutaneous tissues; they are painful and cannot, in the case of the greater number of patients, be practised continuously. They readily give rise to pulmonary fatty emboli. This method appears to have much greater effect on tubercular leprosy than on the nervous form of the disease. On the whole, the treatment should, for the present at least, be confined to exceptional cases and not be adopted as a routine procedure.

(To be continued.)

Reports of Societies.

BRITISH CONGRESS ON TUBERCULOSIS.

HELD IN LONDON, JULY 22-26, 1901.

(Continued from No. 9, p. 253.)

SECTION III.—PATHOLOGY, INCLUDING BACTERIOLOGY.

SECOND DAY.

At this section two subjects were discussed; namely: (1) "The Morphological and Physiological Variations of the *Bacillus Tuberculosis* and

its Relations to Other Bacteria Resistant to Acids and to the Streptothryces," and (2) "The Infectiousness of the Milk of Tuberculous Cows, Bacteriological Diagnosis, and the Practical Value of Tuberculin for the Extermination of Tuberculosis among Cattle."

The meeting was opened by PROF. SIMS WOODHEAD, who said that he would not take up the time by giving an opening address, but would call at once upon the opener of the first discussion.

DR. MOELLER, Belsiz, opened the discussion. He remarked that several acid-fast bacteria had been recently demonstrated other than tubercle bacilli. Of these the smegma bacillus, Lustgarten's bacillus and the bacillus of avian tuberculosis had been described for some considerable time. Further, experiments had shown that it was possible to modify the bacillus of human tuberculosis by passage through cold-blooded animals. In this way Bataillon, Terre and Lubarsch had modified it by passage through frogs. He had succeeded in obtaining the same result by passage through the slow worm.

Recently a number of micro-organisms, closely resembling the tubercle bacillus in morphological appearances and acid fastness, had been described. Two, the butter bacillus of Petri and Rabinowitsch and the bacillus phlei of the author, were found fairly widely distributed in nature. These bacilli differed from the true tubercle bacillus in growing readily at 20° C., but they also grew at blood temperature. The result of injecting cultures of these bacteria into guinea pigs and rabbits was the production of lesions similar to those produced by the tubercle bacillus. He agreed that these acid-fast bacteria belonged to the family of streptothryces.

DR. BULLOCK, London, gave an account of his experiments concerning the chemical constitution of two of the acid-fast bacteria, the bacillus tuberculosis and the bacillus phlei. He showed that these bacilli contained fat, fatty acids, wax, lipochromes, proteids, salts and, as a residue, a body which at the same time reduced Fehling's solution and contained nitrogen. It appeared to be similar to chitin. When the fat was removed the bacilli were found to be still acid-fast, but when the wax was removed, as with boiling chloroform, the acid-fastness disappeared. He showed that the wax itself was acid-fast, and concluded that the acid-fastness must be due, therefore, to the wax. There appeared to be little difference between the chemical composition of the two bacilli, and he was convinced that neither of these organisms contained real endospores. The resisting power was probably due to the chitin-like substance.

PROFESSOR ADAMI, Montreal, had examined the cultures which were shown in the museum, and could not but feel that many of the differences in the cultures were due to the fact that bacteriologists did not use standard media. He thought that the time was now ripe for an international standardization of media.

PROFESSOR McWEENEY, Dublin, thought that the work of Coppen Jones was very valuable, and

agreed with him in thinking that there was a very distinct relationship between the tubercle bacillus and the higher bacteria of the nature of streptothryces.

DR. MARMOREK, Pasteur Institute, considered that the close connection which had been shown to exist in the external aspect of the acid-fast bacteria made it very necessary to be careful in making distinctions between the tubercle and paratubercle bacilli. One could say that of all these microbes only those are tuberculous which give to laboratory animals the lesions known as tuberculosis.

AFTER DR. BOUSFIELD, London, had spoken Dr. KOSSEL, Berlin, pointed out that Weber had not succeeded in producing the "progressive lesions terminated by death," which were so characteristic of the true tubercle bacillus, by the injection of other acid-fast bacilli.

PROFESSOR WOODHEAD, Cambridge, having summarized the points raised and insisted upon the necessity of further research, called upon Dr. Bullock to reply.

The second discussion was opened by DR. LYDIA RABINOWITSCH of Berlin, who gave an account of her experiments with the milk of healthy and tuberculous cows. She had never managed to demonstrate the presence of tubercle bacilli in the milk of cows which did not react to the tuberculin test, whereas in the case of cows which reacted to the test she had found tubercle bacilli in the milk even when the udders were healthy, and had failed to find them in the milk of cows with tuberculous udders. She considered that the mere microscopic examination of the centrifugized deposit of milk was extremely unsatisfactory; the animal test-inoculation into animals was wearisome on account of the delay in the reaction. The tuberculin test was the only reliable and rapid method, and she thought that if a cow suffered from mastitis and gave a tuberculin reaction the milk ought to be considered as dangerous.

DR. McWEENEY, Dublin, had rarely seen a real tuberculous mastitis and had failed to demonstrate the presence of tubercle bacilli, even after inoculation, in the milk of 16 cows which were all suffering from advanced tuberculosis, but which had healthy udders.

PROFESSOR NOCARD, Alfort, pointed out how easily tuberculosis was spread by giving calves and pigs the residue of the milk after the manufacture of butter and cream. That tuberculosis could be transmitted from cattle to children, he held as proved, and it was a noteworthy fact in England during the past 90 years, whilst general tuberculosis had declined very considerably, abdominal tuberculosis had very definitely increased. Too much care could not be taken in eliminating all the tuberculous milk.

PROFESSOR ADAMI, Montreal, could fully confirm the deductions of Dr. Rabinowitsch, as his experiments agreed entirely with hers. There could be no doubt, he thought, that man under certain conditions could acquire tuberculosis from

cattle, and even if one allowed that only a small proportion of tuberculous children were infected through the medium of milk, these few should be saved if possible.

PROFESSOR HAMILTON, Aberdeen, said that the experiments of Dr. Wilson of Aberdeen seemed to show that calves could take with impunity the milk of tuberculous cows, provided that they had not tuberculous udders.

DR. RAVENAL, Philadelphia, had inoculated guinea pigs with the mixed milk of cows with sound udders suffering from tuberculosis, and found that 12.5% of the guinea pigs died of tuberculosis. In Pennsylvania they relied very implicitly upon the tuberculin test, but also examined the milk bacteriologically and had the cows inspected regularly by the veterinary surgeons.

PROFESSOR WOODHEAD, Cambridge, thought that the only satisfactory bacteriological test for tubercle bacilli in milk was injection into the peritoneal cavity of guinea pigs. He felt very strongly, despite much that had been said to the contrary, that if a cow had mastitis and reacted to tuberculin the milk of that cow should be condemned or sterilized on account of the danger that the mastitis might be or become tuberculous.

PROFESSOR BANG, Copenhagen, said that in his experience it was rare to find tubercle bacilli in the milk which came from a cow which, though suffering from tuberculosis, had sound udders. He examined the milk of 63 cows which, whilst suffering from advanced tuberculosis, had sound udders, and only 9 of these yielded milk which caused even a suspicion of tuberculosis in guinea pigs, and only 1 succumbed. He did not agree with Professor Woodhead that if a cow reacted to tuberculin the milk should be condemned, even though the udder was healthy.

THIRD DAY.

The meeting commenced with the paper of PROFESSOR BENDA, Berlin, upon the

VARIETIES OF TUBERCULOSIS.

He described the varieties of the pathological conditions met with, and gave an account of his work upon tuberculosis peri- and endangitis. It was not sufficiently realized that the blood stream was responsible for the diffuse distribution, since the bacilli, although they would not grow in the blood, were carried by it, and that the walls of the blood vessels, frequently containing tubercles, were the source of some of the toxin produced. It was by means of the tubercle bacilli in the walls of the blood vessels that widely distributed acute miliary tuberculosis could occur in a patient already the subject of chronic localized tuberculosis.

PROFESSOR HAMILTON, Aberdeen, said that the chief portals by which tubercle bacilli entered the system were the lungs and the lower half of the small intestine. It was not yet proved that the mucous membrane of these parts could absorb and hand on the bacilli without injury to themselves.

Tuberculous pericarditis was in his experience a rare disease, but he could not understand why. The bacilli were carried along the lymph streams rather than along the blood streams because a large number of the bacilli were destroyed by the blood phagocytes.

DR. HABERSHON, London: The results of the post-mortem examinations at the Brompton Hospital showed most distinctly that the mucous membrane of the tonsils and small intestine were frequent paths of entrance for the tubercle bacilli; that the bacilli could pass a normal mucous membrane without necessarily injuring it. The influence of syphilis upon pulmonary tuberculosis was very considerable.

PROFESSOR OSLER, Baltimore: Tuberculous pericarditis was not so rare a disease as Professor Hamilton supposed, but was frequently overlooked.

PROFESSOR ADAMI, Montreal, had recently come across so many cases of tuberculous pericarditis that it could not be considered to be rare. There could be no doubt that there was a constant physiological passage of bacteria through the mucous membrane covering the tonsils and intestines by the intermediation of wandering cells. This being so, the conclusion was that lymph-glandular tuberculosis might originate in the complete absence of any lesion of the portal of entry. The endothelial cells all over the body had the power of destroying bacteria, and it was only when the activity of these endothelial cells was lost that the tubercle bacilli could settle down and build up tubercles.

PROFESSOR MUIR, Glasgow: One fact which was frequently overlooked was that tuberculosis might spread in the lymph channels against the flow of lymph. Pulmonary tuberculosis was often secondary to a glandular affection of the neck or thorax; indeed, the presence of pulmonary lesions did not necessarily indicate that the disease was produced by inhalation, nor did the absence of lesions in the mucous membrane of the alimentary canal prove that infection had not occurred by that channel.

PROFESSOR HAMILTON in reply had been misunderstood concerning the occurrence of tuberculous pericarditis. Pericarditis with tubercles undoubtedly occurred, but in many of these cases the invasion of the tubercle bacilli was secondary to the pericarditis, and therefore should not be called a tuberculous pericarditis. Most pathologists would agree that it very often happened that the lungs might be in the last stage of tuberculosis, nearly every organ in the body might be the seat of a secondary tuberculous eruption, and yet the pericardial sac would be quite free.

DR. RAVENAL, Philadelphia, gave an outline of the exhaustive experiments which he had undertaken with human and bovine tuberculosis. There were, in these, persistent peculiarities of growth and morphology in culture which served generally to distinguish the one from the other. When comparative experiments were undertaken with several strains of bovine and of human tubercle

bacilli to test their pathogenicity, one fact came out very clearly: That for all experimental animals which are susceptible to both kinds, the bovine races are more virulent with one exception, namely, swine, which appear to be as highly susceptible to the human as to the bovine. It made no difference whether pure cultures or actually infected material from man or cattle were injected. Several cases had come under his notice where the bovine race had been the direct cause of tuberculosis in man. One case was that of his own assistant who inoculated himself while making a post-mortem examination upon a goat which had been inoculated with bovine tuberculosis. Not only were typical histological lesions produced, but cultivations were obtained from the tubercles. It was a fair assumption from the evidence which he brought forward, and in the absence of evidence to the contrary, that the bovine tubercle bacillus had a high degree of pathogenic power for man also, which was especially manifest in the early years of life.

FOURTH DAY.

The final meeting of this section was held under the presidency of PROFESSOR SIMS WOODHEAD.

DR. WILLIAM BROWN, Carlisle, gave a lantern demonstration illustrative of the examination of carcasses in cases of cattle tuberculosis.

PROFESSOR BANG, Copenhagen, next read his paper on

SOME EXPERIMENTS ON THE TEMPERATURE NECESSARY FOR KILLING TUBERCLE BACILLI IN MILK.

From the result of a large number of experiments he came to the conclusion that in order to kill the tubercle bacilli a temperature of 85° C. was necessary; exposure to temperatures less than this might kill but did not necessarily do so. Another very important point in the sterilization of milk, especially upon a commercial scale, was that the froth of the milk was not as high a temperature as the milk itself, so that it was possible for the bacilli in the milk itself to be killed, while those in the froth might remain alive.

PROFESSOR RUATA, Perugia, showed statistics from the last report of the English registrar general, and pointed out the very high death-rate from both tuberculous enteritis and tuberculous meningitis which occurred during the first year of life. It was noticeable that a very large proportion of these deaths occurred during the first two months of life, and as tuberculosis was a more or less chronic disease, it seemed impossible to him that the consumption of milk could be so great a factor in the propagation of the disease as was generally supposed.

DR. KOSSEL, Berlin, had carried out a number of experiments upon the sterilization of milk both on laboratory and commercial scales. As the result of his experiments he concluded that a temperature of 90° C. was necessary for the effectual sterilization of milk. One objection which had been made against heating the milk to such a high

temperature was that it became useless for the preparation of dairy products, such as butter and cheese. But in the dairy in which his experiments had been carried on, it had been proven that it was possible to heat the milk to 90° C. without interfering with the manufacture of these two commodities.

DR. McWEENY, Dublin, had always recommended a temperature of 75° C. for a period of 15 minutes.

PROFESSOR DELEPINE, Manchester, agreed that a high temperature—and he thought even as high as 100° C.—was necessary to ensure the effectual sterilization of milk. From experiments which he himself had previously made, he felt certain that treatment at lower temperatures only delayed but did not prevent the development of tuberculosis when the milk was inoculated into laboratory animals.

DR. MARMOREK, Paris, pointed out, in opposition to the suggestion of Professor Ruata that tuberculous meningitis must be looked upon as a secondary infection and, therefore, however early it occurred, must have been preceded by some other tuberculous lesions, and it did not appear that a meningitis secondary to a tonsillar or bronchial gland infection had necessarily a longer latent period than that secondary to a mesenteric gland infection. It was noteworthy that in the high Alps, although the inhabitants were great milk consumers, tuberculosis was comparatively uncommon in the young. This fact he attributed to the splendid condition of the cattle, the comparative lack of communication between the villages, and the want of large centres or aggregations of people.

MR. KING WELL (a butcher) complained very bitterly of the manner in which American meat was allowed to be exported from that country, and which upon arrival in this country was found to contain either tuberculous nodules or cysticerci, and considered that it was only in Germany that the meat inspectors really understood their business. He strongly advised the powers that be to add still another import from Germany—namely, meat inspectors.

In reply DR. RAVENAL said that in his experience it was very difficult to find cysticerci in pigs, and whatever Mr. Well might say to the contrary, the British public seemed to require a very large amount of American meat and thrive well upon it.

MR. A. G. R. FORTLETON, London, then opened the discussion upon

MIXED INFECTIONS IN TUBERCULOSIS

and gave an account of a number of post-mortem examinations.

In the absence of PROFESSOR OPHULS, San Francisco, the secretary read his paper upon

MIXED INFECTION IN PULMONARY TUBERCULOSIS.

This was an account of the investigations of 39 consecutive cases of phthisis. Thirteen cases of old cavities were carefully examined, and in 7 the bacillus tuberculosis was found in pure cultures.

In the others pneumococci, streptococci, staphylococci and pseudodiphtheria bacilli were found in varying numbers. In these cases tubercles, however old, contained only tubercle bacilli, provided there were no cavities in them. In 25 cases of tuberculous pneumonia only tubercle bacilli could be found, and it was to be noted that where liquefaction or caseation was going on the tubercle bacilli were present in enormous numbers. He had had 12 cases of recent mixed infection in which tubercle bacilli and either pneumococci, streptococci or staphylococci were present altogether. In 6 cases of mixed infections a general infection with either pneumococci, staphylococci or streptococci had occurred. He had never met with Sata's "Caseous-mixed Pneumonia." In these cases of mixed infection the immediate cause was generally an acute septicemia produced by the pyogenic cocci.

DR. BULLOCH, London, thought that the difficulties surrounding the estimation of the part played by bacteria as secondary infectors were great, and he suggested that a joint investigation by clinicians, pathologists and bacteriologists should be undertaken to determine the extent of this factor.

DR. F. F. FRIEDMANN, Berlin, next read a paper upon

EXPERIMENTS PROVING THE INFECTION OF THE FETUS BY THE BACILLI OF TUBERCULOSIS.

He showed that it was possible to infect the fetus in utero by injecting a culture of tubercle bacilli into the uterus of a female rabbit after copulation, without necessarily infecting the mother, and that it was therefore possible for a fetus to acquire tuberculosis from the father as well as from the mother.

DR. BROCK HUNT communicated a paper upon

STEAM-HEATED RAILWAY CARRIAGES AND THE SPREAD OF TUBERCULOSIS,

and hoped that while legislation was being made for the prevention of the dissemination of tuberculous material, the railway carriages and systems of our country would not be forgotten.

DR. TATSUSABURO YABE and DR. HUGH WALSHAM then read their papers respectively, upon

"THE SERUMTHERAPY OF TUBERCULOSIS" AND
"TUBERCULOSIS EXCRETION OF THE KIDNEY."

MR. HERBERT MORGAN regretted that no mention had been made at the congress of one source of contamination; namely, the chalice at the communion table.

Resolution 5, which was carried in the general meeting, was passed in this section for presentation to the general meeting.

(To be continued.)

It is reported that Professor Van Gehuchten has been awarded a prize of 5,000 francs by the Belgian Government for his work on the brain and spinal cord.

Recent Literature.

Introduction to the Differential Diagnosis of the Separate Forms of Gallstone Disease. By PROF. HANS KEHR, Halberstadt. Authorized translation by WILLIAM WATKINS SEYMOUR, A.B. (Yale), M.D. (Harvard), Surgeon to the Samaritan Hospital, Troy, N. Y., etc. Pp. 370. Philadelphia: P. Blakiston's Son & Co. 1901.

The deep interest of the translator in this subject, and an extended experience (both personal and professional), have naturally attracted him to the valuable work of Professor Kehr. It has seemed to him so important that he has been induced to undertake the task of making it available for English readers. Dr. Kehr thinks such a serious affection as this should not be treated mainly by writers on internal medicine who regard operative interference as a last resort, or by surgeons who devote more attention to operative technique than to distinguishing the various forms of gallstone disease.

Professor Kehr's work, based on a personal experience in 433 laparotomies performed on account of biliary calculi, has made an impression by its great merit, particularly on account of the attention paid to differential diagnosis. His clinical records in November, 1900, reached his five hundred and forty-seventh case. His careful study of this large amount of clinical material, and the low mortality of his operative work, entitle the author's writing on this subject to careful consideration.

The book is thus arranged: In the first 130 pages are considered "the pathology of, the clinical history and examination of, the special diagnosis of, and the treatment of, cholelithiasis."

It is justly stated that one great merit and value of the work is that the question of diagnosis is discussed thoroughly, and from every point of view. The opinions and conclusions relating to surgical treatment deserve careful reading.

The latter half of the volume (193 pages) is devoted to publishing in detail the clinical histories of 100 cases for the purpose of illustrating the subject of special diagnosis. Also to show the difficulties and at times the impossibility of special diagnosis in certain cases. These records are quite instructive, and are interesting reading to students of this subject. Many unusual and puzzling conditions are here explained. The concluding 37 pages comprise an appendix in which the author reports 18 additional cases of laparotomy for cholelithiasis done between April 1 and May 15, 1899. Dr. Seymour's work as translator is quite satisfactorily done, and the English-speaking medical profession are greatly indebted to him for thus placing at their disposal this important treatise.

The English authorities are considering the expediency of adding cocaine to the list of poisons governed by the Poison Act of England of 1868.

THE BOSTON

Medical and Surgical Journal.

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THE HARVARD MEDICAL ALUMNI ASSOCIATION.

This association is now about ten years old, and during this time has held annual meetings for the general purpose of encouraging a fellow feeling among the graduates of the medical department of the university, and of advancing the cause of medical education. The success of any association must ultimately depend upon a feeling of loyalty to the association and to the university which it represents, and also upon a high degree of enthusiasm in furthering the objects for which the association stands. How best to bring this about is not an easy matter to decide. It is naturally quite impossible to reach members living in distant parts of the country by the announcement of an annual dinner to be held in Boston, nor have the published reports of the speeches made on these occasions — excellent and progressive as they have often been — served to excite a wide interest in the affairs of the association. The council has therefore decided, after due deliberation, to publish a pamphlet to be known as *The Quarterly of the Harvard Medical Alumni Association*, containing various items and details connected with the development of the medical department of the university which should be of interest to members of the association.

The first number of this quarterly is before us, admirably printed on somewhat unnecessarily good paper, and attractively bound in heavy blue paper covers. The contents have, in a measure, a wider interest than is implied by a circulation only among the members of the association. We refer especially to the complete report of a committee of the medical school on the subject of medical education, and to a description with a photograph of the proposed new medical buildings, three of which are to be built through the munificence of Mr. J. P. Morgan.

We have already commented editorially, in our issue of July 18, on the report on medical education alluded to above. A careful reading of the full report does not lead us to alter our opinions. Many of the suggestions are admirable, and certainly indicate an advance in methods of teaching, but we must again enter an objection to the assumption that people at large, whether physicians or laymen, have any sort of a clear conception as to what constitutes the general practitioner as opposed to the specialist in these days of broad knowledge. Perhaps it is not worth while to make distinctions, but certainly "if an effort should be made to rehabilitate the general practitioner," it is desirable to know what the scope of such a rehabilitated general practitioner is to be. Is not, in fact, the assumption that it is desirable to rehabilitate him an indication, at least, that he has ceased to exist? As urged in our former editorial, the time has come to define our terms, and this the report appears not to have done.

The remainder of the pamphlet is taken up with lists of the instructors in the various departments of medical work, with various notes of personal interest, and with a necrology of members of the association.

The Harvard Medical Alumni Association should be an organization of power and influence, and we have no doubt this means of encouraging a feeling of fellowship, offering as it does an organ of free communication, will do much toward bringing about this result.

THE SMALLPOX SITUATION IN BOSTON.

For about two weeks there have been reports of the appearance of smallpox in one of the outlying portions of the city, and at the present time a considerable number of patients are being cared for at the Detention Hospital. It is a suggestive fact that in spite of the efforts of the Board of Health and its early knowledge of the presence of the disease, a number of new cases have developed, in some of which it is difficult to trace the source of infection. We need have no fear that the disease will spread to any considerable extent, but such an experience as this demonstrates most clearly the peculiar difficulties which beset the health officers in the attempt to eradicate a contagious disease. Not only is it necessary to impress upon the people the absolute necessity of precaution and early notification of suspicious symptoms, but also to gain the complete co-operation of the families and friends of the victims of disease. The attainment of this co-operation is certainly one of the most difficult phases of the work of a board of health. Without it, or, as

often happens, with the positive antagonism of persons more or less directly involved, it is clear that the spread of infection is almost inevitable. A still further education of the public, which has already made gratifying advances, will no doubt in time lead to a clearer understanding on the part of the people of their duty to themselves and to the community. When such a complete co-operation is attained, there will be small difficulty in checking the spread of a disease like smallpox at its inception. Until this is accomplished, however, health officers must always work at a very decided disadvantage, and no surprise should be manifested at the appearance of a number of cases originating from a common focus. The present situation will undoubtedly yield to the efforts of the authorities, but every inducement should be offered to encourage vaccination in the city at large and particularly in those regions where the disease has already appeared.

RABIES IN ENGLAND AND SCOTLAND.

The possibility of "stamping out" a disease is much greater in an insular community, where the safeguards of quarantine may be exercised at ports of entry, than it is upon the mainland, where constant facilities for avoiding the regular channels of migration exist along the border lines of countries.

Previous to 1886 hydrophobia was quite common in England, and an average of 30 to 40 deaths occurred from this cause yearly. The number of such deaths in 1877 was 79, and in 1885 there were 60, according to the registrar general's report, but after adoption of a muzzling law in 1886 the number diminished rapidly. Another act, of 1897, regulating the importation of dogs, appears to have had a still more decided effect. By the provisions of this act every dog arriving in Great Britain must be isolated for 3 months and strict orders are issued for inspecting such animals.

As a result the secretary of agriculture says in his report for 1900: "And now for the first time during 51 years not a single human being died in the year 1899 from hydrophobia in England and Wales, and from the information I have again received from the registrar general I have reason to believe that no case was met with in the returns of 1900."

MEDICAL NOTES.

A COLORADO MARRIAGE LAW.—According to the *Medical Record*, a bill has been offered in the Colorado Legislature to regulate marriage in that State. If the measure becomes a law it will not be possible for any couple to marry until after

having submitted to a medical examination, and having been certified as sound in mind and free from tuberculosis, cancer, syphilis and some other of humanity's woes.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Sept. 4, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 22, scarlatina 14, measles 21, typhoid fever 39, smallpox 13.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Aug. 31 was 213, against 223 the corresponding week last year, showing a decrease of 10 deaths, and making the death-rate for the week 19.3. Of this number 116 were males and 97 were females, 209 were white and 4 colored; 151 were born in the United States, 58 in foreign countries and 4 unknown; 50 were of American parentage, 144 of foreign parentage and 19 unknown. Diphtheria, 23 cases and 7 deaths; scarlatina, 12 cases and 5 deaths; typhoid fever, 31 cases and 3 deaths; measles, 16 cases and 1 death. The deaths from pulmonary consumption were 26, pneumonia 11, whooping cough 1, heart disease 19, bronchitis 3 and marasmus 2. There were 11 deaths from violent causes. The number of children who died under 1 year was 74, the number under 5 years 93. The number of persons who died over 60 years of age was 34. The deaths in public institutions were 65.

SMALLPOX IN BOSTON.—From Aug. 16 to Sept. 3, 21 cases of smallpox with 2 deaths have been reported in Boston. With few exceptions all are traceable to one family, and have occurred in one district in Roxbury. The Board of Health is urging vaccination, especially upon persons living in that neighborhood. Headquarters have been established in the Hammond Street school-house, where free vaccination may be had every evening between the hours of 6 and 9.

NEW YORK.

RESOLUTIONS REGARDING MALARIA.—At a meeting of the Board of Health, held Aug. 30, a set of resolutions was adopted to the following effect: (1) That all public institutions, hospitals, homes, asylums, etc., be required to report all cases of malarial fever which come under observation, giving the name, age, sex, occupation and present address of the patient, and also information as to whether the attack is a primary infection or a relapse, and the address where the disease was probably contracted; (2) that all physicians in the city be requested to furnish similar information in regard to patients suffering from malarial

fever under their care; (3) that the circulars of information of the Department of Health regarding "the causation and prevention of malarial fever" be mailed to the addresses in which malarial infection has apparently been contracted, and also to the addresses from which the cases are reported, when these are different; (4) that postal cards for furnishing the required data be prepared and forwarded to institutions and physicians for reporting the cases of malarial fever which come under their observation, as is done in other infectious diseases.

IMPROVEMENTS IN PARK AVENUE TUNNEL.—On Aug. 29, the president of the Board of Health sent an order to the president of the New York Central and Hudson River Railroad, requiring that corporation to make certain improvements in the Park Avenue tunnel at once, and calling attention to provisions of the statutes covering disregard of sanitary laws. On the day following, the chief engineer and a representative of the law department of the railroad company, acting for the company, had a conference with officials of the Board of Health, at which the former signified the intention of the company to comply with the board's directions for an immediate alleviation of existing conditions in the tunnel. They secured, however, an extension of thirty days within which to commence work, on the ground that its plans were still in an experimental stage.

ST. JOHN'S GUILD FLOATING HOSPITALS.—The officials of the St. John's Guild announced on Aug. 28 that during the present season 37,901 women and children had been carried on the trips of the Guild's floating hospitals, and 2,136 sick children and their mothers cared for at its seaside hospital at New Dorp, Staten Island, and that \$30,000 were needed to complete its work for the summer.

DEATH OF DR. ALFRED DANA.—Dr. Alfred Dana of Bronxville, Westchester County, fifty years of age, was instantly killed near White Plains on Aug. 22, the carriage in which he was driving being struck by a train on the Harlem Division of the New York Central Railroad.

A CENTENARIAN.—Mrs. Catharine Howe, who was born in Johnstown, N. Y., and spent the greater part of her life in Utica, died in Brooklyn, N. Y., on Aug. 26, at the age of 103 years. Eight years ago she came to Brooklyn to make her home with a daughter who is 62 years old.

DR. REGINALD H. SAYRE TO DELIVER ADDRESS IN SURGERY.—Dr. Reginald H. Sayre of New York is to deliver the Address in Surgery at the annual meeting of the Mississippi Valley Medical Association to be held next week at Put-in-Bay Island.

Miscellany.

A LEAGUE AGAINST SEASICKNESS.

It was stated some time ago in the *British Medical Journal* that a League Against Seasickness was in process of formation on the initiative of Dr. F. Madenot of Paris. The object is said to be to collect information as to seasickness, to make experiments as to its pathology and treatment, and to publish the results for the benefit of sufferers. Another object of the league appears to be to train specialists who shall either practise in seaports or on board steamers and ships. The league has now been duly formed, and issues a *Journal du Mal de Mer*, in which that most humiliating and not least painful of human afflictions is discussed in all its aspects. The league, like all well-regulated leagues, will hold congresses. This year it meets at Ostend, and in connection with it an exhibition of inventions for the prevention and treatment of seasickness has just been opened under the patronage of the King of the Belgians. The collection is divided into sections as follows: (1) Suspension and other apparatus intended to lessen the effects of the movements of the vessel; plans of ships specially constructed to prevent seasickness. (2) Apparatus for the immobilization of the abdominal viscera. (3) Ventilation of cabins; oxygenation of the patient; deodorization of places. (4) Miscellaneous articles relating to the preventive hygiene of seasickness (special seats, apparatus for training people to bear the movement of ships; food, drink). (5) Remedies against seasickness. (6) Pamphlets, journals, etc., in which seasickness in human beings and in animals is dealt with. Public experiments will be made on the boats plying about near Ostend.

Commenting on this somewhat extraordinary "congress" the *Medical Press* says: "The question of seasickness will weigh heavily upon the mind of many a traveler during the present holiday season. This is the age of exhibitions, so we are often told, but surely there was never a more curious excuse for an 'exposition' than that of seasickness preventives, to be held next month at Ostend. The number of drugs vaunted for the prevention and the cure of that malady are legion, but for all that the surgeon on board ship still lacks a specific for his distressed patients, although he may afford a little relief here and there by carefully selected remedies. Of mechanical cures there have been not a few launched by ingenious inventors upon this troubled sea of *mal de mer*, but the seasickness still continues in unabated flood. It is somewhat strange that the real inwardness of this familiar and distressing stomachic upheaval still remains one of the unraveled mysteries of the medical world. Perhaps the most plausible theory of causation is that which attributes it to the disturbance of the localizing and balancing function exercised by the delicate semi-circular canals of the inner ear. We wish hearty success to the Ostend exhibition."

DECISION REGARDING WILL OF A CHRISTIAN SCIENTIST.

ON Aug. 28 Surrogate Fitzgerald of New York rendered his decision in the noted will case of Mrs. Helen Brush, who left the greater part of her fortune of \$90,000 to the First Church of Christ, Scientist, sustaining the will and admitting it to probate. The decision is accompanied with a long and elaborate explanation of the reasons governing the surrogate in his action, and the following extracts will serve to bring out some of the more important points touched upon: "It is therefore evident that however opposed these teachings (the tenets of the Christian Scientists) may be to the beliefs or actions of others, they are founded on the religious convictions of those professing them. This being so, the court cannot say that those persons are mentally unsound. The truth or falsity of a religious belief is beyond the scope of a judicial inquiry. Thus the court has often been asked to pass upon the falsity of Spiritualism, and to hold that a follower of this faith, which, like Christian Science, is contrary to the convictions of most men, was of necessity laboring under an insane delusion; but it has uniformly refused so to declare or hold.

"So far as concerns this belief in her cure, she certainly had been ill; she appealed to Christian Science, and she believed she had recovered her health. Upon a careful consideration of the voluminous testimony taken on this trial I am of the opinion that the burden of proof on the issue of testamentary capacity, which is on the proponent, has been fully sustained, and that at the time of the execution of her will the decedent was of sound mind." "I have given careful consideration to the argument of contestant's counsel, and have thoroughly examined the testimony upon which he relies, but I fail to find any substantial evidence tending to show undue influence. On the contrary, when all of the facts present are considered, the conclusion seems inevitable that no restraint whatever interfered with the expression of the decedent's testamentary intentions. . . . If undue influence existed, it must have been wrought through the medium of a conspiracy, in which various healers who attended the decedent, and particularly her friend, Miss Duncan, took part. The testimony of these witnesses absolutely negatives the existence of any such conspiracy." "Whether her determination not to give her fortune to her family was unwise, whether the residuary legatee herein has deserved the affection and gratitude which the testatrix has so bountifully given evidence of, are not questions for this court to consider in arriving at its decision. The decedent, being of sound mind and free from restraint, had the right to do with her own as she deemed best, and her will must therefore be admitted to probate."

It is stated that an appeal will be taken from the surrogate's decision, and that a jury trial of the will case will probably result.

Obituary.

THOMAS MASTERS MARKOE, M.D.

DR. THOMAS MASTERS MARKOE, one of the most eminent surgeons of New York City, died at his summer residence at East Hampton, Long Island, on Aug. 26, in the eighty-second year of his age. Born in Philadelphia on September 13, 1819, he was graduated from Princeton College in 1836 and from the College of Physicians and Surgeons, New York, in 1841. In 1839, while still a medical student, he became a junior assistant in the New York Hospital, an institution with which he was connected during almost his entire professional career. In 1842 he was appointed assistant curator and lecturer on pathological anatomy in the Pathological Museum, and from 1852 to 1892 served as attending surgeon to the New York Hospital. At the time of his death he was consulting surgeon to the latter, and also to the Roosevelt, Mount Sinai, Woman's and St. Mary's Hospitals. From 1860 to 1871 he was adjunct professor of surgery in the College of Physicians and Surgeons, and from 1871 to 1888, professor of surgery. Since that time he has been professor emeritus. Before he became a professor in the College of Physicians he was for a time professor of anatomy at Castleton Medical College in Vermont, and afterwards professor of pathological anatomy in the Medical Department of the University of the City of New York.

During the Civil War Dr. Markoe was appointed by Governor Morgan a member of the special corps of volunteer surgeons, and was stationed for a time at Fortress Monroe, and afterwards at Fredericksburg. In 1862 he was one of the Board of Examiners of Contract Surgeons, and in 1863 was visiting surgeon to the New York Soldiers' Depot on Howard Street. For many years he was a trustee of the Astor Library, and from 1891 to 1895 president of that institution. From 1849 to 1865 he was associated in practice with the late Dr. Edward DeLafield, and afterwards with the son of the latter, Dr. Francis DeLafield. Dr. Markoe was never a prolific writer, but published a treatise on Diseases of the Bones, and made a number of valuable contributions to current medical literature. For some time he had practically retired from active professional work, and his declining days were most peaceful and happy. Within the past year he had celebrated his golden wedding. He leaves a wife and four children. One of his sons, Dr. Francis H. Markoe, is professor of clinical surgery in the College of Physicians and Surgeons, and the other, Dr. James W. Markoe, attending physician to the New York Lying-in Hospital.

METEOROLOGICAL RECORD

For the week ending Aug. 24, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Wet'th'r		Rainfall in inches
	Daily mean.	Daily maximum.	Daily minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S...18 30.04	70	76	65	72	60	66	N	E	S	12	6	O.	.20
M...19 30.20	64	76	59	58	86	82	E	E	E	6	10	O.	.1
T...20 30.10	66	72	61	97	92	94	N	W	E	5	8	O.	.03
W...21 30.12	68	74	64	100	85	92	E	E	E	4	3	G.	C.
T...22 30.20	66	70	62	97	81	89	S	E	S	6	7	G.	C.
F...23 30.20	71	78	64	83	84	84	S	S	W	5	11	O.	C.
S...24 30.08	78	88	69	80	86	85	S	W	S	9	6	F.	.01
Mean	30.13	75	63		84								.24

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, AUG. 24, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrhéal diseases.	Diphtheria and croup.	
New York	3,437,292	1,380	653	—	—	—	—	—	—
Chicago	1,698,575	—	—	—	—	—	—	—	—
Philadelphia	1,293,697	491	216	—	—	—	—	—	—
St. Louis	575,228	—	—	—	—	—	—	—	—
Baltimore	508,595	203	80	—	—	—	—	—	—
Cleveland	381,508	—	—	—	—	—	—	—	—
Buffalo	352,927	—	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—	—
Pittsburg	321,616	—	—	—	—	—	—	—	—
Washington	275,378	—	—	—	—	—	—	—	—
Milwaukee	285,415	—	—	—	—	—	—	—	—
Providence	175,597	73	26	—	—	—	—	—	—
Boston	560,892	242	128	39.67	6.26	—	24.28	1.24	—
Worcester	118,421	24	11	20.83	4.16	—	12.00	—	—
Fall River	104,863	44	23	40.96	—	—	34.08	—	—
Lowell	94,969	35	19	28.57	5.71	—	20.00	2.85	—
Cambridge	91,886	33	21	30.09	3.03	—	—	—	—
Lynn	87,413	27	14	15.94	—	—	8.70	—	—
Lawrence	62,559	26	13	20.68	—	—	19.23	—	—
New Bedford	62,442	41	21	43.22	2.44	7.32	25.28	—	—
Springfield	62,659	8	—	25.00	—	—	—	—	—
Somerville	61,666	10	—	40.00	6.67	—	33.33	6.67	—
Holyoke	45,712	9	2	22.22	11.11	—	22.22	—	—
Brockton	40,063	10	4	60.00	—	—	20.00	—	—
Haverhill	37,175	8	3	37.50	—	—	12.50	—	—
Salem	35,656	10	2	50.00	—	—	37.50	—	—
Chelsea	34,072	10	2	20.00	16.00	—	10.00	30.00	—
Malden	33,664	7	2	28.60	—	—	14.30	—	—
Newton	33,587	8	6	37.50	—	—	37.50	—	—
Fitchburg	32,453	13	11	76.92	—	—	—	—	—
Taunton	31,036	—	—	—	—	—	—	—	—
Glooucester	26,121	6	2	16.67	—	—	—	—	—
Everett	24,536	7	5	14.29	—	—	—	14.30	—
North Adams	23,919	10	10	100.00	—	—	10.00	—	—
Quincy	23,899	7	3	42.90	—	—	42.90	—	—
Pittsfield	23,481	6	4	50.00	—	—	50.00	—	—
Brookline	21,565	4	3	25.00	25.00	—	—	25.00	—
Chicopee	19,167	7	4	28.60	—	—	28.60	—	—
Medford	18,244	2	2	—	—	—	—	—	—
Newburyport	14,478	2	1	—	—	—	—	—	—
Melrose	12,962	1	—	100	—	—	—	—	—

Deaths reported 2,539; under five years of age, 1,352; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrhéal diseases, whooping cough, erysipelas, fevers and consumption) 1,056; acute lung diseases 172; consumption 254; scarlet fever 25; erysipelas 2; typhoid fever 49; whooping cough 25; cerebrospinal meningitis 5; smallpox 12; measles 7.

From whooping cough, New York 9, Philadelphia 10, Baltimore 2, Pittsburg 2, Boston 1, Cambridge 1. From cerebrospinal meningitis, Philadelphia 1, Providence 1, Boston 3, Gloucester 1. From scarlet fever, New York 11, Philadelphia 3, Pittsburg 4, Providence 1, Boston 5, Baltimore 2. From typhoid fever, New York 16, Philadelphia 10, Baltimore 1, Pittsburg 15, Boston 2, Worcester 1, Lawrence 1, New Bedford 3. From smallpox, New York 8, Philadelphia 1, Pittsburg 1, Boston 2. From measles, New York 5, Philadelphia and Pittsburg 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,363,026, for the week ending Aug. 10 the death-rate was 22.1. Deaths from 4,822 acute diseases of the respiratory organs (London) 127, whooping cough 57, diphtheria 71, measles 98, fever 31, scarlet fever 27.

The death-rate ranged from 11.9 in Bristol to 10.6 in Gateshead; Birkenhead 22.0, Birmingham 23.6, Blackburn 25.3, Bolton 19.5, Bradford 20.1, Brighton 18.6, Burnley 22.9, Cardiff 15.5, Derby 22.6, Hull 27.2, Leicester 17.4, Liverpool 25.1, London 18.8, Manchester 22.1, Norwich 18.6, Nottingham 21.9, Oldham 23.5, Plymouth 11.5, Portsmouth 21.4, Salford 34.1, Sheffield 32.6, Swansea 15.1, West Ham 28.5, Wolverhampton 12.1.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING AUG. 22, 1901.

CARTER, H. R., surgeon. Granted leave of absence for 14 days from Aug. 20, 1901. Aug. 16, 1901. Leave of absence granted Surgeon Carter by bureau letter of Aug. 16 revoked Aug. 21, 1901.

CONN, J. O., passed assistant surgeon. Granted 10 days' extension of leave of absence Aug. 21, 1901.

STONER, J. B., passed assistant surgeon. Granted leave of absence for 17 days from Sept. 2, Aug. 22, 1901.

YORNG, G. B., passed assistant surgeon. Granted 8 days' extension of leave of absence from Aug. 22, Aug. 16, 1901.

FRICKS, L. D., assistant surgeon. Relieved from duty in the Philippine Islands, and directed to proceed to San Francisco, Cal., and await orders. Aug. 20, 1901.

GWYNN, M. K., assistant surgeon. Relieved from duty at Louisville, Ky., and directed to proceed to San Francisco Quarantine and report to the medical officer in command for temporary duty; thence to proceed to Manila, P. I., and report to the chief quarantine officer for duty. Aug. 20, 1901.

BERRY, T. D., assistant surgeon. Relieved from duty at Genoa, Cuba, and directed to proceed to Louisville, Ky., and report to the medical officer in command for duty and assignment to quarters. Aug. 22, 1901.

FRANCIS, EDWARD, assistant surgeon. Relieved from duty at the Immigration Depot, New York, N. Y., and directed to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for duty. Aug. 22, 1901.

HICKS, W. E., acting assistant surgeon. Granted leave of absence for 10 days from Aug. 15, Aug. 16, 1901.

WALLBET, M., hospital steward. Granted leave of absence for 7 days from Aug. 1, under paragraph 181 of the regulations.

TROXLER, R. F., hospital steward. Granted leave of absence for 1 month from Aug. 20, Aug. 16, 1901.

BECK, J. E., hospital steward. Granted leave of absence for 3 days from Aug. 15, under paragraph 181 of the regulations.

WATERS, M. H., hospital steward. Granted leave of absence for 17 days from Sept. 3, Aug. 20, 1901.

BOARD CONVENED.

Board convened to meet in Philadelphia, Pa., Aug. 21, 1901, for the physical examination of an applicant for appointment as lieutenant in the Revenue Cutter Service.

Detail for the board, Surgeon H. W. Austin, chairman; Assistant Surgeon J. S. Boggess, recorder.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING AUG. 24, 1901.

C. R. BIER, assistant surgeon. Detached from the "Monongahela," ordered home, granted leave of one month, and resignation accepted to take effect at the expiration of that period.

T. J. TURNER, medical director. Retired. Died at Mackinac Island, Mich., Aug. 20, 1901.

D. H. MORGAN, passed assistant surgeon. Detached from Norfolk Hospital and ordered to the "Monongahela." Aug. 26.

D. A. CARPENTER, passed assistant surgeon. Detached from the "Franklin" and ordered to the Norfolk Hospital.

SOCIETY NOTICE.

TRI-STATE MEDICAL SOCIETY.—The thirteenth annual meeting of the Tri-State Medical Society will be held at the Tulane, Nashville, Tuesday, Wednesday and Thursday, Oct. 8, 9 and 10, 1901. The railroads will give reduced rates. Those intending to read papers should send titles to the secretary, Dr. Frank Truster Smith, Chattanooga, Tenn.

RECENT DEATHS.

JOHN DANIEL KELLY, M.D., M.M.S.S., died in Fitchburg, Aug. 27, 1901, aged 43 years.

DR. GEORGE H. DAY, aged 68 years, formerly of New York City, died from cancer on Aug. 29, at Iona Island, Rockland County, N. Y.

BOOKS AND PAMPHLETS RECEIVED.

The Story of the Papaw. By F. B. Kilmer. Illustrated. Reprint. 1901.

Syphilis: Its Diagnosis and Treatment. By William S. Gotthell, M.D. Chicago: G. P. Engelhardt & Co. 1901.

Transactions of the Medical Society of the State of New York for the Year 1901. Published by the Society. 1901.

Über Ungentium Hydrargyri Colloidalis (Mercurocolloid) seine Anwendungsweise und Wirkung. Illustrated. Reprint. 1901.

Address.

THE USE OF GYNECOLOGY BY THE GENERAL PRACTITIONER.¹

BY EDWARD REYNOLDS, M.D., BOSTON.

MR. PRESIDENT AND GENTLEMEN OF THE MAINE MEDICAL ASSOCIATION: This evening marks for your association the beginning of a new century, and at such a time it would have seemed appropriate that you should have had drawn from the past the lessons which should guide the future. I cannot but think that you would have chosen more wisely had you invited to address you some one whose breadth of experience over the whole range of medicine might have entitled him to attempt such a performance; but I am perhaps a better type of the spirit of the age, in which the profession depends for the advancement of its knowledge in the future mainly upon those who have made some one special branch a life-long study; and in which the general practitioner relies upon the specialist to keep him informed of the progress of the day in his special subject. It has been true in the past, and it will be true in the future, that when the specialist has once thoroughly assimilated and promulgated an item of such knowledge, it passes rapidly into the possession of the general profession, and the specialist must therefore look for his hold on practice to the constant acquisition of fresh advances. If specialism is to be continued, those who pursue a specialty must be constantly advancing, must be always in advance of what is possible to those who bear the burden of a general practice of the whole range of medicine; and I believe that the attitude of the specialist towards the general practitioner should always be that of helping him to manage his patients, rather than that of using his position merely as an advertisement to attract practice from the general practitioner. This is not only the better and more elevated position, but the one from which the specialist will most surely reap his own reward.

Gynecology is an ancient branch of medicine. If we may judge from the instruments discovered in Pompeii, the practitioner of that day had abundant gynecological opportunities, but it fell with the Roman Empire; throughout the so-called dark or middle ages the sufferings of women received little attention, and even in the early years of the last century the pelvis was practically a *terra incognita* to medical science.

The second birth of gynecology, and its growth to its present position during the last quarter of the last century, is largely an American achievement; and, with its consequence, the advanced position which America takes in the abdominal surgery of today is one of which we may well be proud. A prominent place in medical history must always be reserved for Sims, Thomas, Emmet, the mistaken but virile Battey, and the strong

group of enthusiastic men who grew to maturity with them, or followed them.

That was the day of purely vaginal gynecology. As we look back upon their achievements, we see that this first era of gynecology was the age of the beginning of physical examinations of the pelvis by the use of the speculum which bears Sims' name, of the vaginal touch and uterine sound and the first crude beginnings of the bimanual touch. These methods of examination led rapidly to the discovery and exploitation of the more accessible lesions of the vagina and cervix uteri, and to the recognition and minor mechanical treatment of malpositions of the uterus, but left the more important diseases of the tubes and pelvic peritoneum misunderstood and unappreciated. They led to the rapid and complete development of the plastic surgery of the vagina. We shall probably never see again so finished a master of this work as the sole survivor of this brilliant group, that charming old man, the venerated and admired Thomas Addis Emmet. But during this era came also the first development of abdominal surgery, in the revival of ovariectomy, and the first hysterectomies for fibroids; and although both operations were first performed in America, we cannot pass over this portion of the development of gynecology without acknowledging our great indebtedness to the other branch of the Anglo-Saxon race. During the first stages in the development of abdominal surgery we owed much to England. To Spencer Wells and Keith, aided by Lister, and to the rough-hewn genius of Birmingham, Lawson Tait.

Few of the beginners of today realize how utterly recent is our present conception of the importance and prevalence of the inflammatory affections of the tubes and peritoneum. The elders among you will remember well that twenty years ago it was an article of faith in surgery that the Fallopian tubes were by a curious provision of nature exempt from disease; it is, in fact, little more than fifteen years since Lawson Tait startled the surgical world by a dogmatic and combative assertion of his belief in the frequent occurrence of hydrosalpinx and in its curability by surgical means. I well remember the statement of my own admired master and teacher in abdominal surgery, Dr. John Homans, that in over two hundred ovariectomies, he had never seen a diseased salpinx. We have lived to learn that this was because the abdominal surgeons of that day operated only on large ovarian or fibroid tumors. We have lived to learn that the pelvic cellulitis, which so baffled the efforts of the fathers of gynecology, which they devoted so much time to treating by depletion and pressure and almost indefinitely prolonged rest in bed, was, in fact, in the great majority of instances, hydro- or pyosalpinx; and with this discovery of a dozen years ago we entered upon an era of extraordinarily rapid and brilliant development of the technique and scope of abdominal surgery.

Who of us does not remember well the crowding of the medical wards of our hospitals with

¹ Annual Oration delivered before the Maine Medical Association at its forty-ninth annual session at Portland, Me., June 13, 1901.

cases of so-called idiopathic peritonitis, dying, with but rare exceptions, under the use of enormous doses of opium. Which of us, remembering this, can fail to point with pride to the throngs of men and women walking out of our surgical wards cured of appendicitis. We remember well when our attention was first called to the prevalence of extra-uterine pregnancy; to its fatal issue; to the possibility of its early diagnosis, and the almost total disappearance of its dangers under prompt surgical interference. In the last few years we have witnessed the revival and the great success of the Cesarean section; but the ease with which abdominal surgery is now done and the surprising immunity of its victims from death under the knife, or as the immediate result of operation, led naturally to an era of indiscriminate and reckless operating, from which we are only now recovering. It is now some years since the leaders of the profession recovered from their mania, and began an earnest and continued fight for greater wisdom and caution in operating, but too many of the lesser men of the profession are still more impressed by the ease of operating than by the disadvantages of mutilation.

We are probably entering now upon an era of greater knowledge of the natural history of pelvic disease, of more careful selection of cases for operation. We must not forget the brilliant operative results of the past; we must be careful in the future not to fall again into the slough of inaction, not to let women waste away year after year from the exhausting suffering of curable but untreated disease; but we must study to acquire every year greater discrimination in the selection of those cases in which careful medical and hygienic regulation of the processes of nature will result in rapid alleviation and ultimate cure without the use of the knife. He has not made much use of his experience who has not learned that a woman who is the possessor of painless though useless ovaries and an intact abdominal wall, is much happier, much better off in every way, than one who has attained relief of pain only by the removal of those organs. A resort to the knife is far better than a long life of invalidism, but a year of invalidism, followed by cure, is far more fortunate than the same year devoted to recovery from the nervous shock so often caused by an extirpation of the uterine adnexa.

Much of our future efforts must be devoted to learning to know with certainty those cases in which cure without the knife may be relied upon.

The ease with which the abdominal operations in gynecology may now be done by a man of fair experience has led to another result. The general surgeon has become an active competitor with the gynecologist, and in the eyes of some threatens to displace the specialty altogether. Few will doubt that a competent general surgeon can do a given operation with as much safety to the patient as any gynecologist; and, if this were all, the question would be settled; there would be no special surgeons in existence. But it is not all. Not only the therapeutic results,—that is, the ultimate

benefit to the patient,—but even the mortalities, are more dependent upon the proper selection of cases than upon the mere conduct of the operation itself. I have been interested in looking up the statistical results of gynecological operating, as regards mortality, among those leading hospitals whose statistics were accessible to me, and which have special gynecological departments. The result of an examination made for me of the results of the gynecological cases in a year's work, in nine large hospitals, in both the general surgical and gynecological departments, was that the mortality of these cases in the hands of the general surgeon was exactly 6%, but in the wards of the gynecologists 3.8%. No one who has approached the subject from even a theoretical point of view will doubt that, if this fairly represents the mortalities, the balance must be even more to the credit of the gynecologist when we consider morbidity. The whole tendency of our civilization is from the simple to the complex; from the general practitioner to the man who devotes his life to the thorough understanding of one subject. The future of gynecology lies in the careful, thorough and scientific study of every agency which bears on the pelvic organs of women, and of all the agencies which may be employed for the relief of pelvic disease, medicinal, hygienic and psychological, as well as the merely surgical. On the ability of the gynecologist to understand these complex matters better than the general surgeon we may safely rest the future.

As we realize that gynecology is not exclusively a surgical subject, we see that a large part of the field must be of immediate concern to the general practitioner. Not every one of the women who should be treated by medicinal and hygienic methods is accessible to a specialist. The majority of them are better off in the hands of the medical practitioner, under the occasional guidance, if he chooses, of a specialist.

What use should the general practitioner make of the specialist; and if he does not consult him, how should he himself conduct the affairs of his gynecological patients?

In all our professional affairs, a correct diagnosis lies at the bottom of successful treatment. Much of the more accurate diagnosis of pelvic disease rests on the touch, but not all. We must concede that the general practitioner can hardly hope to acquire the comparative certainty and delicacy of touch which the gynecologist spends his life in pursuing; he must depend more largely upon symptomatology. But, fortunately for him, the greater part of gynecological diagnosis rests upon symptomatology. This has been too little realized. Our medical schools are spending too much time in attempting to impart skilled touch to a mass of students in from one to at best a few dozen examinations apiece, and in lecturing to them upon the refinements of operative technique without grounding them in a knowledge of symptomatology.

The subject of gynecologic diagnosis from symptomatology is one to which many hours

might fairly be devoted, yet there are in it a few topics of so much practical importance as to be well worth taking up briefly; and first and most important of all is the question of whether or not a given case of illness is of pelvic origin and demands a pelvic examination. No gynecologist of experience is likely to undervalue the retroactive effect of the nervous and mental systems upon the one hand, with the pelvic organs upon the other; but such a man will always realize the rarity with which neurasthenia or similar affections of pelvic origin are disassociated from distinct pelvic symptoms. In the absence of sacral backache, pain in the groins, bearing down or dragging sensations in the pelvis, and derangement of micturition, we may safely conclude that the woman may be spared the unpleasant ordeal of a vaginal examination.

In the presence of such symptoms the task before the physician is: First, to ascertain the physical state of the pelvic organs; second, to estimate the bearing of any lesion which he may find upon the general condition, for there are many pelvic lesions, which, though distinct to the touch, are unimportant to the patient; and third, most important and most often neglected, to supplement his local examination by an equally thorough and exhaustive search for a possible, underlying, constitutional cause for the local symptomatology.

It is a fact vouched for by the experience of all gynecologists who are not interested solely in operating, that more than 50% of the women who seek their care are suffering from defective action of the eliminative organs; from chronic, though perhaps not complete, constipation, and defective elimination of solids by the kidneys.

Even in the presence of definite lesions in the pelvic organs, no permanent relief of symptoms can be hoped for until these underlying constitutional causes of neuralgic pain and general ill health have been removed. The first step in the treatment of any case presenting chronic pelvic symptoms should be the collection by the patient of a twenty-four hour specimen of urine, and the estimation by her physician of the total amount of solids excreted, if only by the rough method of multiplying the specific gravity by the quantity expressed in ounces, when, for a woman of average weight, a result from this calculation of less than 800 gr. may be considered as showing a marked deficiency. Such deficiency is most commonly due to a decreased general metabolism, which has been produced usually by too small an habitual ingestion of fluids. The decrease of solids may rarely, however, accompany an abundant excretion of water by the kidneys, and is then a result of an imperfection of function on their part, which must then be looked for. In the first and more common case the physician must, as an essential preliminary to success in the alleviation of the symptoms for which the patient seeks his aid, teach her to ingest large quantities of fluid, by preference water, or, in emaciated patients, milk; and simple as this recommendation is, those who have pursued it will bear me out in

stating that no essential point of treatment is more difficult to secure than this. Weeks and sometimes months must be spent in training the patient to drink a proper quantity of water, and if this care is not taken, all subsequent efforts are likely to fail of their real object, that of relieving the symptoms. The moderate use of the ordinary alkaline diuretics, supplemented by the exhibition of minute doses of the mercurials or iodides as stimulants to the general metabolism of the body, may greatly aid in securing a proper elimination of solids. With all this must be combined careful and persistent regulation of the bowels; and every practitioner knows that, simple as it is to recommend a cathartic, there is no more difficult task than to succeed in securing an ample alvine evacuation day after day, and year after year, from the class of women to whom we are referring.

The uric acid and calcic oxalate diatheses must be searched for and relieved; and, in short, if the first prerequisite for successful gynecology is a wide and extended knowledge of chronic constitutional disease, who can be better suited for the greater part of the care of a large majority of gynecological cases than the general practitioner.

Even when local lesions of importance are found, these medicinal and hygienic measures should be considered the most important steps of treatment, in the absence of emergencies; and only after such conditions have been disposed of should we even contemplate a resort to operative measures in the treatment of chronic and painful, but not dangerous, diseases, such as the majority of gynecological lesions are.

If too many practitioners of surgical tendencies operate too freely, it is also true that too many medical practitioners still pursue the disastrous errors of the past in the excessive use of local office treatment. Minor local treatment is often essential as a preliminary to operation, and sometimes as its after-treatment, but it can seldom be relied upon for a cure, and never to the exclusion of hygienic constitutional treatment. If long persisted in, it does far more harm by the production of neurasthenia than it can ever effect for good by the relief of pelvic pain.

Too little attention is often paid to symptomatology, and too much stress laid upon the physical examination, in the decision as to the adoption or nonadoption of operative measures; too many men feel that when their fingers distinguish a mass in the pelvis, the case is necessarily fit for operation; and conversely, though less often, an operation which should be performed is sometimes decided against because of the absence of signs upon physical examination, although urgent symptomatology is present. It often happens that a physical examination of the pelvis is inconclusive, even in the most skilled hands; and this must still more frequently be the case with comparatively inexperienced practitioners. In all such cases the question of operation or not should be determined by the symptomatology; and as a gynecologist's experience progresses, he accumu-

lates many cases illustrative of this necessity. The decision for or against operative interference when the symptoms and physical examination do not coincide, is always one of difficulty and grave responsibility; but the general practitioner, whether a surgeon or medical man, should at least learn that such cases are always subjects calling for the deepest consideration for an ether examination, or for consultation. One set of symptoms should be especially noted in this connection; when a woman complains of persistent and annoying pain referred to one side of the pelvis, and an examination elicits marked tenderness localized in the same place, there is always strong ground for suspicion of some important lesion, and, if medicinal and hygienic measures fail to relieve, there is often sufficient warrant for operation in the face of an inconclusive physical examination. When pain referred to one spot, and tenderness localized at the same spot, are accompanied by malnutrition and wasting, the indication for operation is almost always present.

(To be continued.)

Original Articles.

SOME CASES OF CANCER TREATED BY THE X-RAYS.¹

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

WHATEVER of value there may be to our community in what I am about to bring before you, is in a great measure due to the opportunities which a large hospital affords, and to the cordial interest which all the members of the staff of the Boston City Hospital have taken in this new therapeutic agent. To Drs. Burrell, Cheever, Cushing, Gavin, Lund, Monks, Mallory, Mason, Wadsworth and Bartol I am especially indebted.

Five years ago I began the study of the medical uses of the x-rays, because I hoped they would be of value in the diagnosis of diseases of the chest; this hope has been more than fulfilled, and still another use for them has developed; namely, their employment as a therapeutic agent, of which no one at that time dreamed.

As there are several other papers to be presented to you, I will very briefly direct the attention of the society to the treatment of external forms of cancer by this method, which is painless and harmless, and which thus far I have found to cause healing or improvement (this latter refers to cases still under treatment) in every case in which I have persistently carried it out; internal forms I will not discuss in this paper.

The exposure of a diseased area to the x-rays for a few minutes two or three times a week for several weeks, is in general what is required. Where the growth is more extensive, a longer time is necessary; on the other hand, in early cases, perhaps 10 exposures — or even less — may suffice.

It will naturally be said that to carry this treatment to a successful issue, in cases where the disease has spread over a considerable area, takes a long time; but patients are grateful if they find that a growth which they have seen slowly spreading for years — in some cases for 15 or 20 years — begins to show signs of healing within two or three weeks; or to find that a rapidly growing epithelioma is arrested and then has diminished in size. Moreover, the method is a new one, and I can now reach results more rapidly and with less risk to the patient than I could at the beginning, and with further experience it will probably be possible to get results still more rapidly.

Another criticism that will be made on the use of this method is that the growth may return. It is yet too early to answer this. But if in any patient the disease should show a tendency to recur, it would probably be a comparatively simple matter to subdue it again.

The cases of cancer that I have treated include not only the smaller and lesser forms — growths in early stages of development in many cases — but also some which were inoperable. For example, a cancer of the eyelid in an old man. Operation in this case would mean the removal of the lid; and a plastic operation might be difficult or of doubtful result in an aged patient. (See Figs. 1 and 2.) Or, as another example, take a growth beginning near the eye which is now of 30 years' standing, on which 5 operations have been done — one to take out the eye. Finally, with the growth still extending, the wise and experienced surgeon of this patient decided that further operation was impossible. There was nothing to be done unless, perchance, this new ray could be of service! Think of building any hope, even in so desperate a situation, on an invisible and little-tried ray, that exerts its action without pain, and where to obtain a successful result the only duty of the patient is to sit still near the vacuum tube for a few minutes two or three times a week! This statement sounds incredible, and I should not ask you to have faith in it had not the rays given relief under the conditions outlined; for the diseased area on this patient is already nearly healed over.

Figs. 3 and 4 are also illustrative of this method of treatment. The cuts are taken from my book on the "Röntgen Rays in Medicine and Surgery," by permission of The Macmillan Company.

In justice to the method, I ought to state that some of the most striking cases are patients who have been treated in my office, but who live in other cities and who cannot be present at this meeting, and of whom I have no photographs.²

In all the cases of which I have given photographs (the photographs of only two of these cases are reproduced here) the diagnosis is based on a microscopic examination that was made in the pathological laboratory of the Boston City Hospital by Dr. F. B. Mallory.

¹ Photographs of a number of patients, taken before treatment and after treatment, were shown. Patients who had had epithelioma, rodent ulcer and plasmosis where the diseased area was healed over, were also presented at the meeting.

² Read before the Massachusetts Medical Society, June 12, 1901.



FIG. 1. Before Treatment by X-Rays.



FIG. 2. During Treatment by X-Rays.



FIG. 3. Epidermoid Carcinoma. Before Treatment by X-Rays.



FIG. 4. Epidermoid Carcinoma. After Treatment by X-Rays.



The microscopic examination has been used not only to make a diagnosis, but also in one case to observe what was going on in the growth during treatment. In this case a second specimen from a typical, rapidly growing epidermoid cancer was examined by Drs. Councilman and Mallory, after treatment had been continued for some time. This examination showed that the central portion of the ulcerated area was entirely free from carcinoma, but, and this is an instructive point, that near the edges of the ulceration there were still a few small islands of epithelial cells. The persistence of these cells may have been due to the fact that the part of the hand where they occurred was more or less protected from the x-rays by the lead shield which was used to prevent the rays from striking the healthy skin near the cancer, and this persistence shows that an area of apparently healthy tissue in the immediate neighborhood of the growth, as well as the growth itself, should be exposed to the action of the x-rays. It is not improbable that in some of the early cases recurrence will take place because this area was not treated.

In making x-ray examinations of the heart and lungs there is no risk whatsoever of a burn, but in treating external cancer there is such a risk, if care is not taken, because the tube must be much nearer the patient than in the former case. But I do not mean to suggest that such an accident can not be avoided—quite the contrary—for all my cases have been treated without its occurrence.

In view of the great interest which is now taken in the cause of cancer, and the importance of knowing this cause, it will be instructive to consider for a moment what light my cases may throw on the nature of this disease. Some of these growths were typical epitheliomas; others were of the rodent ulcer type; still others were ulcers that were indurated and had persisted for months, or in some cases for years; clinically, these latter growths were epitheliomas, but when examined under the microscope they did not present the appearance typical of epithelioma, and were reported by Dr. Mallory as chronic inflammatory tissue, or plasmons.

It is interesting to note that all these different classes of cases yielded to treatment by the x-rays. It may be that they were all due to one cause, and that these growths do not take on the appearances which we recognize under the microscope as cancer, for a longer or shorter period; or, on the contrary, they may be due to several different causes. In some cases these growths increased slowly, in others rapidly.

The healing effect which the radiation from an excited vacuum tube produces in a disease where the cause is known, as in tuberculosis of the skin (lupus), taken in connection with the fact that syphilitic disease of the skin is said not to yield to the treatment; and further, in connection with the clinical picture which these healing cancers present; and that response to treatment in certain cases is immediate,—sometimes within 2 or 3 days,—and also that in some cases the improvement

continues after the exposures to the tube have stopped; all these facts, together with the microscopic appearances during treatment, suggest that cancer is probably produced by some living cause, as I have stated in a previous article, and that the x-rays interfere with its life.

In what light should we regard beginning cases? From the surgical standpoint operation would probably be advised, but I think we have now got far enough to justify the use of the x-rays in the early stages also, and to teach the community that these growths may be healed by a harmless and painless method, and thus few of them will be allowed to advance to serious dimensions through delay from fear of the knife. The first effects of the x-rays are apparent within 2 or 3 weeks, or in some cases within a few days.

Last evening Dr. W. F. Whitney, in the Shattuck Lecture, made it clear that cancer is on the increase, not only in our State but in other parts of the world; and therefore I wish the more to bring before the profession, and through it as widely as possible to the laity, that we have in the x-rays a painless and a good method (how good it may take 2 or 3 years to decide) of treating many, if not all, forms of external cancer. The first steps have already been taken, and now it only remains to determine the limits of this method and the best way of carrying it out. This is simply a matter of time and of careful study.¹

¹ The discussion on this paper was as follows:

DR. D. W. CHEEVER of Boston: While reasonably skeptical as to new cures, facts compel me to yield assent to the occult power of the Röntgen ray in exciting a healing process in rodent ulcer and in epidermoid cancer. I may add lupus, but of this I know only by hearsay.

A case of rodent ulcer, twice operated on and now inoperable, is healing after 22 exposures to the x-ray in the bands of Dr. Williams. These are facts. Whoever has, and who has not, seen in his native town the poor, blind victim of rodent ulcer, living for years, hopeless and an object of aversion, will rejoice in this prospect of relief!

DR. W. T. COUNCILMAN of Boston: The specimen which was removed from the tumor before treatment was begun showed that it was a typical epidermoid carcinoma. There were masses of epithelial cells growing in a connective tissue stroma which was rich in cells. That the tumor was growing rapidly was shown by numerous nuclear figures, indicative of cell division. The second specimen embraced the tumor and the adjoining healthy tissue. This showed that the masses of epithelial cells so prominent in the first specimen were necrotic and were included in the tissue as foreign bodies. Only at the edge of the specimen and deep in the tissue were a few small masses of living epithelial cells. The stroma had also undergone a marked alteration, the cells in it were not so numerous, and it had the character of cicatricial tissue. What made this all the more remarkable was the presence in the tissue, in which the epithelial tumor cells were destroyed, of a number of sweat glands which were unaltered. A further interesting condition was a well marked endarteritis in the treated specimen, which had produced almost complete occlusion of the affected vessels. The exact way in which the treatment brought about the result must be the subject of further investigation. It seemed to exert a destructive action on the foreign cells in the tissue not affecting the normal elements. What part the endarteritis played in the process is uncertain.

GENERAL ANESTHESIA IN OPERATION UPON THE NOSE AND THROAT—NITROUS OXID, CHLOROFORM AND ETHER.*

BY F. E. HOPKINS, M.D., SPRINGFIELD, MASS.

I REGRET with you that Dr. French is unable to be present and take his part in this discussion, for from his large experience and wide observation he could contribute much of interest and value. The short time left me to fill the gap caused by his absence has made it possible to consider these three agents from the clinical point of view only. Perhaps this method would be the better in any event, as it would savor of presumption to offer you a review of the physiological action of these anesthetics, and to attempt to deduce from this theoretical reasons for preferring one rather than another.

Nitrous oxid gas is not generally used by surgeons in this country, though largely employed in England. At a meeting of the British Laryngological, Rhinological and Otological Association, in April, 1897, when the subject of operation for adenoids was under consideration, the question of anesthesia was discussed, and the majority of the members stated that they made use of gas, or gas followed by ether.¹ This more common use of nitrous oxid gas in England may be due to a reaction from chloroform. Ether never has been used as freely as with us, and when it was finally determined that chloroform involved too great risk, attention was turned to nitrous oxid gas as well as to ether. From lack of personal experience I have no right to pass judgment upon the use of gas, though it would seem that the time of unconsciousness is too short to permit of thorough clearing of the nasopharynx in some cases. Buxton² says that the time which elapses from the removal of the face piece to the recovery of consciousness may vary from thirty seconds to one minute—too short an interval for the removal of adenoids, as the patient is apt to recover consciousness before the operation is completed. Yet the fact that this method of inducing anesthesia has the sanction of good men is quite sufficient to determine the point of its usefulness. It is a safe anesthetic and not disagreeable to the patient in the taking nor in its after-effects. However, aside from the brevity of the period of unconsciousness, there are disadvantages attending its use, some of which are referred to by A. Wilson³ as follows: "Nitrous oxid is unirritating, pleasant to take, quick in its action; recovery from it is rapid, it is quite safe, and can be given with the patient in a sitting position. It, however, possesses decided disadvantages. The duration of anesthesia (especially in children) is very short, and a good deal of muscular spasm is produced, especially in young subjects. The duration of the anesthesia is always uncertain, and with hemorrhage going on from the pharynx it is dangerous to reappaly the inhaler. In addition the deep, gasping inspirations which occur on the return of consciousness introduce another element

of risk; namely, that the blood or detached fragments of adenoids may be drawn into the pharynx. The author remarks that the dread of pharyngeal hemorrhage, when the patient is unconscious, is absolutely without foundation. In hemorrhage, however profuse, from the pharynx during an operation, the patient, if placed in a proper position, is infinitely safer when completely anesthetized than when semi-conscious or actually conscious. With a semi-anesthetized or just conscious patient there is fright, struggling, irregular respiration and coughing; blood is drawn into the larynx, coughing and spasm set up, and breathing greatly hindered, while it is difficult or impossible to deal with the hemorrhage. It is an absolute disadvantage that the patient should recover consciousness while hemorrhage is going on, and especially when there are any loose growths in the pharynx. In view of the above-mentioned facts, nitrous oxid alone is not adapted as a routine anesthetic for post-nasal adenoids." With adults or children old enough not to be alarmed by the apparatus, the author employs nitrous oxid first, followed by ether.

The danger attending the administration of chloroform to patients with adenoids was so forcibly presented to this association by Dr. Hinkel⁴ in 1898 that it is unnecessary at this time to do more than allude to some of the strong points he then made. He quoted the observations of the Vienna pathologists, who showed that sufferers from adenoids frequently belong to an abnormal constitutional type which renders them peculiarly susceptible to chloroform narcosis—the habitus lymphaticus, so-called. You will recall that he referred to 18 cases of death from chloroform given to children who were to be operated upon for the removal of tonsils and adenoids, and well says that the general use of chloroform in these operations is inadmissible. Death from chloroform often occurs with little warning and sometimes at the beginning of anesthesia. One is impressed by the fact that all the advocates of the use of chloroform insist that it must be given by a careful and trained anesthetist, whose one care must be the watching of the patient—an admission of the danger involved. My personal experience with chloroform has been very limited. One of our ablest local practitioners received his post-graduate training in Vienna and brought home with him a strong prejudice in favor of chloroform. He is one of the most careful anesthetists who assists me. At the first I protested against the use of chloroform, but he gave it with such painstaking care, the children came under its influence so easily, the attendant discomforts were so much less than with ether, that, after seeing him administer it a few times, I could but be pleased with the results. About four years ago, however, we had an experience which neither of us care to repeat. Chloroform had been given, and the operation was nearly completed, when, without warning, the patient ceased breathing. After an interval, which seemed interminable, and after vigorous efforts toward resuscitation,

*Read before the American Laryngological Association at its Twenty-third Annual Congress.

respiration was restored. The doctor has not proposed chloroform in any case he has since brought me, nor have I since operated under chloroform anesthesia. For some time statements have appeared regarding the danger of giving chloroform to children. This is so contrary to the long accepted belief as to merit attention. Dr. John A. Wyeth³ has said: "In children ether is in general the safer anesthetic." He had been taught that chloroform was the better anesthetic in this class of cases, but he had learned that in children under 12 years of age chloroform was not so safe as ether. He had seen death occur in a child of 10 years without a single danger signal, and when not more than 1 dr. of chloroform had been administered by an expert. Chloroform was especially dangerous in children who were poorly nourished or weakened by any dyscrasia. Particular care was necessary when the child struggled and made deep and rapid inspirations.

W. I. McCardie and C. F. Marshall,⁴ in considering the main physiological differences between the child and the adult which concern the induction of anesthesia, lay stress upon the fact that the administration of anesthetics, especially chloroform, is by no means so free from danger in childhood as is generally supposed. They also consider the question of the best anesthetics to employ in the various operations performed on children. Chloroform is never free from danger, and it is better to use as a routine anesthetic ether, A. C. E. mixture, or a mixture of two parts ether to one of chloroform. Nitrous oxid followed by ether is recommended for older children. It should never be followed by chloroform. Goldan⁵ remarks: "A few words regarding operations in children for removal of tonsils and adenoids may not be out of place. Where chloroform is used, it should be replaced with ether before beginning the operation. Ether is certainly far safer, particularly in this class of patients, throughout the narcosis.

"At the completion of the operation, by inverting the patient and turning him to one side, blood will flow from the mouth and nostrils instead of into the trachea. Breathing frequently stops at the completion of the operation, because of the anesthetic and more or less insufflation of blood into the larynx. If ether is employed dangerous symptoms are averted. Chloroform is particularly dangerous, because, even after its discontinuance, there is a residual quantity of vapor in the air passages. As soon as bleeding occurs respiration is impaired, this residual chloroform is absorbed and acts as an overdose, and circulatory depression evidenced by pallor and absence of the pulse results, the breathing in these instances being shallow and gasping. In the treatment of these cases artificial respiration should be performed with the patient upon the side (not upon the back), the head extended, and the patient inverted." Chloroform during its administration has so many more possibilities of danger than ether, and serious conditions arise with so little warning, and so many fatalities have

been charged against it, that the surgeon who uses it must offer his own justification.

Ether is the only anesthetic with which I have had any considerable experience. While in a good many cases conditions have arisen which for a time seemed alarming, because of collapse due to the anesthetic, yet there always seemed something left to work upon, and efforts toward restoring the patient were successful. I have had no serious after-effects from ether, and it is quite fair to say that the inference deducible from this is not wholly that of limited experience. I have not had the advantage of being able to call upon a trained anesthetist, but have made it a rule to ask the physician sending me the patient to give the ether. It is not necessary here to defend or explain this rule; it is sufficient to state the fact. This has given me quite a varied experience in methods of administering ether. I have seen such tact and skill used that the little patient seemed hypnotized and inhaled the ether without the slightest struggle or excitement. One man etherized three patients with the contents of one small can, another wasted four such cans, and even then the patient was not ready for operation. On one occasion I waited 45 minutes for the doctor to anesthetize the child. Under all these varying conditions the patient was safe. Admitting the element of safety with ether, we have yet to object to the almost invariable resistance which it arouses on the part of the patient at the beginning, and the distressing nausea which so often follows its administration. An anesthetic is desired which will give the safety of ether and eliminate its unpleasant features.

I wish in passing to mention a method of giving ether, which, could it be safely and easily followed, would be a great convenience in operations about the face and throat. The method is that of rectal etherization. To quote from Buxton:⁸ "This form of etherization was used as early as 1847. I have now used the method pretty extensively and find it to answer admirably for operations about the mouth, nose and post-buccal cavities, for intra- and extra-laryngeal operations, for staphylorrhaphy and for operations for relief of empyema. For the removal of the tongue, for excision of the jaw or jaws, and for plastic operations about the face, the method gives greater facilities and freedom to the operator than any other plan I have tried. Mr. Appleby recommends the method also for prolonged dental operations. The advantages claimed are: (1) Less ether is used; (2) recovery is more rapid; (3) after-effects are less severe; (4) the stage of excitement is lessened or abrogated. Its disadvantages are: The greater length of time the patient usually takes to become ready for operation. Although this objection is not applicable to all cases, I have found it expedient to shorten the time of induction by giving ether or chloroform in the usual manner through the air passages and trusting to rectal etherization for the maintenance of anesthesia. Besides saving time, this

plan lessens the actual quantity of ether required, and so minimizes the chance of deleterious after-effects, and also preserves the patient from the discomforts of the induction when performed by rectal etherization, although Dr. Wanschcr says some of his patients, having been anesthetized first by the usual method and subsequently by the rectum, preferred the latter. Dr. Bernard Stedman employed rectal etherization in a series of cases, adopting my method, and has reported most favorably upon it. In some cases it is alleged that severe meteorism, diarrhea and even melena have followed the use of ether by the rectum. Unquestionably, the method requires the greatest care and some experience before a uniformly happy result can be expected, and the anesthetist must remember that carelessness in permitting too rapid an evolution of the vapor will lead to grave suffering if not to danger. The usual signs of anesthesia are present, and so nothing need be said about them. As a rule children go under more rapidly than adults when ether is given by the rectum, but the time occupied in inducing complete anesthesia varies within wide limits. I have succeeded in 3 minutes and have had to wait 15 or 30 minutes. Dr. Stimson informs me that American surgeons have had several fatalities in employing this method. I have met with grave complications which, although in part due to the physical condition of the patients, were undoubtedly not wholly independent of the irritation caused in the intestines by the entrance of ether vapor."

Bennett¹⁰ pronounces nitrous oxid almost an ideal agent for the production of anesthesia, though not for its maintenance. It is pleasant to inhale, rapid in action, free from irritating or stimulating effects, and is the safest anesthetic known. Used to precede ether, a form of anesthesia is obtained which is exceedingly satisfactory. The patient at the beginning is spared any knowledge of ether used, none being administered until unconsciousness is produced by the gas. There is no coughing, no choking, no stage of excitement, and little or no mucus. When ether is begun it can be pushed to complete anesthesia within 2 or 3 minutes. A. H. Miller¹¹ advocates the commencement of anesthesia with nitrous oxid, and as soon as anesthesia is complete the removal of the inhaler and the substitution of the ether cone. He has notes of 150 cases in which no one has been conscious when the change was made or has experienced anything disagreeable from the anesthetic. The average time required in his cases for anesthesia has been three minutes.

Drs. Brown and Kelly of Baltimore¹² report of this method that "the advantages have been so distinct to the patient, the surgeon and the anesthetizer that we feel that the use of older methods, that is, the administration of ether alone or of chloroform alone, or of the A. C. E. mixture, should give place to this newer and more effective mode. To the patient these advantages are: The rapidity with which he or she becomes anesthetized, the freedom from all unpleasant symptoms

during the process of anesthetization, and the distinct diminution in the after-symptoms, especially as regards nausea; to the surgeon the great advantage is the shortening of time; to the anesthetizer the advantages are obviously a combination of the two preceding. To these advantages must be added the much diminished quantity of ether employed and the much shorter time required by the patient to recover entirely from the effects of the anesthetic. The possible disadvantages of the method are cyanosis during the administration of the nitrous oxid, the increased secretion of mucus, and any untoward post-operative effects which may be shown to be directly referable to the use of the nitrous oxid. As to the cyanosis, while in a certain proportion of cases a slight degree of cyanosis seems inevitable, yet without doubt this largely depends upon the skill of the anesthetizer and his experience, so that we have found that the presence or the degree of cyanosis is distinctly diminishing with our constantly increasing experience with the method; in many cases it is wanting altogether, in others it is present in only a very slight degree, while in a very few—and these last are constantly diminishing in number—is the cyanosis marked. Of course only constant experience in the mixing of the nitrous oxid and the air will bring about the ideal anesthetization, but we feel sure that many of the symptoms of asphyxia may be eliminated in the hands of those who are constantly using the method. It was found that loss of consciousness from the use of nitrous oxid gas was produced in from 1 to 2½ minutes, and complete anesthesia in from 2 to 5 minutes. The cases, however, were all women, and therefore easier to anesthetize than the average of general hospital patients. In all of these cases, except the nephropexy, the nausea after operation was slight, and in some cases practically absent altogether. In our experience the method has seemed to possess so many advantages to the patient, operator and anesthetist, and so few disadvantages to any of these, that it has become an indispensable part of our operative technique; and that it has proved satisfactory can be easily judged from the fact that after over 200 anesthetizations with the method our faith in it, instead of diminishing with experience, has increased a hundredfold. Dr. Bennett's inhaler is used, and his method followed."

Dr. Gibney¹³ makes similar report of use of nitrous oxid and ether at the Hospital for Ruptured and Crippled, New York. He refers to the dread of ether and says that in the combination no unpleasant results whatever have been experienced. There is absence of the disagreeable choking sensation and the struggling, even in the most timid children. He says the method has been used for 20 years in England. According to his personal observation there is no stage of excitement, and above all things very little ether is used. The method is used in other hospitals, and much satisfaction is expressed with the saving of time and the saving of ether. This saving of ether is a cardinal point, not as a matter of econ-

omy, but because it means a relatively small quantity of ether for the individual patient.

In the choice of an anesthetic we are spared many of the perplexities of the general surgeon, since we are not called upon to operate in emergencies, for example, in cases of serious disease of the thorax, as empyema, nor in acute febrile disease, as pleurisy or pyemia. On choice of an anesthetic, Buxton¹³ recommends that for all brief operations, both in dentistry and general surgery, nitrous oxid should be given. It can be given to infants and elderly people as well as adults. In all conditions in which any respiratory difficulty exists, as in cyanosis and in asthenic states, it is well to give it in combination with oxygen; but when that method for any reason cannot be pursued, nitrous oxid with air gives in skilled hands almost as good a result. He further says that ether, either in succession to nitrous oxid after Clover's method, or given by itself, is the best and safest anesthetic, alike for children and adults, and should be adopted as the routine practice.

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EOSINOPHILE LEUCOCYTES AND NUCLEIN BASES.

BY EDWARD T. WILLIAMS, M.D., BOSTON.

PROFESSOR EWING of Cornell, in his invaluable work on the "Pathology of the Blood," tells us that the singular correlation between eosinophile leucocytes and spermine crystals was first pointed out by Charcot and Leyden. But this is not the whole story. Eosinophile leucocytosis is constantly associated with all the nuclein bases, either in the blood, marrow, glands, organs, tissues or excretions. This fact has been clearly demonstrated in at least four of the principal eosinophilous diseases; namely, leucocythæmia, asthma, helminthiasis and trichiniasis.

Over forty years ago Charcot first found spermine crystals in the blood and spleen of a leucocythæmic cadaver. They are, I believe, a steady find in myelo-splenic leucocythæmia, though not in the lymphatic form of the disease. Adenine, another of the nuclein bases discovered by Kossel in 1885, has been observed in the liver and urine of leucocythæmic patients.¹ Sarcine (hypoxanthine), a normal constituent of urine, occurs in increased quantity in the blood and urine of leucocythæmics.² Xanthine also is abundant in

the urine of leucocythæmics.³ All these bodies, though discovered at different times and by different chemists, have been demonstrated by Kossel as regular products of the decomposition of nuclein.

The occurrence of spermine crystals in asthmatic sputum has been long known. They were figured and described by Salter in 1860, though their composition was quite unknown. Leyden studied them in 1871 and conceived strange notions about them. He thought they provoked asthma by irritating the bronchial mucosa with their sharp points. He actually recommended giving them as a remedy for the disease dissolved in salt and water.⁴ The form of these crystals, as shown in all microscopical atlases, is extremely beautiful.

The so-called "tunnel disease," which decimated the St. Gothard workmen in 1880, is another disease characterized at once by marked eosinophilia and the presence of spermine crystals in the feces. It is caused, as was shown by Perroncito, by an intestinal worm, the anchylostomum duodenale. The mouth of this worm is provided with most formidable tusks, by means of which they attach themselves to the duodenal lining and often produce dangerous bleeding. Pepper's "Textbook of Medicine" gives a fair account of the disease and an excellent cut of the parasite after von Jaksch.

For other worms, Bucklers of Munich found with round worm 19% of eosins; with seatworm 16%; with the beef tapeworm 34%. "In most of these cases," says Ewing (p. 140), "eosinophile cells and Charcot-Leyden crystals are abundant in the feces."

The occurrence of eosinophilia in trichiniasis was discovered by Thayer and Brown of Johns Hopkins in 1897. Yet 40 years previous the great Virchow himself reported the finding of guanine crystals, in the shape of fine needles, in trichinons muscles in pork. He succeeded in dissolving these crystals with hydrochloric acid, and gave the condition in which they occurred the whimsical name of "guanine gout." Now guanine, discovered by Unger in 1844, is another of Kossel's nuclein bases.⁵ So that in trichiniasis as elsewhere we find the same concurrence of eosinophile leucocytes with a nuclein base.

The presence of nuclein bases in eosinophilia proves that there is a decomposition of nuclein going on somewhere within the body. But nuclein is only to be found in nuclein-bearing cells. Nuclein-bearing cells then are undergoing decomposition in eosinophilia. Where are these decomposing cells? Are they not the eosins themselves? In what other cells, fixed or free, do we find any evidence of decomposition, or even any evidence of change? It is hard to say.

¹ Vaughan and Novy; second edition, p. 298.

² Idem, p. 313.

³ Pepper's System of Medicine; Asthma, vol. iii.

⁴ Vaughan and Novy, pp. 308, 309.

There are at present somewhat less than 100 cases of smallpox in London.

¹ Vaughan and Novy; second edition, pp. 283, 284.

DISCUSSION UPON CLIMATIC TREATMENT OF PULMONARY TUBERCULOSIS VERSUS HOME SANATORIA.

BY S. G. BONNEY, A.M., M.D., DENVER, COL.

IN attempting to discuss so broad a subject in a limited time, I will first define my position as an earnest advocate of the value of climate in the treatment of consumption. I am likewise heartily in support of a suitable régime of daily life and management, but believe this to bear to the preceding the relation chiefly of a most valuable adjunct. While each separately constitutes an exceedingly important factor in the effort to secure arrest, they are, nevertheless, mutually interdependent, with the best results only obtained through their conjoined effect.

By an appropriate system of daily life, I do not refer necessarily to the full interpretation of the closed treatment of tuberculosis as exhibited in sanatoria. Such institutions are of benefit by virtue of certain features of regimen and discipline, in addition to the relief from work, changed surroundings and open-air existence. I believe that proper living and obedience to detailed instructions frequently can be insisted upon through the personal and interested attention of the medical adviser, even without the aid of special institutions. I am not, however, in sympathy with any effort to minimize the value of such resorts under certain conditions and for properly selected cases. I recognize that even in unfavorable climates their field of usefulness is great and perhaps even more so in health resorts, but must insist that life in a sanatorium is not always a "*sine qua non*" for the observance of the strictest disciplinary system of regimen.

It is freely admitted that state aid for consumptives, in the shape of home sanatoria for those in incipient stages who are financially unable to seek climatic change, is a work of noble purpose, and attended by satisfying results. Of still greater value would be the erection of local hospitals for those hopelessly ill, on account of the excellent opportunities afforded for exercising proper prophylaxis and control. Such a class constitutes a far greater source of danger to the community than many of the incipient cases, without expectoration and without bacilli, now often admitted to sanatoria. The latter in an appropriate climate are not too ill to engage in some occupation, if necessary, with a reasonable assurance of improvement.

It appears, then, that sanatorium régime without climate is obviously applicable to one class. Climatic influence without an ideal manner of life is likewise suited to the necessities of another. The essence of the present controversy relates to what shall be done for the enormous class who are able and anxious to avail themselves of every rational opportunity to recover from their disease. They appeal to their medical advisers to assist them, not merely in obtaining a degree of rest, but in secur-

ing arrest of an infectious process incident to their existing environment.

How can the logic of climatic truths be longer ignored? In the advocacy of home sanatoria attempts are being made publicly to refute the favorable influence of climate. An undue enthusiasm throughout the country, awakened by the tardy recognition of the value of certain features of regimen, may be sufficient to delay the acceptance of the more comprehensive principles of management at the expense of a considerable sacrifice of life.

The prevailing tendency to provide home sanatoria for all classes, and to repudiate the established facts of climatic influence, cannot fail to prove in the end a most unfortunate delusion. It seems opportune, at this time of local sanatoria agitation, to reassert and emphasize the intrinsic distinctive value of climate, reinforced by proper living, as the all-important factor in the treatment of the disease.

The influence of climate itself, and that of sanatorium régime, should be studiously regarded without bias, prejudice or preconceived ideas, in order to understand clearly the rôle played by each in the great tragedy of consumption. A final conclusion can only be reached from an impartial investigation of actual results obtained under approximately like conditions.

The advocates of home sanatoria base their claims for support upon their recorded results of improvement. Disclaiming any desire to reflect upon the actual worth of such institutions, the utility of which for those unable to seek climatic change has been accorded, it is, nevertheless, a matter of record that the heralded satisfactory results are very largely due to the fact that only the most incipient cases are admitted. Those more advanced, after a disastrous delay, are sent away from home to continue the struggle in a distant clime and against great odds.

A report of the work done and the results obtained for 1 year at a state hospital for consumptives in New England states that out of 214 admissions, 35, or 16%, were discharged as arrested. Of these 35 cases, 9 are reported as being at all times without bacilli but with undoubted signs and symptoms, and 4 as without signs or bacilli but with suspicious symptoms. Two were without sputum but responded to the tuberculin test. Only 8 were described as having signs somewhat advanced. The average stay in the hospital of these cases was 4½ months.

It is at once manifest that such cases belong to an entirely different category than the 71% of all cases previously reported by me as seeking climatic relief with distinct evidence of advanced infection in each lung. The unanimity of recorded results reported by various observers, to the effect that nearly three-fourths of these latter cases, taken as they come, may be expected to improve in favorable climates, furnishes a standard for the purpose of comparison as yet utterly unapproached by sanatorium régime or by any special methods of treatment.

¹ Read before the American Climatological Association, Niagara, June 25, 1901.

The good results of sanatorium management for early cases in unfavorable localities is fully admitted, but this shall not be construed as constituting an argument against the greatly increased benefits to be derived in an appropriate climate and by a much larger class of cases, even in some instances despite limited opportunities for suitable régime. A considerable class are financially unable to observe a strict system of daily life either at home, in closed sanatoria, or in health resorts, yet are permitted by virtue of pronounced climatic advantages to perform light work, at the same time securing a marked prolongation of life and not infrequently an eventual arrest of the disease. Climate alone is certainly responsible for results obtained in such cases as these.

If a suitable regimen *without* the favorable influence of climate is capable of producing a perceptible improvement in very incipient cases, how much greater and more enduring results and in how much greater number of cases, advanced though they be, may be obtained by precisely the *same manner of life plus* the beneficence of climate. Why should not a far more improved mode of life be enacted in an appropriate climate than in less favored regions by reason of added opportunities for outdoor air, on account of increased sunshine, warmth, dryness and rarefaction? It would appear that only in such localities could the fullest conception of a proper method of living be satisfactorily conducted. If a system of regimen necessarily incomplete in moist, cloudy regions is good, a well-nigh perfect adherence to its principles in a land of perpetual sunshine, invigorating air, inspiring scenery and blue sky is certainly better.

Again, are we not forced to consider the great infrequency with which consumption develops in certain climates, and is it not reasonable to expect invalids, other conditions of management being equal, to do far better under those climatic influences which have constantly sufficed to prevent the development of the disease than when subjected to the same treacherous conditions which have operated directly in favor of its spread and which will continue to be in force for all time?

Have not consumptives an inviolable right, provided their financial condition will permit, to expect their advisers to place them in the midst of a new environment with opportunities for recreation and social advantages, facilities for industry and business enterprise, and possibilities of advancement and fortune incident to a new country with its western stir and activity? The invalid is not thus cast into exile apart from family and friends in some barren sanatorium, but at once in his own home is surrounded by all the comforts of daily life, enjoying a suitable environment, although in the midst of an active civilization. By degrees he is permitted to adapt himself to engage later in a useful and prosperous existence. Upon his recovery he is not compelled to go back again to previous conditions of danger only to experience the dread return of his trouble, but

finds a hearty welcome to the ranks of his fortunate predecessors, with abundant opportunities for the employment of his natural proclivities.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

(Concluded from No. 10, p. 281.)

TREATMENT OF HYPERTRICHOSIS BY THE RÖNTGEN RAYS.

HAVAS⁴ refers first to the injurious effects that have been noted in certain cases from exposure to the Röntgen rays, both as regards the skin and the internal organs, and to the conflicting opinions as to the cause of these phenomena. In any case it may be affirmed that idiosyncrasy plays an important part in the cutaneous manifestations. Kaposi believes that the alopecia caused by the rays is due to a disturbance of nutrition caused by changes in the circulation. The papillary and subpapillary vessels are so affected that an active erythema is produced, which is followed by a passive erythema from paresis of the vessels. These hyperemias cause a loosening and finally dropping out of the hair. It is not, therefore, impossible that by a continuous paresis the vessels may permanently lose their power of nourishing the hair papilla.

Daniel was the first to observe the falling of the hair under the influence of the Röntgen rays, and Freund the first to use the method therapeutically. It was found, however, that after an interval the hairs returned. While Kaposi's theory is certainly plausible, the question arises whether the injurious action of the rays is confined to the papillæ of the hair, and does not affect the adjacent tissues, so that a serious defect may be produced.

Havas relates the case of a girl of 19, who had been exposed to the rays by another physician, on account of a growth of hair on the face, for 27 hours altogether, each sitting lasting from 1 to 2 hours, repeated at first once daily, later twice. At the end of the second sitting the skin was red, swollen and painful; yet the sittings were continued. At the expiration of the sittings there was severe inflammation, suppuration and pain, which had continued for 6 months with no sign of healing. When healing was finally accomplished, it was found that there were no hairs on the upper lip and the preauricular region, but half a year later the patient presented herself on account of a further suppuration of the cicatrices left from the operation, when it was found that there was a sinking in and probable atrophy of the parts treated, together with bluish-red annular scars. In 2 other cases the writer has observed the same atrophy and cicatrization. He thinks that the fact that linear, bluish, cicatricial bands appeared on the upper lip, which were not there

⁴ Kaposi's Festschrift, 1900.

before, shows that there is a deep inflammation in the corium which later affects the upper layers. The loss of hair can only be explained on the assumption of the disappearance of the papilla, destroyed by the Röntgen rays. Hence it is not strange that an inflammation sufficiently powerful to destroy the papilla of the hair should cause destruction and resulting atrophy in the adjacent tissue. Whether these changes in the corium and in the papilla of the hair are produced by chemical means, or by a trophoneurotic action causing a disturbance of nutrition, cannot yet be decided. In another case, very carefully treated by Havas for 4 months, with sittings at first 4 or 5 times a week, no hair had reappeared at the end of 5 months, and the skin appeared quite normal.

His conclusions are:

(1) It is possible to cause falling of the hair by means of the Röntgen rays without causing disfigurement of the skin.

(2) In his experience this alopecia is only temporary, although persisting perhaps for months.

(3) The greatest caution should be observed in the application of the method, and when inflammation occurs the procedure should be stopped until all inflammatory signs have disappeared.

(4) The procedure must be adapted to individual susceptibility. The exposure should at first be made at a distance of 30 to 40 cm. and for 10 or 15 minutes only, so that the susceptibility of the patient may be tested.

(5) Long exposures and frequent repetition of them are harmful and even dangerous, as they may cause obstinate and painful ulcers and scars.

(6) He believes the method should only be practised in those cases where the affection is spread over a large territory, where other means of destruction are impossible, and when the patient has been thoroughly informed of both the advantages and disadvantages of the method.

(7) As the method is still in an experimental stage, we must be cautious in our judgment of its therapeutical success.

(8) Its further trial, however, is justifiable and desirable.

PSORIASIS CURED BY THYROID EXTRACT.

Petrini de Talatz⁵ has had poor results from internal medication in psoriasis when not combined with external applications, although he has made trial of large doses of the iodide of potassium, of arsenic and of carbolic acid, etc. In the case described, that of a soldier 22 years of age, the affection had begun but 6 months before he entered the hospital. The scalp and forehead were considerably affected, the trunk only moderately, while there were very numerous and confluent lesions on the extremities. He was at once treated with Vigier's capsules of thyroid, beginning with 2 capsules a day (each capsule containing .10 gr.) up to 6 capsules, which he was taking at the end of about a month, when

there was a pronounced improvement in the skin to be seen. At the end of 6 weeks almost all the psoriasis plaques had disappeared. He was then taking 7 capsules a day, and soon after the medication was suspended on account of headache. At the end of a week 8 capsules were given, and later it was increased to 11 capsules, with some intermissions. An ointment of salicylic acid, calomel and oxide of zinc was given to aid in removing pigmented spots of the legs. He left the hospital completely well at the end of 3 months. There were no symptoms of vertigo, tachycardia, vomiting or chills, and the headache, it is thought, cannot be laid at the door of the medicament. The treatment should be carefully watched by the physician, and requires a long time to produce its effect. The writer properly says no especial conclusions can be drawn from a single case, but recommends its further trial.

MERCURIAL EXANTHEMATA.

In the last decade much progress has been made in our knowledge of eruptions caused by mercury; we know that they may be produced both by outward applications and by internal and subcutaneous administration. Rosenthal⁶ has called attention to the bullous and scarlatiniform character of the eruption in certain cases, and Berliner declares that we can now say that almost all possible acute inflammatory conditions of the skin may appear in the course of a treatment with mercury. From the point of view of differential diagnosis, interest has been awakened since we have recognized forms resembling scarlatina and erysipelas. It is now known that certain forms may be very obstinate, in some cases possibly due, as Neisser has suggested, to an impurity of the mercurial ointment. In other cases the severity of the eruption must be attributed to idiosyncrasy. These severe forms are said to occur more frequently in women, and anemia has been thought to be a factor. Berliner relates a case observed in the hospital at Friedrichshain, in which a woman of 42 was treated for syphilis by means of inunction, using 30 gm. of mercurial ointment in 10 days. After the very first inunctions an eruption appeared on the legs, which soon spread over the whole body, although the inunction was omitted. When admitted to the hospital, the whole face was greatly swollen, of a bluish-black color, with crusting at the edges of the nose. There was very marked stomatitis and conjunctivitis. The whole trunk presented a reddish-blue color, which on close inspection was found to be caused by very numerous petechiae situated about the hair follicles. The extremities were similarly affected, but the backs of the hands and feet were covered with enormous bullae, some of them collapsed. There was moderate diarrhea. There was later an increase in the bullous eruption, so that the patient was placed in a permanent water bath. There was a mild pneumonia. Recovery took place in a few weeks, leaving a very deep pigmentation, so much so that the question of

⁵ Kaposi's Festschrift, 1900.

⁶ Derm. Zeitschr., February, 1901.

Addison's disease presented itself. It was considered that the pneumonia was caused by pyogenic infection from the bullæ. As only 30 gm. of mercury were employed in 10 days, and as no mercury could be detected in the urine, it seems strange that all the manifestations in this case should be due to the large amount of mercury, and a decided idiosyncrasy must be invoked. The capillary hemorrhages in this case were numerous and very unusual. The writer thinks that this case shows the propriety of warning all patients beginning an inunction cure to omit the treatment just as soon as the skin shows signs of reddening.

DISSEMINATED GANGRENE OF THE SKIN IN INFANTS.

Veillon and Hallé⁷ remark that this is a rare affection, hardly one case a year being seen in an infants' hospital. Simon, in 1879, described this form, and later Bonley and Caillant. Demme described 4 cases of erythema nodosum with acute multiple gangrene, in which he found a non-pathogenic coccus and a bacillus, with which he produced in animals lesions similar to those of the patients. There is some doubt, however, whether Demme's cases belong to the class we are considering. Eichhoff has advanced the view that multiple gangrene is due to a trichophyton. Others regard it as due to the ordinary pus micro-organisms.

The case described is that of a male infant of 18 months, who was brought to the hospital for serious skin lesions following the measles. Four days after the appearance of the exanthem, when it was beginning to fade, hemorrhagic bullæ were noticed upon the neck. When seen there were a number of ulcerations on the neck, extending through the whole thickness of the skin, down to the subcutaneous tissue. They were sharply punched out, crateriform, with bluish-red edges. In the centre of some of them there was a rounded island of tissue. On the face and scalp there were some very small superficial impetiginous lesions, and there was edema of the back of the left hand. The general condition was bad, with raised temperature. A few days later abscesses appeared in the scalp, on the loins, the right thigh and arm. The child died 12 days after admission to the hospital, the ulcerations having greatly increased in extent and in depth, and many of the abscesses having opened spontaneously. At the autopsy there was found a congestion at the base of both lungs, and a tubercular nodule at the apex of the right lung.

Pus was taken during life from various lesions, and cultures showed besides the staphylococcus aureus the presence of a bacillus, which one of the writers had previously described under the name of the bacillus ramosus. Histological examination of the lesions showed a gangrenous area beginning in the deepest part of the corium. Cocci and the bacillus ramosus were also found in the sections.

⁷ Ann. de Derm. et de Syph., May, 1901.

The writers emphasize the fact that in this case they followed the evolution of the lesions from a bulla or pustule to a deep ulceration, and that there were not only these foci of disseminated gangrene, but there were also impetiginous and ecchymatous lesions, multiple subcutaneous abscesses. While most writers attribute the gangrenous process to the ordinary pyogenic micro-organisms, one is forced on this theory to assume a predisposition—a cachexia. In the case reported there were a variety of lesions, of which the common ones, as the simple abscesses and impetigo, contained the staphylococcus, while the bacillus ramosus was found in the gangrenous lesions. This bacillus has previously been found in a number of gangrenous processes, pulmonary gangrene, appendicitis, etc. This bacillus inoculated in animals has produced gangrene. Gangrene is a mortification of the tissues with a special fermentation, and the writers' experiments have shown that it depends not on a single micro-organism but on a series of micro-organisms that may belong to different species, but which have the common biological character of being strictly anaerobic.

The writers do not claim that the bacillus ramosus is the bacillus of disseminated gangrene, but believe it quite probable that other anaerobic micro-organisms may be found in this affection. Still less do they pretend to explain in this way all the cases that are called gangrene of the skin, and which are not precisely true gangrenes, but simple necroses rather, as Raynaud's disease, gangrenes following injuries to the nerves, hysterical gangrene, etc. These are trophic affections, in which the infection plays only a secondary part.

Reports of Societies.

MAINE MEDICAL ASSOCIATION.

FORTY-NINTH ANNUAL MEETING, HELD AT PORTLAND, JUNE 12-14, 1901.

FIRST DAY.—MORNING SESSION.

THE meeting opened with an attendance of about 150, and this was maintained throughout the sessions.

The committee wisely presented fewer papers than in years past, and ample time was given for their reading and discussion.

The association met on Wednesday, June 12, at 10 A.M., in the rooms of the City Council, and was called to order by the president, DR. EDW. H. HILL of Lewiston. Prayer was offered by the REV. WM. H. FENN, D.D., of the High Street Congregational Church.

Three papers were assigned for this session.

DR. S. J. BASSFORD of Biddeford presented the subject of

MENINGITIS.

Almost pathognomonic signs of tubercular meningitis are disturbed digestion and explosive vomiting, associated with headache, general lassitude and sensitiveness to light and sound.

Lumbar puncture was approved as a valuable aid to diagnosis.

DR. W. B. KENNISTON of Yarmouth read a paper on the

HOME TREATMENT OF TUBERCULOSIS.

Life in the open air, proper nourishment and rest were the essentials of treatment; valuable adjuncts were "good personal hygiene, a hopeful mental condition and medicine." Out-of-door life by day and night was shown to be feasible even at the home of the patient, and illustrative cases were cited where sleeping conveniences had been fitted up on piazzas or convenient flat roofs, with the best of results for a reward.

A technical paper on

PSORIASIS

by DR. G. A. PUDOR of Portland closed the morning session.

AFTERNOON SESSION.

After the reception of visiting delegates from New Hampshire and Vermont, the president, DR. EDWARD H. HILL of Lewiston, delivered a brief address reviewing the work of the association for the past year.

DR. EDWIN M. FULLER of Bath presented a paper under the title of

A NEW STUDY IN EXOPHTHALMIC GOITRE,

in which attention was called to a hitherto unrecognized pathognomonic murmur, synchronous with the systole, and heard only over a small area just behind and close to the sternal insertion of the right sterno-mastoid muscle. In only 1 case out of 23 reported by the writer was it heard upon the left side. The murmur was described as sounding "like a squeaking sleigh runner on a cold, frosty morning." It is not a venous murmur, more or less continuous, nor is it an intermittent arterial bruit. It does not resemble in sound or character any of the physiological or pathological murmurs described by authors. It has been invariably absent in such cases of simple goitre as the author has seen.

His successful treatment in the greater number of the 23 cases reported had been persistent inunction of the gland with mercurial ointment, iodide of potassium and strychnia, and 15 to 20 gr. of thyroid extract daily internally.

Partial thyroidectomy was advocated as the best surgical procedure.

DR. FULLER presented 2 patients for examination in whom the peculiar murmur was distinctly recognized by several present.

DR. S. H. WEEKS of Portland said that the improvement in the mortality rate of operations for goitre was doubtless due to partial removal by enucleation instead of transfixion and complete removal as at first practiced.

DR. H. F. TWITCHELL of Portland reported a successful operation for tubal pregnancy and exhibited the specimen.

DR. VICTOR E. WATKINS, acting assistant surgeon, U. S. Army, presented a paper on

A CONSIDERATION OF TYPHOID FEVER AS SEEN IN MILITARY HOSPITALS IN THE SPANISH-AMERICAN WAR.

It quoted from published official reports to show the utter collapse of the Woodbridge treatment, under the most favorable circumstances, in the hands of its author.

EVENING SESSION.

At the opening of this evening session DR. HENRY B. PALMER of Farmington introduced the subject of the

ABUSE OF THE CHARITY AFFORDED BY THE HOSPITALS OF THE STATE.

The association has repeatedly put itself on record as condemning the treatment of people perfectly well able to pay ordinary medical and surgical fees, for the nominal hospital charges for board, and has called the attention of the directors of the different hospitals to this abuse.

A committee was appointed to confer with the superintendent and directors of the various hospitals with a view to perfecting some arrangement by which those able to do so shall pay, in addition to the regular hospital charges, proper fees for their strictly medical and surgical treatment. It was proposed that the money so obtained should be used as a fund to meet the expense of treating charity cases.

DR. S. C. GORDON of Portland read a paper upon

THERAPEUTICS.

This paper urged restriction of the too prevalent habit of indiscriminate prescription of drugs, and advocated their use only when sound physiological reason could be given for their selection.

He denied the existence of any absorptive capacity of the large intestine sufficient to warrant the "so-called rectal alimentation."

DR. E. G. ABBOTT of Portland read a paper on

POTTS' DISEASE,

illustrating the best modern methods of treatment by an exhibition of special apparatus.

SECOND DAY.—MORNING SESSION.

The session opened at 10 A.M. with a paper by DR. F. L. DIXON of Lewiston on

A PLEA FOR EARLY OPERATION IN ALL DISEASED OR ABNORMAL CONDITIONS OF THE VERMIFORM APPENDIX.

The argument was that in the presence of a doubtful condition in the appendix, or a known condition with doubt as to the result, it was far safer and more conservative to operate than to wait.

The impression conveyed by the remarks of those discussing the paper, including several members who do no operative work, was that an ap-

pendix once diseased is always a vulnerable point, and the patient could never be sure that he might not have a second attack.

The somewhat unusual spectacle was presented of a prominent surgeon arguing that there are ideal cases which are merely medical,—do not need operation and recover perfectly,—and a physician insisting that an appendix once diseased is always a source of danger, to be removed always and early.

DR. C. A. PEASLEE of Wiscasset read a paper on

HOW TO LIVE WELL; THE PROPOSITION STILL AWAITS SOLUTION.

DR. W. P. GIDDINGS of Gardiner read a paper on

PHYSICIAN'S DIFFICULTIES IN DAMAGE SUITS.

Referring to the fact that recovery so often promptly follows the settlement of a suit, the writer contended that it should not be regarded necessarily as evidence of a slight injury, or of wilful malingering. His explanation was that "while it is true that the higher or intellectual centres first perceive and take fuller cognizance of danger, the force of the effect is expended upon the emotional centre, and recollection remains as the negative in the ideational neurons, from which a reproduction is most easily made." It is perfectly natural that a pending suit should act as an irritant upon the centres of a sensitive person. A suit settled removes a most potent element of disturbance and permits a return to an equilibrium. It would be well, to remove all possible chance of deceit, if, after a verdict, the persons were obliged to wait a reasonable time, pending settlement, for the accumulation of additional corroborative evidence.

AFTERNOON SESSION.

The session opened with the election of the following officers: President, Frederic Henry Gerish, M.D., Portland; First Vice-President, C. E. Philoon, M.D., Auburn; Second Vice-President, J. L. M. Willis, M.D., Eliot; Treasurer, A. S. Thayer, M.D., Portland; Recording Secretary, Chas. D. Smith, M.D., Portland; Corresponding Secretary, Q. A. Bridges, M.D., Guilford.

Board of Censors: Arthur S. Gilson, M.D., Portland; G. M. Elliott, M.D., Brunswick; Adelbert Millett, M.D., Searsmont; G. M. Woodcock, M.D., Bangor; H. L. Bartlett, M.D., Norway.

Committee on Publication: Chas. D. Smith, M.D., (*ex officio*), Portland; Edw. J. McDonough, M.D., Portland; Willis B. Moulton, M.D., Portland; Edwin M. Fuller, M.D., Bath; J. D. Cochran, M.D., Saco.

Business Committee: W. L. Cousins, M.D., Portland; W. L. Bradford, M.D., Portland.

A series of papers on

MEDICAL PRACTICE IN THE STATE HOSPITALS

was presented by DR. G. M. WOODCOCK of the Eastern Maine General Hospital, Bangor, on

"Treatment of the Complications of Typhoid Fever"; DR. WM. B. SMALL of the Central Maine General Hospital, Lewiston, on "Typhoid Fever," and by DR. ANDISON S. THAYER of the Maine General Hospital, Portland, on "The Medical Service as Contrasted with the Surgical."

DR. WOODCOCK considered hemorrhage the most common complication and urged deodorized tincture of opium to the full physiological limit as the remedy par excellence.

Surgical interference in perforation was said to show no better results than the opium treatment of Alonso Clark.

Complications not dependent upon the specific nature of the disease were to be treated by themselves. Bed sores were not always blunders but often occurred in spite of the best endeavors of skilled physicians and conscientious nurses.

DR. SMALL criticized the expectant method of treatment as inadequate in the severer cases. The antiseptic method was alluded to hopefully, judging by the reported action of urotropin upon infected urine. A combination of the antiseptic, eliminative and cold bath treatments was stated to have given the best results in the Lewiston Hospital. The Brandt method was regarded as applicable only to selected cases, and then more for its effect upon the nervous system than upon temperature.

DR. THAYER said the class of cases in the medical services at the Maine General Hospital gave the staff "to some degree and somewhat against their wills" the opportunity of becoming "specialists in all chronic diseases." This hospital is now a teaching hospital throughout the year, and the medical service serves for demonstration and instruction to students,—as useful a purpose as the surgical, although the latter furnishes more than three-quarters of the work of this as of other general hospitals.

At 4 o'clock the association adjourned for the annual dinner, which was served at Underwood Spring, six miles from the city. This was an informal affair, and several hours were devoted to purely social relaxation.

EVENING SESSION.

At 8 o'clock the association met for the evening session and was entertained by a scholarly and most instructive address by DR. EDWARD REYNOLDS of Boston, who delivered the annual oration upon

THE USE OF GYNECOLOGY BY THE GENERAL PRACTITIONER.¹

DR. S. C. GORDON of Portland made verbal report as delegate to the American Medical Association, explaining the new plan of organization adopted at the St. Paul meeting. Under this arrangement this association will have one representative in the House of Delegates.

THIRD DAY.

The association met at 9 A.M., and after the transaction of routine business closed its proceedings.

¹ See page 291 of the Journal.

ings by receiving the report of the neurologist and adopting the recommendations of the final report of the Board of Censors.

The neurologist reported the list of deceased members during the year as follows: Aphas G. Adams, M.D., Portland; John A. Leader, M.D., Lewiston; Mathew F. Ryan, M.D., Millinocket; Almont Thompson, M.D., Portland; B. M. Turner, M.D., Gardiner; N. J. Wedgwood, M.D., Lewiston.

It was recommended by the Board of Censors that the next annual meeting be held in Portland on the first Wednesday, Thursday and Friday in June, 1902.

The selection of orator was left to the next Board of Censors, with power.

The following appointments were made:

Visitors to the Maine Insane Hospital: Drs. G. M. Elliott, Brunswick; A. S. Gilson, Portland; Geo. H. Coombs, Waldoboro.

Visitors to the Eastern Maine Hospital: Drs. G. M. Woodecock, Bangor; D. A. Robinson, Bangor; H. E. Snow, Bucksport.

Visitors to the Portland School for Medical Instruction: Drs. J. O. Lincoln, Bath; Ambrose H. Weeks, Bar Mills.

Visitor to the Medical School of Maine (two years): Dr. Walter T. Goodale, Saco.

Delegates to other medical societies were appointed as follows:

American Medical Association (for two years): Dr. S. C. Gordon, Portland.

New Hampshire: Drs. A. G. Phipps, Milan, N. H.; H. L. Bartlett, Norway.

Vermont: Drs. J. B. O'Neil, Portland; M. B. Sullivan, Dover, N. H.

Massachusetts: Drs. W. B. Kenniston, Yarmouth; Chas. D. Smith, Portland.

Rhode Island: Drs. J. T. Sanborn, Waldoboro; W. B. Giddings, Gardiner.

Connecticut: Drs. R. D. Small, Portland; Stanley P. Warren, Portland.

New York State Medical Association: Drs. I. E. Kimball, Portland; H. F. Twitchell, Portland.

New Brunswick: Drs. F. A. Chandler, Addison, and R. A. Holland, Calais.

The next annual meeting will be the semicentennial, and the appointment of the entertainment committee was deferred, to be arranged for later with special reference to the anniversary character of the meeting.

After the usual votes of thanks to the retiring officers, and to the city of Portland for courtesies extended in connection with use of rooms for the sessions, the association adjourned, after a most successful meeting.

Twenty-eight applicants appeared before the censors and were elected to membership.

DR. F. C. SUTTER of the Wisconsin State Board of Health has announced that the board is considering favorably a plan for the establishment and maintenance by the State of open-air camps for consumptives in the pines in the Northern part of Wisconsin.—*Medical Record*.

BRITISH CONGRESS ON TUBERCULOSIS.

HELD IN LONDON, JULY 22-26, 1901.

(Concluded from No. 10, p. 285.)

GENERAL MEETINGS.

THIRD DAY.

THE third general meeting was held in St. James Hall, Piccadilly, under the presidency of Rt. Hon. Henry Chaplin, M.P., president of the Board of Agriculture. The address was given by PROFESSOR BROUARDEL, dean of the medical faculty of Paris, upon

THE MEASURES ADOPTED BY DIFFERENT NATIONS FOR THE PREVENTION OF CONSUMPTION.

He sketched the methods adopted in the various countries, and said that no greater homage could be paid to her late Majesty, Queen Victoria, than was paid by his countrymen in uniting with their English colleagues in designating this historic era the Victorian Era, in honor of the fact that the initiating of the good work was commenced in England and under her.

In moving the vote of thanks to Professor Brouardel, the chairman said he could not let the opportunity pass without saying that the statement made by Professor Koch, concerning the nontransmissibility of bovine and human tuberculosis, would remain the most remarkable and unexpected incident of the congress.

PROFESSOR GERHARDT, in seconding the resolution, paid England a high compliment when he said that she had, by improving the housing of the working classes, reduced the mortality from tuberculosis more than any other country.

FOURTH DAY.

The fourth general meeting was held in the Queen's Hall. EARL SPENCER, the chairman, in opening the meeting said that on Tuesday Professor Koch had startled the congress by his assertion that bovine tuberculosis could not be transmitted to man, and the congress were fortunate in having as the lecturer of the day Professor John Macfadyen, one of the greatest English veterinarians, and one who had had a vast experience of tuberculosis in the lower animals.

PROFESSOR MACFADYEN'S address, which was punctuated with frequent applause, treated in the main the transmissibility of bovine tuberculosis to man. After having shown that there was preponderating evidence against Koch's deductions, he said that it was a disgrace that in England a milk vendor was able to sell milk which he knew contained tubercle bacilli without incurring any legal or criminal liability.

After he had finished PROFESSOR NOCARD, PROFESSOR HAMILTON, DR. RAVENAL, PROFESSOR CROOKSHANK and PROF. SIMS WOODHEAD all spoke upon Koch's test, and without exception agreed that Koch's deductions were not justified from the premises, one of the latter being of far too limited a nature to justify any deduction whatever.

SIR J. CRICHTON BROWNE said in conclusion that the first effect of Koch's statement was that the State of Wisconsin had already instituted experiments to test the truth thereof.

FIFTH DAY.

The meeting was held in the Queen's Hall, Langham Place, on Friday, July 26. EARL DERRY, who was in the chair, said that the meeting was a very important one, as certain resolutions would be submitted to them — the outcome of the work in the sections. After certain alterations the following resolutions were adopted:

(1) Tuberculosis sputum is the main agent for the conveyance of the virus of tuberculosis from man to man. Indiscriminate spitting should, therefore, be suppressed.

Proposed by Mr. Malcolm Morris; seconded by Mr. Harold Swithinbank.

(2) It is the opinion of this congress that all public hospitals and dispensaries should present every out-patient suffering from phthisis with a leaflet containing instructions with regard to the prevention of consumption, and should supply and insist on the proper use of a pocket spittoon.

Proposed by Prof. Sims Woodhead; seconded by Sir William Broadbent.

(3) That the voluntary notification of cases of phthisis attended with tuberculous expectoration and the increased preventive action which it has rendered practicable has been attended by a promising measure of success, and that the extension of notification should be encouraged in all districts in which efficient sanitary administration renders it possible to adopt the consequential measures.

Proposed by Dr. James Niven of Manchester; seconded by Prof. Clifford Allbutt.

(4) That the provision of sanatoria is an indispensable part of the means necessary for the diminution of tuberculosis.

Proposed by Sir John Burdon Sanderson; seconded by Sir Richard Douglas Powell.

(5) In the opinion of this congress, in the light of the work that has been presented at its sittings, medical officers of health should continue to use all the power at their disposal and relax no effort to prevent the spread of tuberculosis by milk and meat.

Proposed by Sir Herbert Maxwell; seconded by Earl Spencer.

(6) That, in view of the doubts thrown on the identity of human and bovine tuberculosis, it is expedient that the government be approached and requested to institute an immediate inquiry into this question which is of vital importance to the public health and of great consequence to the agricultural industry.

Proposed by Dr. G. A. Heron; seconded by Mr. F. J. Lloyd.

(7) The educational work of the great national societies for the prevention of tuberculosis is deserving of every encouragement and support. It is through their agency that a rational public opinion may be formed, the duties of public health officers made easier of performance, and such local

and state legislation as may be requisite called into existence.

Proposed by Sir James Crichton Browne; seconded by Dr. Alfred Hillier.

(8) This congress is of opinion that a permanent national committee should be appointed to collect evidence and report on the measures that have been adopted for the prevention of tuberculosis in different countries; to publish a popular statement of these measures; to keep and publish periodically a record of scientific research in relation to tuberculosis; and to consider and to recommend measures of prevention. This congress is further of opinion that such a committee should consist of representatives to be elected by the great national societies formed for the suppression of tuberculosis and also representatives nominated by various governments. It is further of opinion that two national committees and great national societies, whose object is the prevention of tuberculosis, should be invited to co-operate.

Proposed by Sir William Broadbent; seconded by Professor Brouardel.

(9) That in the opinion of this congress overcrowding, defective ventilation, damp, general unsanitary conditions in the houses of the working classes diminish the chance of curing consumption, and aid in predisposing to and spreading the disease.

Proposed by Professor Crookshank; seconded by Dr. Theodore Williams.

(10) Resolved, that while recognizing the great importance of sanatoria in combating tuberculosis in countries, the attention of governments should be directed towards informing charitable and philanthropic individuals and societies of the necessity for antitubercular dispensaries as the best means of checking tubercular disease among the industrial and indigent classes.

Proposed by Professor Brouardel; seconded by Professor Calmette.

(11) That the following question be submitted to the consideration of the next congress: The constitutional conditions of the individual which predispose to tuberculosis, and the means whereby they can be modified.

Proposed by Professor Robin; seconded by Sir William Broadbent.

The usual votes of thanks terminated the meeting.

THE MUSEUM.

The museum forms a distinct feature of the congress, and a complete descriptive catalogue of over 200 pages is given to every member.

In the pathological section are some exhibits of historical interest. Professor Koch shows subcultures of the tubercle bacilli made from his original cultures of 1881. He exhibits also specimens of the organs of animals which he has inoculated in his recent investigations as to the identity or otherwise of human and bovine tuberculosis. As will be seen in reading his address to the second general meeting of the congress, Koch has convinced himself that the two are distinct, and

that the danger of the spread of tuberculosis from animals to man is consequently not so great as it has hitherto been considered to be.

Among other specimens in this section which are especially interesting, there is a culture from tubercle bacilli which have been subjected to the intense cold of liquid air without destroying their vitality. A large selection of formalin preparations show tuberculous disease of bones and joints, and tuberculosis of the larynx, of the lungs, and of the heart. One of the specimens is one of spinal caries from a patient under the care of Percival Potts. Tuberculosis in various animals is illustrated by a collection from the Royal Veterinary College and by specimens from the Royal College of Surgeons. Statistical charts show the association of phthisis with overcrowding and other important matters.

The architectural section contains photographs and plans of various sanatoria in various parts of Europe.

Recent Literature.

Syphilis; Its Diagnosis and Treatment. By WILLIAM S. GOTTHEIL, M.D., Professor of Dermatology and Syphilology, New York School of Clinical Medicine; Dermatologist to the Lebanon and Beth-Israel Hospitals, the West-Side German Dispensary, etc. Profusely illustrated. Pp. 216. Chicago: G. P. Engelhard & Co. 1901.

This book will serve the purpose for which it was written. The writer intended it for "the general practitioner who treats syphilis only occasionally or incidentally, and who may be called upon at any time to express an opinion or advise measures for cases in which his opportunities for observation have been necessarily limited." Its 200 small and closely printed pages contain an adequate résumé of the subject, and the book is so compactly made that it can almost be called a quiz compend of the disease. Its chief claim to consideration above other similar little books is that it contains 29 admirable photographic reproductions illustrating the commoner lesions of the disease. The paper and type are sufficiently good, and, barring an occasional orthographic error, the book is a creditable one.

Schoolboys' Special Immorality. Addressed especially to those who have the charge of boys. By MARGIE C. HINE, M.A., LL.D. London: J. & A. Churchill; Philadelphia: P. Blakiston's Son & Co. 1901.

This small volume of 115 pages is a considerably enlarged and rewritten third edition of a practical guide toward the proper sexual training of boys. The subject is treated in a dignified and sensible way, and should prove of service. That boys should be told the nature and possible results of the vices to which they are liable is undoubted, but we sometimes question the efficiency of overmuch admonition in such matters.

THE BOSTON Medical and Surgical Journal.

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THE ATTEMPTED ASSASSINATION OF PRESIDENT MCKINLEY.

As we write, the reports of the President's condition are still favorable, and we are certainly not unduly optimistic in looking forward with a considerable degree of confidence to his ultimate and complete recovery. Such a bare statement of fact, however, conveys little idea of the significance of the events through which the country has been passing in the last week. They have been events in which the medical profession has taken a conspicuous part, and in which it may feel a just and pardonable pride. As we recall the circumstances attending the assassination of Lincoln and Garfield, it will be remembered that in the first case surgical help would under any conditions of knowledge have been unavailing, and in the second that a difference of opinion prevailed as to the treatment instituted, which was in a measure justified by the outcome. In this latest attempt on the life of a president, deplorable as it is, we may find a source of the greatest satisfaction in the fact that medical skill has been wholly equal to the emergency. The President was immediately taken in hand by competent persons, placed under conditions of surgical safety, which fortunately the exposition grounds afforded, and forthwith operated upon by a man who saw the necessity for prompt action and had the technical skill to meet conscientiously the full responsibility of the situation. The means were at hand, and there was no confusion or delay in using them to meet a great emergency which could not have been anticipated. This reflects credit on the profession at large and particularly upon the group of men, from nurses to physicians, who were called upon to act with promptness and energy. If the President lives, as we confidently expect, we have every reason to feel that he owes his life directly to the skill of one man, and indirectly to the ad-

mirable discipline which marked the entire occurrence.

It is a trite remark to make, and yet we are again impressed with the enormous progress which surgical skill has made in the last few years. The actual saving of a human life is an event which does not so often occur in the experience of any one physician that we may pass it lightly by, and when that life is so important a one as a president of the United States, we may well pause for a moment to contemplate our progress, forgetful of our shortcomings. Ten years ago few would have entertained a hope that a perforating pistol wound of the stomach could have had any but a fatal termination. Today we regard such an injury as wholly within the field of operative surgery, and look with equanimity upon results which a generation back would have been considered impossible. Such reflections do something to mitigate the feeling of absolute depression which comes over us when we think of the perverted social instincts which make such a crime possible as the deliberate attempt to murder a man so high in public position and esteem as is President McKinley.

A FURTHER REPORT UPON THE EPIDEMIC OF ARSENICAL POISONING AMONG BEER DRINKERS IN ENGLAND.

In a former number of the JOURNAL (March 28, 1901) an account was given of a report of the Local Government Board of England upon an epidemic of arsenical poisoning among beer drinkers, which had occurred for the most part in the neighborhood of Manchester among the consumers of beer of certain breweries. It was found, according to this report, that the glucose sugar used in brewing the beer contained considerable quantities of arsenic, and that this glucose, employed in many breweries, was supplied by one manufacturing firm, which used an impure sulphuric acid in making the glucose.

Immediately upon the publication of this report of the Local Government Board in February last, a parliamentary commission was appointed to investigate the question and to report upon it. This commission has now reported¹ (July 10, 1901). Among the six members were two noted physicians, Dr. Church, president of the Royal College of Physicians of London, and Dr. Whitelegge, chief inspector of factories and workshops. This commission was charged to ascertain:

(1) The amount of recent exceptional sickness and death attributable to poisoning by arsenic.

(2) Whether such exceptional sickness and death has been due to arsenic in beer or in other

articles of food or drink, and, if so, (a) to what extent; (b) by what ingredients or in what manner the arsenic was conveyed; and (c) in what way any such ingredients became arsenicated, and

(3) If it be found that exceptional sickness and deaths have been due to arsenic in beer or in other articles of food and drink, by what safeguards the introduction of arsenic therein can be prevented.

The commission has held eighteen sittings and examined a large number of expert witnesses, chiefly physicians, chemists and brewers. The report comprises the following topics:

A. The extent of recent exceptional sickness and death in England and Wales attributable to poisoning by arsenic.

B. The cause of this recent epidemic.

C. Certain medical and toxicological aspects of this epidemic.

D. Arsenic in beer previous to this epidemic.

E. Ways in which arsenic is liable to gain access to beer.

F. Arsenic-free beer.

G. Arsenic in articles of food and drink other than beer.

H. Administrative considerations.

Very much of the information contained in this report has already been published in the previous report of the Local Government Board, issued last winter. We therefore quote only those points which are new and of special interest. Chemists who testified before the commission had found quantities of arsenic in the glucose of Bostock & Co. varying from $\frac{5}{100}$ of a grain per pound up to as much as 9.17 grains per pound, and in the acid employed in making this glucose quantities varying from 1.4% to 2.6% of the acid.

The quantity of arsenic found in the beer was found to vary from $\frac{1}{4}$ grain to as high as 3 grains per gallon. Since it was also found that many of the beer drinkers consumed as much as a gallon a day each, and in some instances two gallons, the harmful effect may readily be estimated.

It appears from this report that the implicated firm (Bostock & Co.) were at once financially embarrassed, suits having been entered against them, and for this reason, the commission states, "We have not sought by pursuing inquiry into this matter to apportion between these two firms, or between individuals, the responsibility for the acts of omission or commission which have entailed serious sickness and loss of life to so many of your Majesty's subjects."

The two firms engaged in litigation are the manufacturers of the glucose furnished for brewing, and the manufacturers of the sulphuric acid used for making the glucose. It appears that the latter firm, Messrs. Nicholson & Sons, did not in-

¹ First Report of the Royal Commission Appointed to Inquire into Arsenical Poisoning from the Consumption of Beer and Other Articles of Food or Drink, Part 1. London, 1901.

form Bostock & Co. of the fact that the acid which they supplied contained arsenic, and they also say they did not know for what purpose the acid was to be used. Hence the parties resorted to the court in order to fix the responsibility.

The section of the report pertaining to the medical and toxicological aspects of the epidemic is of professional interest, and is herewith quoted in full:

SECTION 12. The persons who have suffered by the epidemic in many instances have been ascertained to be heavy drinkers of beer. Nevertheless, it is clear that others have suffered who probably drank quite moderate amounts of beer, which there is no reason to believe was more arsenical than that which produced illness in heavy drinkers. In this connection we have received reports of researchers as to the presence of arsenic in excretions of sufferers by the epidemic, in their skin and hair, and in their organs post-mortem, which have been important as constituting additions to medical knowledge of the affinity which certain tissues of the body apparently possess for arsenic, and which indicate that in certain conditions the elimination of arsenic may take place more slowly than has been hitherto generally supposed.

SEC. 13. In our opinion the evidence obtained with regard to the epidemic suggests caution as necessary in comparing the effect of arsenic in small quantities taken at irregular intervals along with beer, and in uncertain relation to food, with the effect of its medicinal administration under medical supervision.

SEC. 14. It is necessary to draw attention to this further circumstance. Among the beer drinkers attacked by the epidemic were many whose symptoms were hardly, if at all, to be distinguished from those of the disease known as "alcoholic peripheral neuritis," which hitherto it has been customary to associate with the consumption of large quantities of alcohol by spirit drinkers. Yet the persons attacked with disease closely simulating alcoholic peripheral neuritis were not in all cases heavy drinkers, nor was there reason to doubt that in their case arsenic in beer had been the essential cause of the illness.

We have been informed by certain physicians in Manchester and Salford that from their local experience of alcoholic peripheral neuritis they had before the 1900 epidemic come to regard this disease as essentially one which affected beer drinkers. In this connection, too, the evidence suggests that in Manchester and Salford, for some years before 1900, "alcoholic peripheral neuritis" has been more common than in large towns in other parts of the country where, so far as is known, excessive drinking is no less common than in Manchester. We hope to obtain further facts with regard to this suggestion.

To the objection that it is hardly practicable to produce beer that can be correctly termed "arsenic-free," on the ground that arsenic is a widely distributed element, the commission replies:

That there is some force in this objection may be admitted. But in the absence of fuller knowledge than is at present available as to the possible effect of consumption of mere traces of arsenic, we are not prepared to allow that it would be right to declare any quantity of arsenic, however small, as admissible in beer or in any food, and we think it should be the aim of the manufacturer to exclude arsenic altogether.

With reference to administrative considerations and methods of prevention, the commission concludes its report as follows:

SEC. 33. On consideration of all the circumstances connected with the recent epidemic, we think that some improvement in administrative measures is called for. It is evident that amendments have to be considered, not only with reference to the question of arsenic in beer but also in relation to the broader question of the machinery available to public health authorities to obviate risk of arsenic or other poisonous substances reaching articles of food and drink in general.

Upon this important general question we consider it essential to await further evidence before making final recommendations. But, meanwhile, seeing that the epidemic of 1900 has been caused solely by beer, and that there exists in the case of breweries (although for another purpose) a system of close inspection by a government department,—the Board of Inland Revenue,—we think that as a provisional measure the machinery under this system might effectively be turned to account to check the introduction of arsenic into beer by way of its ingredients.

SEC. 34. To this end we recommend that the Board of Inland Revenue should possess and should exercise powers to specify in detail individual ingredients of beer which are liable, from their origin or mode of preparation, to be contaminated by arsenic, to prescribe for every such ingredient, and for the different materials used in their preparation, an adequate test which should ensure their freedom from arsenic, and to prohibit, under penalty, the use in a brewery of any material which infringes the prescribed test.

We are of the opinion that, by requiring the brewer to produce satisfactory evidence (whether in the form of a guarantee from the vender, or as the result of analysis by the brewer's chemist, stated in such terms as the Board of Inland Revenue may determine) that the prescribed tests have been applied to all the ingredients of beer at the brewery which have been specified as liable to contain arsenic, and that by the examination of samples in the government laboratory an immediate and effective safeguard to the public with regard to arsenic in beer can be secured.

With reference to the question of the possible existence of arsenic in American beer but little can be said with any degree of accuracy. The absence of recorded cases, either in isolated instances or in a widespread epidemic like that of Manchester, England, would naturally lead us to believe that such danger does not at present exist among us. In fact it can hardly seem possible that in any American community, as limited in area as that of Manchester and its environs, a widespread epidemic of peripheral neuritis (over 3,000 cases with many deaths) could occur without arousing the suspicion of the medical profession at a much earlier stage of its progress than was the case in this English epidemic.

It is unfortunate, now as ever, that Congress, which appears to have abundant opportunity to consider matters of much less importance than those which pertain to human life and health, has persistently refused to answer the repeated appeals for the appointment of a National Board of

Health, which could readily take up and investigate such important questions as this.

The State Board of Health of Massachusetts, always alert for the interests of the people of the State, has made a limited examination upon this question and, so far as the results have shown, it would appear that the beer offered for sale in the State does not contain arsenic in appreciable amounts or in such quantities as would be considered harmful.

Large quantities of iron pyrites are imported into the United States every year for use in the manufacture of crude sulphuric acid (about a half million tons). In some instances this foreign ore contains considerable quantities of arsenic as an impurity. An examination of some samples from the pyrites mine of Rowe, Mass., shows but a mere trace of arsenic.

MEDICAL NOTES.

NURSES ATTENDING PRESIDENT MCKINLEY.—The male nurses in attendance on the President are men of the United States Army Hospital Corps, who were detailed for this service immediately after the shooting of the President, from the detachment of Hospital Corps men on duty with the field hospital exhibit of the Army Medical Department at the Pan-American Exposition. The men selected for this duty were Acting Hospital Steward Palmer A. Eliot and Privates Ernest Vollmeyer and John Hodgins. All of these men have completed the excellent course of instruction given at the school for Hospital Corps men maintained in connection with the U. S. Army General Hospital at Washington Barracks, D. C.; besides which Steward Eliot is a graduate of the Bellevue Hospital Training School for nurses, and Private Vollmeyer is a graduate nurse of the Presbyterian Hospital of New York City. Private Hodgins is a soldier of 9 years' military service and long experience in army hospitals. Much of the attention required in the President's case is of such nature as cannot well be performed by the female nurses in attendance, and the efficiency of these men is such as to have elicited much favorable comment from the staff of attending surgeons. It is a source of much gratification to army medical officers that the Hospital Corps should be officially connected with the President's case and have the opportunity of so publicly demonstrating its professional efficiency and the excellence of its personnel.

EXAMINATIONS FOR ARMY MEDICAL DEPARTMENT.—The examination of applicants for appointment as assistant surgeon in the Army has been resumed in Washington and San Francisco; the Army medical boards convened in those cities

will remain in session so long as there are candidates to be examined. Seventy-six vacancies in the Medical Department still remain to be filled, and as it is desired by the military authorities that the department be filled up to its full legal limit as early as practicable, all eligible applicants will be afforded opportunity for examination; those found qualified will be commissioned at an early date. Full information as to eligibility, nature and scope of examination, etc., may be obtained upon application to the Surgeon-General, U. S. Army, Washington, D. C.

DEATH OF SISTER BEATRICE, A LEPER NURSE.

—The death of Sister Beatrice is announced, who for 5 years lived at a leper house on the Mississippi above New Orleans. She was 60 years old, and the first of several Sisters of Charity to die who were doing the same work.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Sept. 11, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 21, scarlatina 16, measles 18, typhoid fever 46, smallpox 3.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Sept. 7 was 216, as against 214 the corresponding week last year, showing an increase of 2 deaths, and making the death-rate for the week 19.6. The number of deaths from infectious diseases is as follows: Diphtheria, 4; scarlatina, 1; typhoid fever, 7. The deaths from consumption were 37; pneumonia, 8; whooping cough, 2; heart disease, 13; bronchitis, 3; marasmus, 12. There were 5 deaths from violent causes. The number of children who died under 1 year was 75, the number under 5 years, 86; persons more than 60 years, 36; deaths in public institutions, 58. There were 13 cases of smallpox during the week.

TYPHOID FEVER IN WINCHESTER, MASS.—Upwards of a dozen cases of typhoid fever have recently appeared in the town of Winchester. Eleven of the cases are said to have developed in persons drinking milk obtained from one milkman. On investigation it was found that the cans were cleaned in a well the water of which was shown by analysis to be polluted. Precautionary measures have been taken, and the well quarantined. Further spread of the disease is not anticipated.

TYPHOID FEVER IN MASSACHUSETTS.—Typhoid fever is increasing somewhat throughout the State. Fifty towns and cities have reported the disease. There were 47 cases during the week ending Aug.

10, 92 cases during the second week, 66 cases during the third week in August, and 99 cases during the week ending Aug. 31. New Bedford, Fall River and Quincy have been most severely attacked. In New Bedford the epidemic began to subside about a week ago; in Quincy it has just started. A slight increase of cases in Boston is consistent with the increase in population.

VACCINATION OF ELEVATED RAILWAY EMPLOYEES.—The Boston Elevated Railway Company has ordered that all its employees not showing satisfactory vaccination scars be vaccinated at the company's expense. This action has been taken because of the recent appearance of smallpox in an outlying section of the city, and the fact that at least one employe of the road has contracted the disease.

PROHIBITION OF ADMISSION OF TUBERCULOUS IMMIGRANTS.—It is stated that since the ruling went into effect prohibiting the admission of consumptive foreigners into the country, no consumption has been found among the immigrants coming to Boston.

AWARD OF WARREN TRIENNIAL PRIZE.—The Warren Triennial Prize for the year 1901 has been awarded to Dr. Frederick J. Cotton, 416 Marlboro Street, Boston. The subject of the dissertation was: "Elbow Fractures in Children."

APPOINTMENT OF DR. ALVAH B. DEARBORN.—Dr. Alvah B. Dearborn has been elected to complete the unexpired term of the office of city physician of Somerville, Mass., recently resigned by Dr. Arthur R. Perry.

GIFT TO THE FLOATING HOSPITAL.—Through an anonymous giver the Floating Hospital has recently received \$5,000 toward an endowment fund for the maintenance of the work of the hospital.

BEQUEST TO THE NEW ENGLAND HOSPITAL.—By the will of the late Henry A. Turner, the New England Hospital for Women and Children receives \$10,000 for the endowment of two beds.

EXTERMINATION OF MOSQUITOES IN BROOKLINE, MASS.—The Board of Health of Brookline has been authorized to purchase such materials as are necessary for the extermination of mosquitoes.

SCHOOLS NOT OPENED AT ROXBURY, MASS.—The public schools in the smallpox region in Roxbury, Mass., were not opened Sept. 11, on account of the possibility of spreading the disease.

STATES OF PULMONARY TUBERCULOSIS IN CONNECTICUT.—The sanitary regulations of Connecticut have been changed to include pulmonary tuberculosis among the contagious diseases, requiring a physician's report in writing within 12

hours of his recognition of the nature of the disease. Regulations are also to be adopted against spitting in public places.

PRESIDENT OF AMERICAN VETERINARY ASSOCIATION.—The American Veterinary Association has elected J. F. Winchester of Lawrence, Mass., president.

BEQUEST TO FREE HOSPITAL FOR WOMEN.—By the will of the late Mrs. Peter Harvey the Free Hospital for Women receives a bequest of \$5,000.

NEW YORK.

FAILURE OF THE CALDAS SERUM AGAINST YELLOW FEVER.—Dr. Caldas, the Brazilian physician who invented the serum which he asserts is a cure for yellow fever, reached New York from Cuba on Sept. 5, and inveighed angrily against the United States authorities at Havana, declaring that when he went there he was told that he could treat four persons bitten by infected mosquitoes, but that later the arrangement was changed, so that he was able to treat only one. Pauline Alonzo, a patient whom he "immunized" with his serum, was bitten by the same mosquitoes which caused the death of Miss Maas and others, but Dr. Caldas contended that the mosquitoes did not carry yellow fever to the victims, but a putrid infection which caused their deaths. His patient sickened as did the others, but recovered. "The theory that mosquitoes are the only transmitting medium of yellow fever is a scientific brag," he said, "and is not based on any fact proved by experience." Dr. Caldas has been ordered home by his government to conduct a series of experiments at Rio de Janeiro, and sailed on the steamship *Buffon* on the same day that he reached New York. On the very day following word was received from Havana that the commission, headed by Major Havard, appointed to investigate the Caldas serum had officially reported that the attempt made by Dr. Caldas to immunize an individual against yellow fever by means of the vaccine serum prepared by him had failed, and recommended that further experiments with the serum be discontinued.

A PLAN FOR EXTERMINATING THE MOSQUITO.—Dr. Conolly, bacteriologist of the Board of Health of Newark, N. J., the *New York Times* states, is engaged upon a plan of exterminating the mosquito which is ingenious and interesting, but the practical utility of which is certainly somewhat doubtful. By the microscopic study of sick mosquitoes, and comparing them with well ones, he hopes to recognize and segregate the specific germ of some disease which can be made a mosquito epidemic (?). This found and multiplied by skilful cultures, he proposes to catch a large num-

ber of mosquitoes, expose them, and when the illness thus induced has reached the communicable stage, turn them loose and thus start a sweeping epidemic (?) in the *culex* family.

A NEW GENERAL HOSPITAL IN THE BOROUGH OF THE BRONX.—A new general hospital which, it is stated, will cost \$500,000, is about to be erected in the borough of the Bronx by the Order of St. Francis. The order already has two large hospitals in the city, St. Francis' in Fifth Street, Manhattan, and St. Joseph's in the Bronx, but the latter is devoted exclusively to the treatment of tuberculosis patients.

LABOR DAY FESTIVITIES AT AN INSANE HOSPITAL.—More than 3,000 patients celebrated Labor Day at the Manhattan State Hospital for the Insane with athletic games, baseball, bowling and other sports. According to the acting superintendent, Dr. Rowe, over 80% of all the patients in the large institution either took part in or watched the festivities.

BEQUEST TO HOSPITALS.—By the will of Louis T. Hoyt of New York, who died recently in Germany, leaving an estate estimated at nearly \$3,000,000, one thirty-second part of the residuary estate each is bequeathed to St. Luke's Hospital (for the treatment of consumptives) and to the Society for the Relief of the Destitute Blind of the City of New York.

DEFECTIVE PLUMBING IN EXECUTIVE MANSION AT ALBANY.—Governor Odell, having by the recent illness of his daughter had his suspicions aroused as to the sanitary condition of the executive mansion at Albany, has had a thorough examination made, with the result that the plumbing of the residence has been found grossly defective.

COMPULSORY VACCINATION IN PATERSON, N. J.—The Board of Health of Paterson, N. J., has passed an ordinance, similar to the one in force in New York, which makes vaccination compulsory among the public school children of the city.

Miscellany.

THE SHOOTING OF PRESIDENT MCKINLEY.

PRESIDENT MCKINLEY was twice shot at close range by a pistol in the hands of an anarchist on the afternoon of Friday, Sept. 6, while holding a reception in the Temple of Music on the Pan-American Exposition grounds at Buffalo, N. Y. The first bullet struck the sternum, without producing serious injury; the second struck 5 inches below the left nipple and $1\frac{1}{2}$ inches to the left of the median line, penetrated the stomach in 2 places, and lodged probably in the deep muscles of the back. The bullet has not been extracted.

An immediate operation was performed by Dr. M. D. Mann of Buffalo, and the two wounds in the stomach sutured. No injury to other internal organs has been discovered. The temperature, pulse and respiration, at first somewhat elevated, have, with few fluctuations, gradually approached the normal. No serious complication has as yet appeared. The physicians immediately concerned in the case are Drs. M. D. Mann, P. M. Rixey, Roswell Park, Herman Mynter, Eugene Wasdin and Charles McBurney.


Obituary.

GEORGE WILLIAM WELLS, M.D.

DR. GEORGE WILLIAM WELLS, since 1892 medical director of the Manhattan Life Insurance Company of New York, died at his home at Richmond Hill, Borough of Queens, on Sept. 2, in his fifty-eighth year. Dr. Wells, who was a kinsman and pupil of the late Dr. Lewis A. Sayre, belonged to an old English family which came to America as early as 1625. He was born in Tyrone, Steuben County, New York, June 5, 1841, and was graduated from Princeton College in 1865. He received the degree of M.D. from Bellevue Hospital Medical College in 1868, and, after taking a course of post-graduate lectures at the Long Island College Hospital, was appointed assistant professor of diseases of the nose and throat in the latter institution. Later he served as physician for diseases of the chest in the Outdoor Department of the Bellevue Hospital, and as surgeon to the Seaman's Retreat Hospital on Staten Island. After practising for 3 years in Brooklyn and 10 years in New York he entered actively upon the special department in which he was best known, as medical examiner at the home office of the Mutual Life Insurance Company. He soon became a recognized authority on problems of life insurance. He was the editor of the *Medical Examiner and Practitioner*, and his writings on the effects of alcohol, narcotics and tobacco are held in high repute. It is stated that it was largely his foresight that led the insurance companies to more fully appreciate how much their success was dependent upon accurate physical diagnosis, he having been among the first to agitate the selection of life risks.

METEOROLOGICAL RECORD

For the week ending Aug. 31, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather		Rainfall in inches.				
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.					
S...25	30.02	72	75	68	88	80	84	N	S	E	9	4	O.	F.	2.09	
M...26	30.04	70	72	67	88	81	84	E	S	E	4	0	O.	C.		
T...27	30.12	70	78	62	85	76	80	W	E	S	E	4	0	C.		C.
W...28	30.22	67	72	62	61	59	60	N	E	S	E	7	9	C.		C.
T...29	30.13	73	83	63	46	57	52	S	W	S	W	5	15	C.		C.
F...30	30.09	72	82	63	60	61	60	S	W	S	W	5	10	C.		C.
S...31	30.02	66	70	62	83	65	74	S	S	E	E	5	10	F.		O.
 30.08		76	64				71								2.09	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. **Mean** for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUG. 31, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Percentage of deaths from					
			Deaths under five years.	Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrhœal diseases.	Lipthæria and croup.
New York	3,437,292	1,287	640	42.74	3.42	1.94	28.41	.46
Chicago	1,696,670	419	144	20.02	3.90	1.95	4.97	2.20
Philadelphia	1,293,697	410	144	20.02	3.90	1.95	4.97	2.20
St. Louis	575,238	—	—	—	—	—	—	—
Baltimore	508,957	178	62	29.21	8.43	1.12	13.48	.56
Cleveland	381,708	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	96	42	46.62	6.25	10.41	13.54	1.04
Washington	275,718	—	—	—	—	—	—	—
Milwaukee	285,531	—	—	—	—	—	—	—
Providence	175,567	73	30	39.73	5.48	1.37	28.77	1.37
Boston	560,892	213	93	46.94	6.57	1.41	20.75	3.29
Worcester	118,421	48	25	33.33	6.25	3.08	25.00	—
Fall River	104,463	40	37	48.98	4.08	—	26.94	—
Lowell	94,969	45	22	28.80	2.22	—	41.11	2.22
Cambridge	91,886	27	10	37.04	7.41	—	22.22	—
Lynn	68,513	17	9	47.06	—	—	17.64	5.88
Lawrence	62,559	22	11	36.36	4.55	—	27.27	—
New Bedford	62,442	41	18	21.95	4.88	—	—	—
Springfield	62,059	23	7	26.09	4.35	—	13.04	—
Somerville	61,453	17	6	38.82	11.76	—	—	—
Holyoke	45,712	15	8	46.67	20.00	—	40.00	—
Brookton	40,063	15	5	33.33	—	—	20.00	—
Haverhill	37,175	9	1	11.11	—	—	—	—
Salem	35,923	17	9	47.06	—	—	47.06	—
Chelsea	34,972	10	4	26.00	—	—	20.00	10.00
Malden	33,664	16	7	37.50	6.25	—	25.00	—
Newton	33,587	5	3	60.00	—	—	80.00	—
Fitchburg	31,531	4	4	100.00	—	—	—	—
Taunton	31,036	22	12	54.55	—	—	36.36	—
Gloucester	26,121	3	1	33.33	—	—	—	—
Everett	24,536	6	4	66.67	—	—	—	12.50
North Adams	24,200	19	16	84.21	—	—	—	—
Quincy	23,890	9	5	41.44	—	—	33.33	—
Waltham	23,491	4	2	50.00	—	—	—	—
Pittsfield	21,766	6	1	16.67	—	—	—	—
Brookline	19,935	6	1	16.67	—	—	—	—
Chicago	19,167	6	1	16.67	—	—	—	—
Medford	18,244	6	1	16.67	—	—	—	—
Newburyport	14,478	7	3	85.71	—	—	85.71	—
Melrose	12,962	5	4	20.00	—	—	—	—

Deaths reported 2,790; under five years of age, 1,240; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrhœal diseases, whooping cough, erysipelas, fevers and consumption) 457; acute lung diseases 98; consumption 261; scarlet fever 15; erysipelas 1; typhoid fever 54; whooping cough 20; cerebrospinal meningitis 11; smallpox 2; measles 7.

From whooping cough, New York 7, Philadelphia 6, Baltimore 1, Pittsburg 3, Providence, Boston and Somerville 1 each. From cerebrospinal meningitis, New York 3, Somerville 2, Philadelphia 3, Worcester, Cambridge, North Adams, Melrose and Lawrence 1 each. From scarlet fever, New York 6, Boston 5, Pittsburg, Taunton, Weymouth and Brockton 1 each. From typhoid fever, New York 25, Philadelphia 8, Pittsburg 10, Baltimore and New Bedford 2 each, Boston 3, Providence, Worcester, Lawrence and Somerville 1 each. From erysipelas, Baltimore 1. From smallpox, Philadelphia 2.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,453,426, for the week ending Aug. 17 the death-rate was 21.3. Deaths reported 4,573; acute diseases of the respiratory organs (London) 103; whooping cough 65; diphtheria 64; measles 97; fever 40; scarlet fever 42.

The death-rate ranged from 10.1 in Halifax to 30.5 in Birkenhead; Birmingham 21.9, Bolton 21.6, Brighton 20.7, Bristol 11.2, Cardiff 13.9, Croydon 13.2, Derby 16.7, Gateshead 30.2, Huddersfield 17.6, Hull 27.2, Leeds 22.2, Liverpool 22.8, London 19.9, Manchester 26.3, Norwich 22.8, Plymouth 18.8, Portsmouth 22.2, Sheffield 27.2, Sunderland 30.2, Swansea 15.4, West Ham 21.6, Wolverhampton 21.6.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING AUG. 31, 1901.

J. E. GARNER, surgeon. Detached from the "Brooklyn" and ordered to the "New York."

J. N. BRISTOL, assistant surgeon. Assigned to the Marine Brigade, Asiatic Station.

R. M. KENNEDY, passed assistant surgeon. Detached from the "Bennington" when placed out of commission, and ordered home.

D. H. MORAN, passed assistant surgeon. Detached from the "Monongahela" and ordered to the Naval Hospital, Newport, immediately, for treatment.

R. T. ATKINSON, assistant surgeon. Detached from the Washington Hospital and ordered to the "Wabash" immediately.

A. W. BALCH, assistant surgeon. Detached from the "Wabash" and ordered to the "Monongahela" immediately.

D. N. BERTOLLETT, medical inspector. Detached from the "New York" and ordered to the "Brooklyn" as fleet surgeon.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING AUG. 20, 1901.

BAILLACHE, PRESTON H., surgeon. Detailed as delegate to represent the service at the meeting of the American Public Health Association to be held in Buffalo, N. Y., Sept. 16-20. Aug. 21, 1901.

SMITH, A. C., passed assistant surgeon. Granted leave of absence for 1 day, Aug. 21, 1901, under paragraph 181, Regulations, U. S. Marine Hospital Service.

TODD, W. C., acting assistant surgeon. Granted leave of absence for 11 days from Aug. 18. Aug. 26, 1901.

GOODMAN, F. S., hospital steward. Granted leave of absence for 30 days from Sept. 1. Aug. 26, 1901.

WARHANIK, C. A., hospital steward. Granted leave of absence for 30 days from Sept. 4. Aug. 22, 1901.

HALL, L. P., hospital steward. Relieved from duty at Boston, Mass., and directed to proceed to Vineyard Haven, Mass., and report to medical officer in command for duty and assignment to quarters. Aug. 28, 1901.

RESIGNATION.

Hospital Steward C. A. Warhanik resigned to take effect Oct. 4, 1901.

FOR THE SEVEN DAYS ENDING SEPT. 5, 1901.

CORB, J. O., passed assistant surgeon. Granted 10 days extension of leave of absence. Aug. 30, 1901.

BLAKE, RICHARD, passed assistant surgeon. Granted leave of absence for 10 days from Sept. 2, 1901. Sept. 3, 1901.

OAKLEY, J. H., passed assistant surgeon. Granted leave of absence for 2 months from Sept. 17, 1901. Aug. 30, 1901.

RUSSELL, H. C., assistant surgeon. To proceed to Cleveland, O., and assume temporary command of service during absence of Surgeon W. J. Pettus. Aug. 30, 1901.

PARKER, H. B., assistant surgeon. To proceed to Amite City and Abbe Springs, Louisiana, for special temporary duty. Aug. 31, 1901.

GWYN, M. K., assistant surgeon. Granted leave of absence for 1 day. Aug. 30, 1901.

WARRREN, B. S., assistant surgeon. Granted leave of absence for 14 days from Sept. 11, 1901. Sept. 5, 1901.

BARNESBY, P. N., acting assistant surgeon. Granted leave of absence for 1 month from Sept. 1, 1901. Aug. 30, 1901.

FRANKS, R. E., acting assistant surgeon. Granted leave of absence for 7 days from Sept. 3, 1901. Paragraph 181, Regulations, Marine Hospital Service.

RECENT DEATH.

DR. GEORGE GILL of Mount Vernon, Westchester County, N. Y., died on Aug. 31, at the age of 70. During the Civil War he served as a surgeon in the army.

BOOKS AND PAMPHLETS RECEIVED.

I Suggest. Suggestion and Osteopathy. By W. I. Gordon, M.D., D.O. Illustrated.

Pennsylvania Hospital. Annual Report of the Department for the Income for the Year Ending April 25, 1901. Illustrated. Reprint. 1901.

Mt. Sinai Hospital Reports. Vol. 11, for 1899 and 1900. Edited for the Medical Board. By Paul F. Mundé, M.D., LL.D. 1901.

A Contribution to the Study of Mountain Fever. By R. Harvey Reed, M.D., Rock Springs, Wyo. Illustrated. Reprint. 1901.

Address.

THE USE OF GYNECOLOGY BY THE GENERAL PRACTITIONER.¹

BY EDWARD REYNOLDS, M.D., BOSTON.

(Concluded from No. 11, p. 294.)

MUCH attention should be paid to the psychological side of gynecology. Operations are often undertaken with entire lack of reason, and with entire failure of relief, because innocent abnormalities of the uterine organs are associated with nervousness or depression of entirely different origin; and I am confident that no operation should be undertaken for the cure of mental or nervous symptoms until every means of diagnosis has been exhausted, until it has become more than evident that that nervousness or mental depression is in truth dependent upon the uterine lesions found. In my experience such a conclusion will be rarely reached if the patient is watched and questioned so closely as to exclude all the other possibilities. In this connection I am convinced that we too often allow a false modesty to lead us to neglect an important part of our duty towards our married gynecological patients. Actual sexual perversion and vicious alterations of the sexual habit are, I am persuaded, rare among our women, but innocent and ignorant, deleterious alterations of habit are so extremely common, that when a married woman is found to present unexplained and persistent nervous phenomena, I am persuaded that it is always the duty of the physician to question her or her husband closely and searchingly as to their habit in the marital relation.

It has amazed me to see how often such questioning has revealed the evident cause of nervous symptoms which I had before failed to understand; and, far from such questioning being resented, it is usually received with the utmost gratitude by a patient, to whom it can be pointed out that an ignorance of this kind has been the cause of her ill health. I am sure that we ought not only to remember the possibility of such a cause for nervous illness, but to impress upon every such patient the duty which every mother owes to her daughters when they in their turn are about to marry. There is no doubt that great harm can be done by indiscreet references to this subject, but an immensity of harm has been wrought in past generations by improper prudery, and will I am sure, be avoided in the future by a more rational treatment of the matter as between fathers and sons, mothers and daughters, physicians and patients. Tact, wisdom and conscience are required in dealing with it, but the result justifies the effort.

In all such matters, in all matters in which the ignorant or viciously mistaken habits of the community reflect injuriously upon its health, the public looks to our profession as its adviser and

guide towards better things. Every man now recognizes that the prevalence of the social evil among us, as among the whole civilized world, is not only a moral but a physical sore, and in this aspect of the case it is for us to teach the community how to lessen it. If I seem to speak of the matter from a too purely economic, and too little from a moral point of view, it is not that I underestimate the greater importance of the latter aspect, but because in a professional address it seems proper to limit one's self to the professional point of view. We are not expected to preach pure ethics, as the clergyman is compelled and required to do. Ours is the less exalted, but perhaps, unfortunately, the more practical duty of emphasizing the economic or physiologic point of attack against moral evils.

The common formula for the remedy of this festering spot in the body politic is the regulation of prostitution, but this will not appeal to us. As scientific men we know too well the impossibility of detecting the latent possibilities of infection. We know too well that the gonococcus and the mucous lesions of syphilis must often lurk undetected in spite of the most scrupulous care in examination; we know that the remedy is inefficient. As practitioners we know too much of the social life of the community from the inside to doubt that the abolition of prostitution, were that possible, would not be enough; we must go deeper, we must cut at the root of the evil. We know too much from our acquaintance with the social life of the community from the inside to believe for a moment that the source of the trouble lies in the impulses of women. Our women as a whole are pure, our men are not. We must look at the thing from a deeper, a more scientific, a more biologic point of view. Throughout organized nature one primeval law prevails. From the lowest forms of differentiated sexuality up to man, the law of the sexual passion is the same. The male pursues, and the female retreats, till she is captured. The male passion is ever present; the female delights in attraction, but feels the influence of passion but little until she has been seized and yields herself to her captor. If we include the psychological aspects of the subject, this is as true of the most highly civilized man as of the quadrupeds who surround us.

If we are to seek to decrease this evil to the body politic, we must begin by exerting influence upon our men. Have we as a profession done our duty in this respect? I doubt it. From what source do our young men obtain their knowledge of matters sexual? How many of us, looking back to our own childhood, can fail to remember that we gleaned our first knowledge of the sexual act from the obscene talk of older boys; that we were trained to look upon sexual errors not with a sober sense of their real value but light-heartedly and as an interesting opportunity for romantic adventure? How many of us had the advantage of looking upon this subject from the start in the light in which it appears to

¹ Annual Oration delivered before the Maine Medical Association at its forty-ninth annual session at Portland, Me., June 13, 1901.

the sober head of a family, to the father of sons and daughters?

We should do our duty better in this matter. We know too well the enormous prevalence of syphilitic disease. We know how long-continued and serious a matter is an infection by the gonococcus. We should teach the laity to hold a true view of these diseases, and should teach them to train their boys in a serious and sober view of the matter on both the moral and economic sides. So long as the majority of the male youth of the country believe an infection by the gonococcus to be little worse than a severe cold in the head; so long as syphilis is supposed to be confined to the extremely vicious; so long a great preventive influence has been neglected. When every growing boy knows, as we know, that even a moderate indulgence in vice will place the probabilities in favor of his acquiring a gonorrhea; that when he has been once infected the chances are many that his subsequent health will long feel the effects of the disease, or of its consequences; that it may lurk for many years a potential source of suffering and invalidism to the woman whom he has undertaken to protect and cherish as his wife, and to the eyesight of his offspring; when every such boy knows how large the risk of syphilis is to those who lead a life of so-called pleasure;—then, and then only, a great preventive force will have been used, and we shall have done our duty.

There has also been, and there often still is, too much ignorance and prudery in our treatment of the subject of the changes at puberty and the menopause. There is a growing tendency among mothers towards the appreciation of their responsibility to girls approaching puberty, and among the more intelligent classes an increasing number of them seek medical guidance with regard to their duties in this matter. The physician should not only inform himself upon the matter and be ready to exert himself to his utmost when consulted, but should, I think, in the relation of family practice, take pains to introduce the subject as occasion demands.

Preventive medicine finds no more important gynecologic opportunity. We are too apt to feel that puberty begins with the first menstruation, that is, at an average age in this climate of from 13 to 14 years. In point of fact, the changes incident to the development of the genital organs of women extend over a period of several or many years, seldom occupying less than 3 or 4 years of life, and often twice as many; of which by far the most important years are those which precede the appearance of the catamenia.

The uterus, tubes and ovaries of most girls of 11, of all girls of 13, are in a plastic, formative and developing state. That time of life is one which is heavily loaded with the possibilities of good and evil for the future health of the individual. I am not one of those who believe in the universal viciousness of the corset; I feel confident that with many stout, lethargic women it is productive of positive good, but too much cannot be said in condemnation of the practice of cor-

setting children. The tree grows as the twig is twined, and the use of the corset during the developmental period is most certainly productive of great harm. Dysmenorrhea is so well-nigh universal that a slight degree of it has been reckoned by some authorities as normal among civilized women. It is not all of it dependent upon deformities, but almost all of it originates in the lack of proper general care of the health of the child during the prolonged process of puberty, and not a small proportion is the direct result of the antelexion of the cervix which is the necessary consequence of crowding the growing uterus against the pelvic floor by the application of tight pressure from above, thus affording it insufficient room for a symmetrical development. The nervous dysmenorrheas, too, and much of the nervous over-irritability of our women are due to the expenditure upon other tissues of too large a proportion of the nervous force which is necessary to the important changes of puberty. The period of life over which puberty ordinarily extends, that is, from 11 to 16 years, corresponds closely to the period in which the education of the girl imposes upon her the greatest strain. The attainment of the best education compatible with health is of the first importance to her usefulness and enjoyment in life. Much harm may be done by directing a girl's attention too strongly to her menstrual function, and consequently no general rule can be laid down, and much tact and wisdom should be employed in the direction of each individual case, but the balance between the intellectual ambitions and the physical health should not be left to chance and ignorance, but assumed by the physician.

Much of the child's future comfort depends upon the establishment of an easy, regular and painless habit, and every girl should be cautioned that during the first few years, at least, the menstrual period is a time when mental as well as physical exertion should be moderate and not excessive. It is probably true of all women that they can do more work and better work in 26 days than in 28 out of the menstrual month, and it is certainly true of growing girls. Every girl should be cautioned against exposing herself to cold and wet during the catamenia, and should be warned in advance of the probable appearance of the flow, lest it may strike her as a terrifying or unnatural phenomenon. All this is the mother's care, but it is for the physician to instruct her in her duty.

Common as is the misconception of puberty as a matter of but a few months' duration, it is a still more common error to believe that the menopause begins with the disappearance of the catamenia. We know that the actual catamenia seldom disappear before the forty-second or forty-third year; we know that women comparatively seldom conceive after the thirty-eighth or thirty-ninth year, and that in those who bear children later the menopause is correspondingly delayed, but we too often fail to connect the two facts. There can be no doubt that the retrogressive processes

are commonly in action for some time before the flow ceases, and common sense teaches us that the peculiarities of the condition may be expected to exist for at least two or three years before the actual climacteric appears. It is common to consider that almost any imaginable nervous or functional disorder which appears at about this period of a woman's life is normal, and natural to the menopause. Few errors have been productive of more injustice and harm. A woman with normal genital organs should, and usually does, go through the climacteric with but little if any serious disturbance; in the interests of conservatism all upsets at this period should be looked upon as abnormal, and in the vast majority of cases their cause may be found in some more or less abnormal condition of the genital organs. Not all of these conditions need operation; not all of them are susceptible of treatment, but their existence should at all events be known, and when remediable should be rationally treated in advance of the time when they are likely to cause trouble. All lacerations and other injuries incident to parturition should be repaired at the beginning of the climacteric period; that is, after the active child-bearing life of the woman is probably over, and some years before the actual menopause is expected. A degree of loss of support, which will give no trouble while the muscles of the region are active, will often be productive of prolapse of the vagina, or even of the uterus, after the tissues have atrophied, and the prospects of successful repair are then much less good than during the active genital life of the woman. The five or more years occupied by the menopause is in all women a period when excessive mental or nervous fatigue should be so far as possible avoided, and we should always bear in mind that a successful passage through this period means for the most part an immunity from pelvic troubles for the remainder of the woman's life.

The years which are attended by the changes of the menopause are also the years in which there is the greatest liability to the supervention of perhaps the most awful disease to which womankind is subject. The investigations of recent years upon the nature, and what is alleged to be the increasing frequency, of cancer of the uterus, may perhaps in the future furnish us with new and more hopeful means of treating it. There are those who believe that they have already demonstrated its bacterial origin; there is, perhaps, hope that serum therapy may in the end furnish us with efficient methods of arresting its progress; there seems to be already a probability that the physiologic influence of the Röntgen rays is capable of exerting a favorable influence upon the epithelial diseases of the cervix; there is a growing feeling that the knife is a mere palliative, a method of euthanasia; and that operation, though it may prolong life and render it more bearable, offers but little hope of radical cure, even in the early stages; but whether all this be true or not, no one denies that at the present day we have no means of even completely re-

lieving the sufferers from this disease in its advanced stages; and no one doubts the importance of its early diagnosis. Its first symptoms are the appearance of irregular bleeding and foul vaginal discharges. It cannot be too much insisted upon that the appearance of a single, irregular flow, or of even a slight, offensive, vaginal discharge in a woman of middle age, ought to be considered as symptomatic of the existence of cancer, until a thorough pelvic examination, including in suspicious cases the use of the microscope upon bits of tissue removed from the uterus, establishes the absence of malignant disease and the presence of another cause for the symptoms. Not until the general practitioner has learned the necessity for taking prompt alarm will the majority of cases cease to be brought to the gynecologist only when it has become too late for him to offer them the remotest prospect of any positive benefit.

The treatment of the tubal and ovarian inflammations which result from acute infection is one of the topics which is attracting the greatest attention in the gynecological world at present. There seems to be but little doubt that the mortality attendant upon abdominal operations in the presence of recent, or even moderately recent, infection is higher than that of any other class of abdominal work; and there seems little doubt that the higher mortality of the general surgeon, as compared with that of the gynecologist, is largely due to his haste in operating upon cases of this nature.

It has long been known that a large proportion of these cases, if treated expectantly, eventually recover health. We know now that the prognosis of these cases depends mainly upon the form of infection present. It is becoming recognized that in women whose circumstances permit them to have the best care, the great majority of gonorrheal infections can be successfully treated by the expectant method. Some few cases of gonorrheal salpingitis recover function; in most of the remainder, under the best care, symptomatic health is eventually attained, and the woman, though sterile, retains her ovaries, with all that that means to her happiness.

We know that of all the other common infections the streptococcus is the only one of which the prognosis is almost uniformly bad. We have as yet no satisfactory means of determining the presence or absence of the streptococcus in the class of accidental infections, but much is to be hoped for in the immediate future from a comparison of the symptomatology and progress of these cases with their bacteriology.

The urinary affections of women have formed the subject of one of the greatest advances of recent time, and though an accurate knowledge of these affections is still confined to but few men, it is advancing and extending so rapidly that it cannot fail of popular comprehension in the profession within a few years, and will inevitably result in a great extension of our usefulness, and in offering relief to thousands of women who are

now suffering hopelessly from these distressing complaints.

The present attitude of the medical man is too often one of entire ignorance on this subject. It too often happens that his whole stock in trade for the treatment of the urinary diseases of women is the impression that pain and frequency of micturition means cystitis, especially if it is accompanied by pus and mucus in the urine; and that this disease is to be treated by the administration of alkaline diuretics, or, if severe, by washing out the bladder. This has been for years almost all that has been known on this subject by the great mass of practitioners, but the recent advances which have made it easy to obtain a visual examination of the bladder, and a more direct knowledge of the ureters and of the individual secretion of each kidney in women, have led to very different views, both of cystitis and of the subject as a whole. We know now that cystitis is to be ranked with the other surgical infections as the product of the gonococcus, the streptococcus, the colon bacillus and the other common bacteria. We know that the acute stage of cystitis is very brief, and that only in this acute stage is the common conception of the disease as a general inflammation of the bladder in any sense correct. During the acute stage the use of sedatives and diluents is the only treatment; but this portion of the affection rapidly passes off, and the chronic cystitis, for which we are far more commonly consulted, has been found to consist pathologically, as a rule at least, of a few reddened and eroded patches situated in the midst of an otherwise normal, vesical mucous membrane. In this condition the bacteria, which are the source of the trouble, and are responsible for its continuance, lie deep in the epithelium of the affected spot. No diluents or diuretics can be more than palliative. No local reagents which can be endured by the normal mucous membrane can seriously affect the condition of the infected area. Treatment to be efficacious must consist of the topical and localized application of strong disinfectants, or even mild escharotics, to the affected spots, and to them only.

The appearance in the urine of considerable quantities of pus and mucus is not symptomatic of cystitis, except in the brief acute stage. It is, on the contrary, almost positive proof of more serious disease. It may be due to sacculation of the bladder, to communication of the bladder with an appendiceal or other pelvic abscess, or to a vesico-intestinal fistula; but all these lesions are rare, and the presence of large quantities of pus in the urine of a woman affected with chronic urinary symptoms far more frequently points to trouble in the kidneys. In such a case our attention should be directed towards a renal stone or a tuberculous, or a new growth in some portion of the urinary apparatus. The differential diagnosis can then be made, for the most part, only by direct physical examination. It is too common an error in the profession to believe that the chief symptomatology of renal disease is to be found in

pain referred to the dorsal region of the back and in the presence of casts in the urine. As a matter of fact, surgical disease of the kidney is far more often accompanied only by abdominal tenderness, frequent micturition, pain referred to the meatus urinarius, and vesical tenosmus; which group of symptoms should always accordingly direct suspicion toward the kidneys.

The physical examination of the urinary organs of women by visual inspection of the air-distended bladder, and the examination of the specimens of urine obtained by ureteral catheterization, is rapidly becoming so easy an examination that, though now confined to a very few men, it must shortly come to be regarded as an every-day procedure in the average gynecologist's practice, and the great relief which will then be afforded to numbers of suffering women can only be appreciated by those whose professional experience has already taught them with what ease and certainty comfort can often be extended to women who have been for years uncomplaining or hopeless sufferers from this most distressing class of disease.

But I fully realize, Mr. President, that the subjects which have come to be of engrossing interest to me form but an item in the wider interests of your association, and nothing but a sense of my own incompetence to deal with a general subject could have induced me to direct your attention for so long a time to this single furrow in the field of your life work.

Original Articles.

MOVABLE KIDNEY; WITH SPECIAL REFERENCE TO ITS CONSEQUENCES AND ITS ETIOLOGY; WITH THE REPORT OF POST-MORTEM OBSERVATIONS MADE BY THE WRITER IN SOME CASES OF MOVABLE KIDNEY.¹

BY FRANCIS S. WATSON, M.D., BOSTON.

This paper is not intended to be in any sense a complete treatise upon the subject, but has for its objects:

- (1) To protest against the view too often held by medical men that movable kidney is with the rarest exceptions a harmless condition.
- (2) To demonstrate what seem to the writer to be the essential etiological factors underlying all cases.
- (3) To record certain post-mortem observations which suggest an explanation of the severe symptoms occurring in some instances.

These propositions will be considered in the order stated.

- (1) That the protest referred to above is not inappropriate was impressed upon the writer recently by a conversation with a colleague, in the course of which he said: That he was in the habit of systematically examining female patients with reference to the presence of movable kidney, and that in neurasthenic women he found

¹ Read before the Surgical Section of the Suffolk District Medical Society, Jan. 2, 1901.

it in at least 80% of his examinations. That he regarded the symptoms referred by them to the kidney as being one of a number of neurasthenic manifestations, and not as being dependent upon the mobility of the organ itself. That the latter condition was rarely of any importance. That he had seen but 2 cases in which he thought operation was called for. That the favorable view of the results of nephropexy held by surgeons was due to the fact that they judged from the immediate effects of the operation only, whereas he found that relapse had occurred in the majority of the cases which had come under his own observation at later periods, after operation. This gentleman is not alone in holding these opinions.

The writer wishes to state clearly that it is conceded that movable kidney is frequent in neurasthenic patients, that in most instances it is *not* productive of serious injury, and that the symptoms referred to the kidney by the patient are frequently *not* due to its abnormal mobility, but are neurasthenic in character. It is the extreme degree of these opinions only that it is intended to combat here, because it may result in serious consequences to the patient.

It is not at all essential to determine the actual frequency of the condition, but it is essential to realize the dependence of symptoms upon it, and their serious significance in many cases. For while it is true that renal symptoms are often neurasthenic, it is also often true that the neurasthenic condition is directly dependent upon and secondary to the mobility of the kidney, as is clearly shown by the numerous examples in the literature of the subject, in which movable kidney associated with painful crises has, in persons of previously good health and with no previous evidence of neurasthenia, been followed later by serious impairment of the health and by the gradual development of neurasthenia, and in whom total and permanent disappearance of the symptoms and restoration to health has followed nephropexy.

But movable kidney sometimes results in much more serious consequences than the production of neurasthenic symptoms. These are (1) hydronephrosis; (2) fixation in an abnormal position of a previously movable kidney; and (3), in a few rare instances, gangrene of the organ produced by the occlusion of its blood vessels brought about by the rotation of the kidney upon its horizontal axis.

HYDRONEPHROSIS.

As far back as 1856 the French physician, Gigon,² recognized the dependence of hydronephrosis upon movable kidney. His observations seem to have been lost sight of, and it is only within the past 10 years or so that this relation has again been made prominent and become established through the works of Landau, Terrier, Badouin, Tuffier and others.

In his experiments Albarran designates two forms of hydronephrosis. The first is termed

open, by which is meant a hydronephrosis produced by the partial closure of the ureter, and recurring from time to time (intermittent), the closure being of relatively short duration on each occasion. The second is called closed hydronephrosis, and in this form the lumen of the ureter is wholly and permanently occluded.

The first condition results ultimately in a gradually increasing and permanent hydronephrosis with slow absorption of the renal substance, and may extend over a long time, while in the second or closed form there is rapid destruction of the renal tissue and function, unless an artificial outlet be quickly supplied.

Now the experiments of Tuffier, Badouin and others have furthermore shown that intermittent hydronephrosis is often directly dependent upon movable kidney, thus Tuffier produced movable kidney artificially in 9 animals, and, in 5 out of these 9, intermittent, followed by continued, hydronephrosis was brought about by sharp bends in the ureter, which in turn were caused directly by the mobility of the kidney. Eighty days was the longest period noted in any case as required to establish the beginning of a permanent hydronephrosis as a result of the intermittent condition.

This experimental testimony has been greatly strengthened by a considerable number of clinical observations. Tuffier, for example, found 12 hydronephrotic kidneys in the course of 45 operations for movable kidney.

Still further confirmation is derived by the additional observations of Tuffier, in which he noted in 3 of the above cases of movable hydronephrotic kidneys, a sharp bend in the ureter which was produced by the descent of the organ, as was shown by the fact that the bend was entirely removed by placing the kidney in its normal position,—the distended pelvis spontaneously emptying its contained fluid at the same time,—and finally by the permanent cure of the patients by nephropexy.

The causal relation of movable kidney to hydronephrosis is still further strengthened by post-mortem observations recorded by Weigert, Clement Lucas, Monod, Isreal and Rochet. In Weigert's case precisely the same conditions just described in Tuffier's were found post-mortem, and neither in Weigert's case nor those of the other observers mentioned was there any condition other than the abnormal mobility of the kidney to which the hydronephrosis could be referred. Pyonephrosis occasionally follows upon hydronephrosis which originates in this way.

FIXATION OF A PREVIOUSLY MOBILE KIDNEY.

There are a considerable number of cases recorded of this condition, and the writer has had two in his own experience. These, together with a case reported by Mr. Morris, may serve as an illustration of the rest.

CASE I. The patient was a man 30 years of age, in good health until 2 years ago, then had typhoid. On recovering he began to have attacks

² L'Union Medical, Feb. 14-21.

of pain in the right side of the abdomen, most marked at a point midway between the anterior superior spine of the ilium and the free border of the ribs. The attacks, which were at first moderate and infrequent, became more severe and occurred oftener, and now threatened to disable the patient entirely.

The pain begins suddenly and ends suddenly; it is not radiating, and neither bladder nor bowel functions are in any way disturbed. The urine is normal.

Shortly after the attacks of pain began, and while they were present, the patient noticed a tumor in the right side of the abdomen, and found that he could relieve the pain by lying down and pushing the tumor upward and backward, which he was able to do readily. Six months from the beginning of the trouble, and while suffering from the severest attack that he had had, he found that he was unable to move the tumor as he had done previously, and from that time it remained firmly fixed in one position.

In February, 1898, the patient was referred to the writer for consultation by Dr. Edwin Dwight. At that time there was a tumor in the right side of the abdomen on a level with the anterior superior spine of the ilium, about the size of the fist, the form of the kidney, and firmly fixed. Bimanual palpation of the right renal region gave the feeling of diminished resistance suggesting the absence of the kidney from its normal position.

Operation took place Feb. 22, 1898. The abdomen was opened by an incision along the outer border of the right rectus muscle and on a level with the umbilicus. After opening the anterior sheath of the muscle, the latter was drawn toward the median line, its posterior sheath incised to the inner side of its middle line, and the abdomen was opened in the line of this latter incision. The tumor was then seen to be the right kidney, which had descended to the level with the anterior superior spine of the ilium. The organ was fixed firmly in this position by strong bands of adhesions, derived, so far as could be judged, from the peritoneum overlying its anterior surface and passing to the fascia covering the lumbar muscles. The kidney was moreover rotated on its long axis, so that it rested on its external convex border, which then became its posterior instead of its lateral aspect. The main blood vessels of the organ were somewhat elongated, and there was a good-sized aberrant artery which was given off from the renal artery about midway in its course, and, passing across the hilus and the anterior surface of the kidney, entered its cortex about the middle of its posterior surface. In its course over the kidney it lay in a well-marked sulcus in its surface. It was evident that there would be strong pressure exerted upon the kidney by the bands of adhesions if the organ became enlarged from any cause, and that pain would probably result, as a consequence of the peculiar conditions presented. Besides the adhesions connecting the kidney to the under surface of the peritoneum in front and binding it down to

the lumbar fascia, there were others which passed from the latter tissue to the posterior surface of the organ. The mesocolon overlying the kidney was incised, and an attempt made to replace the organ in its normal position. It was seen that this was made impossible by the closeness of the adhesions, which could not be separated without tearing the kidney, nor could any relief of their pressure upon the organ be accomplished. Nephrectomy was therefore performed. The peritoneal wound closed, and also the abdominal wound, without drainage. The patient's recovery was uneventful, and his health has been excellent ever since (1901). He has also been wholly freed from all symptoms.

CASE II. A man, age 44, was an amateur athlete until the age of 27 years. At this time he had a severe fall, receiving a wrench of the back muscles by a violent twisting of the body at the same time. Shortly after this he began to have attacks of pain in the right renal region. The intervals were long at first and the pain moderate, but of late they have become much more frequent and severe. There is an afternoon temperature of about 100° F. Tongue coated, pulse 80 to 90. Bowels moderately constipated; this is much more pronounced during the attacks. Bladder is irritable during the attacks, otherwise no disturbance of the urinary function. The pain is rather indefinitely localized between the crest of the ilium and the tip of the ninth rib. In the last 3 or 4 attacks, all of which have occurred within the past year, the pain has been very severe indeed, its duration has been for 2 or 3 days, and he is just recovering from an attack which has continued for 5 days. There is now moderate tenderness on pressure about McBurney's point, and a slight sense of increased resistance a little to the right of the umbilicus.

Operation, March, 1897. The abdomen was opened by an incision similar to that in the previous case. The kidney was found occupying a position almost identical with that noted in the first case. There was this difference, however, that in this one there was a large hydronephrosis, and that the cortex of the organ was greatly thinned, and its function was obviously so impaired as to make it a source of danger rather than of value to preserve. Nephrectomy was therefore performed. There was no especial difficulty in removing the kidney. One aberrant vessel was found which was given off separately from the aorta below the renal artery and, passing direct to the kidney, entered its cortex a little posterior to the lower pole. In its course it was found to be closely connected by adhesions to the cecum. It was tied, it was believed, at a safe distance from the latter, but which was seen later not to have been the case. There was a good deal of oozing from the site of the operation which had been occupied by the kidney, and a counter opening was made in the loin for drainage.

The convalescence was uninterrupted until the tenth day, when the patient complained of pain in the region formerly occupied by the kidney, from

which the drainage tube had been removed 3 days previously. On the following day pneumonia of the right lung developed, and the patient died 2 days later.

Antopsy showed a septic pneumonia of the right lung, resulting from a small perforation of the cecum due to a minute portion of it being included in the ligature of the aberrant artery of the kidney already described.

The English surgeon, Mr. Morris, reports another case very similar to the first of the above. Mr. Morris's patient was a woman who had for some time had attacks of pain associated with a movable kidney. She had received a severe blow upon the back, after which the attacks of renal pain became more severe, and she was operated upon for their relief. The kidney was bound tightly down to the lumbar fascia by dense adhesions in the peritoneum overlying its upper portion, it lay at and below the pelvic brim, was rotated on its long axis so far that its posterior surface lay in front, and its upper end was tipped so far forward and downward that it lay below its lower end; there was a narrow stricture of the ureter close to the outlet of the pelvis. The pelvis was distended to the size of a tennis ball, and the calices of the kidney were moderately dilated. The kidney was not so closely confined by the adhesions but that it could be separated from them and replaced in its normal position, where it was retained by suture. The strictured portion of the ureter was widened by a longitudinal incision and transverse suture of the wound.

The operation resulted in entire relief of symptoms, and there had been no relapse when reported several months later.

In view of the grave consequences just enumerated, the writer submits that the teaching which asserts that movable kidney is of little consequence is harmful, and should be discouraged to the utmost.

If there were no remedy for or prevention of the more serious consequences of movable kidney, the protest against their being disregarded or minimized would not be called for. But there is a remedy, and the writer's protest includes therefore a denial of the colleague's assertion quoted at the beginning of this paper to the effect that the results of nephropexy were not favorable, and that relapse is the rule after its performance. In studying the later results of nephropexy it should be remembered that many cases undoubtedly have been operated upon which were not proper subjects for surgical interference; in other words, the surgical indications were lacking or misjudged. This is especially true of neurasthenic individuals, whose symptoms from the side of the kidney did not clearly antedate the neurasthenic condition, but were noted in the course of its development, are subjective in character, and in whom there is no evidence of injury to the kidney or impairment to the general health, that points clearly to the mobility of the organ as its cause. Furthermore, it is to be noted that the medical

man does not see patients with the successful results of the operation, since they have no reason to visit him, and that he does see most frequently the neurasthenics, from which class comes the largest number of those for whom operation was not appropriate, and in whom success could be least looked for.

It is quite true, on the other hand, that the surgeon has far too little opportunity to see the later results of his operations, and that the record of them is incomplete. Finally, a great many cases should be thrown out of the reckoning of the results because of inadequate methods of operation. This is especially true of the earlier ones. The following are quoted as giving reliable records of the later results of the operation: Albarran: Twenty-three cases, including 2 neurasthenics. All but these 2 were relieved as the immediate result of the operation. Three were under observation for periods of 1½, 2½ and 3 years, respectively. Cure continued in all. One other remained well for 1½ years then had a relapse following a severe fall. Herzberg: Eleven cases. Of these 1 died soon after nephropexy of ulcer of the stomach, 2 had subsequently other lesions which made judgment of the result doubtful, 2 were lost sight of, 1 was greatly improved, 5 remained wholly cured and were under observation from 1 to 7 years. La Fourcade: Fourteen cases; 1 recurrence, 2 too recent to permit judgment, 1 death. Of the 10 remaining ones, 8 remained perfectly cured, and 1 greatly improved. Laverigne: Fourteen cases; 6 too recent or else lost sight of, 6 greatly improved, 2 wholly cured. Tillmand: Sixteen cases; 12 remained under observation for long periods; of these 6 were cured, 2 relapses, 1 died of phthisis, in 4 the kidney did not again become mobile, but the result is otherwise not noted. Tricomi: Thirty-two cases; 2 deaths,—1 of pneumonia 2 months, and 1 of heart disease at 4 months,—6 lost sight of, 23 remained cured, 1 improved. Tuffier: Seventy-two cases; all remained cured which were not associated with general enteroptosis (does not state what that proportion was). There were some 17 cases of hydronephrosis in the whole number. Wolf: Twenty-one cases; the final results in 11 several years afterward showed that all of these might be considered cured.

The writer can add but 6 final results in his own cases, all the others having been lost sight of. In 1 case no relief followed the operation; in 1 the other conditions of the patient make judgment doubtful; 4 remain wholly cured. One of the latter was a pyonephrosis; a sinus remained for a year after operation but then healed; the patient continues at the end of 3 years later entirely free from all symptoms. The time elapsed since operation in the other 3 is, respectively, 1, 4 and 3 years.

THE ETIOLOGICAL FACTORS OF MOVABLE KIDNEY.

This aspect of the subject has been more debated than anything connected with it, and each of the following theories have their advocates.

(1) *Enteroptosis*.—Relaxation of the abdominal walls and consequent downward displacement of the abdominal viscera—including the kidneys—diminished intra-abdominal pressure, known as enteroptosis, especially described and advocated by Glenard, and occurring most frequently in multipara. In this condition the peritoneum overlying the kidney is stretched, and it is assumed that the space thus formed in front and below it, together with the dragging upon it by the descent of the other organ in immediate connection with the kidney, are the chief factors in producing its displacement. Glenard thinks that movable kidney is always associated with this condition and never occurs independently of it.

(2) Sudden wasting of the perirenal fat tissue.

(3) Increase in the size and weight of the kidney.

(4) Downward pressure upon the kidney by an enlarged liver and by large pleuritic effusions.

(5) A similar influence from tight lacing.

And as an immediately exciting cause, traumatism in the presence of any of the above conditions.

It is obvious that none of the above explanations are adequate, neither one nor all of them combined are applicable to all cases, since movable kidney occurs in individuals in whom none of them are present, and in whom consequently it is impossible that they should be etiological factors; not only this, but in many instances movable kidney is present with conditions directly contrary to them. Thus, we find kidneys unusually firmly attached to their normal position yet having marked absence of perirenal fat, and again extreme mobility in the presence of a great abundance of it. Furthermore, not only do we find absence of movable kidney in many individuals with relaxed abdominal walls and with enteroptosis, but also it appears in young women who have never borne children, who are well nourished, and have firm muscular abdominal walls, and even in some instances of young men of athletic habits and unusual muscular development who have not suffered traumatism of any sort. And so, too, with regard to tight lacing: for if it was an active influence etiological we must expect to see a strikingly large number of cases of movable kidney in the class of persons practising that custom, and, if anything, the reverse is true.

Downward pressure exerted by large pleuritic effusions and enlarged liver does not occur in a sufficiently large number of cases to make them worth considering seriously as in any sense essential etiological factors. All these must be considered as favoring or exciting influence but are secondary and not primary causes. What is it, then, that makes these or any other of what might be called outside forces operative in one instance and inoperative in another? Obviously something within the body which is concerned in retaining the kidney in its normal position, and which presents in different individuals different degrees of resistance to these exciting causes which operate in the way suggested. This thing

is anatomical in character, and will now be described.

If the position of the kidneys be noted in the cadaver when recumbent, and the body be then placed erect, it will be seen that they descend spontaneously, unless they have become fixed during life through inflammatory processes, from half an inch to an inch and a half. This corresponds to the natural excursion of the organs under the influence of respiration, as observed by the writer whenever operating upon the kidneys which were under natural and usual conditions, so far as their mobility was concerned.

(The above statement is introduced because of its bearing upon certain points in the discussion of the mechanism of the fixation of the kidney, and to indicate that the latter term—fixation—is used in a relative and not an absolute sense.)

To determine roughly what the structures are which are chiefly concerned in the fixation of the kidneys, the writer adopted the following method of examination in 13 cadavers in which death had occurred not longer than 24 hours previously, and in all but 1 of which the kidneys and their surroundings presented no abnormal changes, and may therefore be assumed to be typical of the ordinary conditions in which the normal organ exists. The single exception was that of extensive abnormal mobility of both kidneys in a male subject 60 years of age. This one will be referred to separately. What follows is deduced from the data gathered from the 12 remaining observations, and may be stated collectively as though applied to one.

The steps of the examination were taken with the view of noting the effect of the removal successively of the tissues concerned in the normal fixation of the kidney, thus:

The abdomen was opened, and its anterior wall drawn outward to one side to give access to the corresponding kidney. Downward traction was then made by the finger tips upon the upper pole of the organ, with as little disturbance as possible of the neighboring tissues. The descent of the kidney was, as already stated, from half an inch to an inch and a half.

The outer leaf of the mesocolon was then divided, and the colon and other viscera overlying the kidney were drawn inward so as to expose it. The descent of the kidney under traction was now seen to be increased by a quarter of an inch. Next the fat tissue in front of and beneath the lower end of the kidney was removed; this did not exercise any appreciable effect upon its mobility. The removal of that portion of the peritoneum which on the right side forms an actual peritoneal investment of the upper portion of the kidney and is reflected from it onto the duodenum and stomach, permitted a further descent of a quarter to half an inch.

With this last step all restraint to the mobility of the organ that could be exercised by the structures in relation to its anterior surface and lower end had been removed, yet the organ's descent had not exceeded the lowest point of its normal

spontaneous excursion by more than three-quarters of an inch in any case, which was not enough to allow of its being detected by palpation in an ordinarily well-nourished subject, or to be classed as movable kidney.

It was clear that the essential structures concerned in the further limitation of its motion were those connected with its posterior surface and upper pole. These were now broken down, beginning above the top of the kidney, and its further descent occurred in direct proportion to their destruction, the movements of the organ finally becoming entirely free except for the restraint exercised by the main blood vessels, whose action drew it toward the spinal column.

The structures, then, which are vital to the restriction of the kidney's mobility within its natural excursion are those which form the attachments between the posterior and upper aspect of the tunica propria, and the fascia covering the lumbar muscles, and the peritoneum covering the diaphragm, respectively, aided by the less essential ones connecting the anterior surface with the peritoneum overlying it. These have been carefully studied by certain observers and will be described presently.

Before doing so, however, their significance as an etiological factor should be considered. If the above rough demonstration of the fixation apparatus represents the normal conditions of the kidneys in this respect,—and that it does so is highly probable from the fact that it conforms to the results of the accurate and careful work in detail of the other observers referred to,—it supplies an entirely adequate explanation of the causation of movable kidney, as being the primary and essential factor; for the variation in the development, distribution, strength and extent of areolar tissue and of fasciæ is, according to anatomists, very great, and this fact as applied to the kidney's attachments amply explains why the same secondary or exciting influences, such as enteroptosis, trauma, wasting of the perirenal fat, etc., should become operative in certain individuals and not in others. Whether there is sufficient difference in the development of these structures in women and men—a greater weakness and less development in the former—to account for the much greater prevalence of movable kidney in them on this ground alone I do not know; but it is not necessary in order to understand it that this should be the case, for, assuming an equal development of these tissues in the two sexes, there always remains the great preponderance in women of secondary influences,—to wit, the relaxed abdominal wall and enteroptosis, and the lesser development and tonicity of the muscular structures. To account for the occurrence of the condition in the strong and athletic individuals (which is infrequent), it needs only to be assumed that they happen to be lacking in a development of these fixation structures, as they may be in the normal complement of any other fibres or tissue development elsewhere. This is to be sure a pure assumption, but it is a perfectly

reasonable one. There remains to be explained only the greater frequency of the condition on the right side than on the left.

There is an active influence in the more direct and intimate connection of the right kidney with the duodenum and stomach than is present in the attachments of the left kidney to any organs that are as much affected in the enteroptosis of the abdominal viscera as they are, which may account for the greater frequency of the affection on the right side in this class of cases. Then there is also the downward pressure of the liver on the right side in all individuals to be added, and finally the influence of the form of the right as compared with the left paravertebral fossa, which is such as to favor the descent of the kidney on that side. This element will be considered again, but before doing so we will go on to the description of the perirenal fascia and its connections with, and influence in, supporting the kidney in its normal position.

This structure has been especially described by Sappey, Zuckerkandl and Englisch, and more elaborately in 1895 by Gerota from the anatomical point of view, and by Glantenay and Gosset in 1898 from the surgical standpoint with especial reference to movable kidney.³

The following is taken from the work of the two last writers, whose conclusions are practically identical with those of Gerota: "These authors studied the perirenal fascia and its connection with the kidney and neighboring structures by means of horizontal and longitudinal frozen sections of the cadaver. The perirenal fascia is constituted by the fascia propria or subserous layer of the parietal peritoneum which, reaching the external border of the kidney, divides into two parts, the anterior or prerenal and posterior or retrorenal. The posterior layer passes behind the kidney, between it and the aponeurosis of the quadratus lumborum, covers the psoas, reinforcing its sheath, and is inserted on the lateral aspect of the bodies of the vertebrae and their intermediate discs, close to the attachments of the psoas. It does not cross the median line.

"The prerenal layer, which is more delicate, continues as a lining of the peritoneum and passes together with it across the front of the kidney, the hilus, the renal blood vessels, the vertebral column and prevertebral blood vessels, and becomes merged in its fellow of the opposite side. The two layers thus form a pouch which is closed along the outer border of the kidney and open on its vertebral side; lateral movement of the kidney outward is thus restrained, while that toward the median line is not.

"In vertical section the following points are apparent: The retro- and prerenal layers of this fascia pass between the adrenal and the kidney at its upper extremity and do not terminate by fusion there, as stated by Sappey, but are continued, one in front and the other behind the adrenal, and become fused together above the latter. From this point they send out firm attachments to the

³ Ann. des mal. des org. genito-urinaires 1898, vol. xvi, p. 113.

lower surface of the diaphragm. In the fetus at term the continuation of the two layers over and above the adrenal can be more plainly seen, and the fact that the adrenal and the kidney are contained within one and the same fibrocellular investment is most evident (Gerota and Charpy have both recorded the same observation).

"The attachments of the perirenal fascia to the under side of the diaphragm are firm. Below the kidney the two layers of the perirenal fascia remain separate, the anterior being continued as a lining of the peritoneum, while the posterior becomes gradually merged in the fascia covering the iliac fossa. In many cases, however, there are numerous fibres passing between the two layers horizontally below the lower pole of the kidney, and when this is the case they aid materially in limiting the descent of the organ by supporting it from below. The retro- and suprarenal parts are far the strongest.

"From the surfaces of the anterior and posterior layers of the fascia numerous fibres of areolar tissue pass to the tunica propria of the kidney and serve to attach the organ to them (in this areolar meshwork lies the perirenal fat).

"Taken altogether the perirenal fascia and its attachments to the tunica propria of the kidney on the one side, to the parietal peritoneum and to the fascia covering the lumbar muscles on the other, and with its strong connection with the diaphragm above, and in some cases with the supporting interlacing fibres below the kidney, constitutes the most essential factor in the retention of the kidney within its natural position and sphere of motion."

This is the conclusion reached in this respect by the authors, with which it will be seen the writer's own rough experiments coincide, while his assumption with regard to the variability of the strength, distribution and extent of the perirenal structures described by Glantzen and Gosset is found to be actually authorized by their further investigation, which showed that such variation was very great in different individuals, from which the following conclusion is allowed; namely, the degree of fixation or abnormal mobility of the kidney will be determined by the variation in the strength and development of this structure, and movable kidney results from its defects in this respect.

There remains one more anatomical factor which is influential in the fixation of the kidney, though to what degree the writer is doubtful. It is the restraint exercised by the shape and size of the paravertebral fossae in which the kidneys lie beneath the diaphragm. Wolkoff and Delitzen have recently published (1900) an elaborate work upon this subject. In this they believe to have shown that these fossae are the chief factors in the fixation of the kidneys, and that it is the variation in their form that explains the occurrence of movable kidney. They seek to demonstrate, by means of plaster casts of the fossae, that the latter are shallower, wider and more open at their lower end in women than in men, and that

in greater or less degree the same is true of the right as compared with the left kidney. Thereby, they think, is explained the greater frequency on the right side and in women. In a certain number of post-mortem observations of movable kidneys they found the same to be true of both fossae in a bilateral case, and of the fossa of the affected side alone if the condition was unilateral.

The writer has had no opportunity to confirm these observations, which are certainly suggestive and significant. There is one criticism to be made against this view. It must be remembered that the spontaneous descent of the kidney under normal conditions is from half an inch to an inch and a half, and that this excursion brings the lower pole of the organ, in many cases which cannot be classed as movable kidney, beyond the limits of the lower limits of the paravertebral fossae, and when that has occurred they have ceased to be restraining factors to the organ's mobility, and can scarcely be regarded as the chief element in the normal fixation of the kidney.

There is one more point to be touched upon in this connection, and that is the rôle that the numerous irregularly distributed small blood vessels which go to the kidney from various directions, and are quite apart from the main renal vessels, may have in sustaining the kidney in its place. This suggestion was made to the writer recently by Professor Dexter of the Harvard Medical School and seems well worth examining closely.

THE MECHANISM OF MOVABLE KIDNEY IN SIX POST-MORTEM OBSERVATIONS MADE BY THE WRITER.

The description of these observations must be brief, and only certain points will be touched upon; these are with reference to the suggestion they conveyed as to the manner in which severe symptoms may be produced in some cases and of their absence in others. Three of the cases demonstrate the latter. In these the kidney, which was the right one in each,—when the cadaver was placed in the upright position, dropped far down toward the pelvis, but did not in its descent produce any bend in the course of the ureter sufficient to affect the flow of urine through it. There was no rotation of the kidney either on its long or its transverse axis. The ureter formed in each case two or three well-marked, but not sharp, bends in its upper third as the kidney descended. The kidneys were apparently normal in all three. The fourth case was in the body of an old man,—already referred to. Both kidneys were freely movable; in this case there was, it may be said in passing, an abundant supply of perirenal fat tissue. The kidneys were normal. The areolar tissue fibres connected with the organ were few and ill-defined. The principal restraint to further descent of the organ were several small blood vessels at the upper end of the organ and the fibres of the perirenal fascia, which were but slightly developed. The interest in this case centred in the latter facts.

The two remaining cases showed particularly interesting conditions. In the first of these the descent of the kidney was unrestricted at first; it was then, however, arrested by a firm band of fibrous tissue which was derived from the subserous lining of the parietal peritoneum and passed transversely across the front of the kidney as it dropped down. The lower pole of the organ engaged slightly beneath this band, and the upper end then fell forward, if the body was inclined in front of the perpendicular line. In so doing a partial twist of the ureter—not wholly occluding its lumen—was formed, which at once disappeared on restoring the cadaver to the recumbent position. The peritoneum overlying the kidney and immediately above the band described was somewhat stretched, and allowed a freer movement of the organ down to the band than was natural.

In the last case the same condition of the peritoneum just spoken of was present also, above a band, but in this one there were two bands, one below the other. The lower half of the kidney passed beneath the upper one, then its lower end, which just engaged beneath the lower, was stopped by it. This left the organ held in such a way that the upper pole could not tip forward as in the first case, but confined it behind two firm bands. It was evident that if, when it was in this position, the kidney became enlarged, the bands would exert much pressure upon it, and in all probability cause severe pain, if not more serious consequences. In the first case the readiness with which the twist in the ureter was produced by inclining the body forward would have given rise to acute attacks of pain.

The writer's colleague, Dr. Paul Thorndike, has recently seen an example *in vivo* of the manner in which detention of the lower end of the kidney will cause its upper pole to fall forward and produce a twist in the ureter. This occurred in a case of movable kidney, with crises of pain, which had been some time previously operated on (nephropexy). The suture was applied near the lower end of the organ only, which resulted in the frequent tilting forward of the upper end and twisting the ureter, and more severe attacks of pain than the patient had before the operation. At the second operation, which was done by Dr. Thorndike, he saw this rotation of the kidney occur. Entire relief followed the second operation.

A NEW FACTOR IN THE ETIOLOGY OF VISCERAL PTOSIS: THE RELATION OF THE MODERN CORSET TO THIS FACTOR: A PRELIMINARY COMMUNICATION.¹

BY AGNES C. VICTOR, M.D., BOSTON.

Assistant Surgeon New England Hospital, Boston; Late Instructor in Physical Diagnosis and Surgery, Woman's Medical College of the New York Infirmary.

ASIDE from traumatic, increased abdominal pressure and relaxed abdominal walls, upon which

factors special stress is laid by all students of visceral ptosis, I wish to call attention to a new factor which has strongly impressed itself on me. I refer to the spinal column, the base of support, directly or indirectly, for all the abdominal viscera, and to its related structure, the pelvis.

In a large number of cases of visceral ptosis the lumbar spine is in a condition of more or less marked lordosis, or else, and more often, it equally departs from the normal by being more or less straight and accompanied by lessened obliquity of the pelvis. This straightening of the lumbar spine and lessened obliquity of the pelvis is, in my present thought, both a cause and an effect of visceral ptosis. I am increasingly impressed with its importance as a cause. I am impressed

(1) With the number of children (many of whom present other marks of rachitis, while many do not) who present enlarged abdomens, flaring lower ribs, flattened upper chest and backward dislocation of the centre of gravity, conditions which would seem the legitimate precursors of increased abdominal pressure, relaxed abdominal walls, straightened lumbar spine and lessened obliquity of the pelvis, which are so common in later life.

We know that the infantile spine is practically straight, that the pelvis is small, and that the pelvic organs encroaching on the abdominal cavity make the abdomen proportionally larger than later in life, when the pelvis develops sufficiently to hold its proper contents; but this condition, normal in infancy, becomes abnormal if persistent. In many cases, there is a too prolonged persistence of infantile conditions, but in the cases just described there are the additional symptoms that make a distinctly separate class, abnormal even in infancy.

(2) I am impressed with the number of older girls, of varying ages, who show a similar condition which has every appearance of having been begun in earlier childhood and remained uncorrected. It is very difficult to trace these cases, because exact work would imply observation of the progressive evolution of the condition in the same children from infancy. I have begun this study, but sufficient time has not elapsed for me to make a report of definite value.

However, take such a condition as I have described in the walking child. It is at once evident that coincident with the backward displacement of the centre of gravity there is a corresponding change in the direction of support and pressure of all the viscera as well. In the cases of lordosis, those viscera which lie near the lumbar or dorso-lumbar spine, as the kidneys, are thrown forward, and are more exposed to direct downward pressure and stress from the superiorly placed, as well as from the neighboring, viscera. If the point of least resistance is the post-renal supporting tissue described by Dr. Watson, it is plausible that descent of the kidneys would precede that of other viscera; if the resistance is generally lessened, there would be a general ptosis, the condition most frequently present.

¹ Contributed in part to a discussion on movable kidney, before the Surgical Section of the Suffolk District Medical Society, Jan. 2, 1901.

I have not noticed any appreciable differences in the sexes in early childhood; both boy and girl children show in large numbers the flattened upper chest, flaring lower ribs, distended abdomen, and backward displacement of the centre of gravity; but as I see less of these changes persisting in older boys, there must be some modifying influence present in one sex that is absent in the other. Whether it is that the more sensible clothing of the boys and their more rational scheme of existence, and hence their better opportunity for general muscular development, helps nature to recover her balance, is a question; but it seems to me a fact that a large number of girls approach puberty with either an established visceral ptosis or with the anatomical paths prepared for visceral ptosis.

It is quite conceivable, in the latter case, that while the balance might be more or less well preserved throughout childhood, compensation might be destroyed at puberty by the physiological changes in the pelvic organs working under such disturbed conditions of pressure and stress. The developing uterus would naturally share in the changed direction of pressure and stress and be forced downward into so-called "congenital" anterior or posterior malposition.

Should the girl survive this danger period, compensation is again threatened in a short time by the putting on of corsets, which constrict the waist; or, if she escape the corset, by the putting on of long skirts, which constrict and drag upon the unsupported point of departure where the skirt band encircles the waist. Woman's "waist," celebrated by many a poem, has been a movable boundary, and its ultimate location has an important bearing on the subject of visceral ptosis. Located, as it has been for so long, over the lower ribs and softer median tissues, even if no corset constriction has existed, the skirt bands have passed just above the transverse colon, and the corsetless woman has fallen into one of two evil ways; that is, her long skirts have dragged upon the transverse colon as a prominent point of support, leading to ptosis; or else she has freed the colon by making her bands very wide, and then thrown the weight of the skirts on the shoulders, leading to atrophy or insufficient development of the shoulder girdle muscles and flattening of the upper chest, with more or less marked compensatory curvature of the spine.

Equally, then, though in differing ways, the putting on of long skirts acts in both the corset-wearing and the corsetless girl upon the transverse colon. It acts mechanically, pushing or pulling this large viscus directly downward; and it acts functionally, the vascular and fecal circulations are interfered with, congestion and constipation add to weight, stasis leads to fermentation and distention. The transverse colon is not an isolated viscus; its neighbors become involved. However, whether the transverse colon or another viscus is the primary offender, intra-abdominal pressure is increased, and stress is thrown on the abdominal muscles. These muscles have a double function: They are not only supporters of the vis-

cera and accessory to visceral circulation and function, but, being part of the trunk, they have an action on the trunk, assisting especially in maintaining the inter-relations of abdomen, thorax, pelvis and spine. As a consequence, the varying degrees of failure of the abdominal muscles is reflected in the varying degrees of overaction or irregularly-balanced action of the muscles controlling the spine and pelvis and thorax, leading to varying degrees of malposition of these structures as already outlined.

Should the girl's tissues still compensate for these demands, pregnancy in many cases turns the scale and completes the loss of compensation or begins it; for pregnancy often leads to distention and relaxation of the abdominal walls, a lessened obliquity of the pelvis, a straightening of the lumbar spine, a flaring of the lower ribs, and a backward displacement of the centre of gravity—conditions which in themselves predispose to visceral ptosis. I fail to see how a girl growing up from infancy under the conditions described, can hope to complete the cycle of her woman's life and escape visceral ptosis—under present modes of habits and clothing.

The conclusion from this is that treatment of visceral ptosis should begin in infancy and should never be lost sight of at any age.

I had hoped this evening to present a patient who all unconsciously illustrates the bearing of each of the anatomical factors I have enumerated. She has a right kidney which migrates very extensively over the right abdomen and down into the right pelvis. She has also enteroptosis and a rather pronounced anterior uteroptosis. She is a tall, slender woman of 26, who gives a history of marked tight lacing for several years. During that time her right kidney was said to be always prolapsed. Since her marriage, 2 years ago, she has given up lacing, and now the kidney is often not easily palpable. The way in which she rather amuses herself to bring it into evidence is by throwing herself to the left side and backward, arching the left side of the trunk. This flattens the lumbo-sacral region and throws the right pelvis up and forward, tares the right lower ribs and makes the right abdomen prominent. She then increases the intra-abdominal pressure by taking quick, deep inspirations and making slower, forcible expirations, each accompanied by a downward expulsive effort concentrated towards the right abdomen. As she proceeds, the kidney emerges from beneath the liver and ribs and can be plainly followed by the hand as it travels down to the pelvis and backward and forward across the right abdomen. This patient reports repeated attacks that answer the description of ureteral colic but none during the 3 months since she has come under my care; and this brings me to what I want to say in regard to the nonoperative method of treating these cases.

My attention was directed rather forcibly to this in the beginning by operating in 2 cases and fixing the kidney, and then finding that, while the operation was a success, the patient was not cured;

about the same time, 2 other patients came under my care who had been operated on by leading surgeons, with the same result.

I then paid more attention to the various forms of abdominal bandages and belts. These are all clumsy and insufficient, though I get the best results from an elastic belt woven to order from measurements. All writers speak of trying to get a well-fitting corset, but until lately that has been a *will o' the wisp*. During this past year, I am getting more satisfactory results, and I am now speaking of cases where the kidney takes extensive excursions, and where there is no question about the diagnosis. I have a limited number of these cases under observation at the present time, 3 of whom have had repeated attacks of ureteral colic before coming under my care. All are improved in comfort; the symptoms are steadily disappearing. I would not call any of them cured, because it is only during the past year that I have been getting the most satisfactory results; and this has been because the corset question has radically changed during the past year or 18 months.

Through the courtesy of Mr. Wm. C. Houston, I am able to bring before you this evening a number of corsets which will show the relation of the corset to visceral support. Until very recently this first corset has been the type, and with this type it is absolutely impossible to get any abdominal support. The point of departure has been made at the waist line; indeed, a stricture has been made at the waist line. The corset is essentially a straight band, with a constriction at the centre and a flare upward and downward from that point. That tends to increase abdominal pressure and to promote the very lesion we are discussing, and in all studies of the subject you will find that tight lacing has been mentioned as the most likely cause. Even a cursory examination of this corset, which was one of the favorite models until recently, will show that particular point. Corset No. 2 represents the next stage in the evolution of the corset and is the type worn even now by the majority of women. The "low bust and short hip" permit a greater amount of trunk freedom, but, as you see, it is modeled on the old lines and is essentially merely an undifferentiated flare, upward and downward, from the waist constriction. Corset No. 3 shows what I may call the first stage of differentiation in the abdominal flare, in that a special flare or kind of pocket is made to accommodate the hips, but the back is comparatively straight across. All the older types of corset are comparatively straight and flat across the back below the waist. I have already pointed out the fact that with relaxed abdominal walls the obliquity of the pelvis is distinctly lessened, so that the back from the waist down is more or less straight. These older types of corset are made to fit such backs, and they distinctly promote the growth of the flat back (lumbo-sacral) and the prominent abdomen. An attempt is made every now and then to disguise this by putting on a "bustle" to simulate the missing

sacral curve. With attempts at flattening both abdomen and back, the hips become more prominent, and corset No. 3 meets this indication.

Corsets Nos. 4 and 5 bring us to the present stage of evolution of the corset, which has been differentiated in several directions. The radical change is that, instead of taking the waist line for the point of departure, it takes the anterior line of the trunk; this you will hear spoken of as the "straight front" corset. The anterior line of the trunk is not absolutely straight, but it is a great advance to have it assumed to be straight instead of constricted like an hour-glass. Again, the abdominal flare has been differentiated in three directions; the front has been made flat; a gore has been put in the side to allow for the prominence of the hip; and another gore has been put in the back to allow for the prominence of the sacrum. Again, the construction of the front of the corset has been changed, so that, instead of being made of one piece, it is made of a series of narrow, bias pieces which run obliquely from the front of the abdomen upward and backward towards the spine. It reminds me a little of the external oblique muscle of the abdomen. This change of construction does two things: It prevents the stretching of the anterior part, consequently there is not the tendency for the abdomen to lift up the front of the corset as it does in the older styles; and, second, the tension of the corset is in the direction of these bias pieces, making the lower part of the front, not the whole of the front, the special point of departure for support.

Put this corset on such a patient as has been described, placing the bottom of the front just above the symphysis, and from below draw up the lacings in the back till the lower third of the corset fits the patient snugly and watch the result. The first thing you will do is support the abdominal wall and hold up the viscera; next, you will notice you have increased the obliquity of the pelvis; instead of the symphysis riding upward and the sacrum downward you have the sacrum thrown upward and the symphysis downward. Then you will see you have thrown the centre of gravity forward so that now it is easy for the patient to rest her standing weight forward on the arch of the foot instead of backward on the heels. Look again, and you will see the lumbar spine resumes its supporting power, and the patient can now throw back her shoulders, expand her upper ribs, and carry her chest erect. It is an easy matter now with a separate lacing to adjust the upper third of the corset to fit the new carriage of the chest. Then, with a third lacing simply hold the waist as it falls into place, with the abdomen and chest fitted. There is the same old possibility of evil if the waist line is constricted. I have heard of one case causing ecchymosis of the abdominal wall in this way.

To recapitulate the essential points of the helpful corset for visceral support: A straight front, made of several sections running from below obliquely upward and backward; hip gores; back

gores; fit the abdomen first, and from below upwards; then fit the chest; leave the waist as it falls into place. Especially should patients be warned it is not enough to have a straight front; they must also have room in the back for an oblique pelvis. Look at many of your patients, and you will find they have a flat back. Look at many women on the street; they are attempting to wear a straight front corset without the gore in the back, and they cannot stand upright.

I have laid stress on leaving the middle lacing absolutely alone, merely tying the ends for tidiness. This is to reduce to a minimum the inevitable constriction or pressure at the older "waist line." Not the least of the virtues of the straight front corset is that it tends to displace the waist line downward, making the back and the iliac bones bear the main weight of the skirts, and freeing the stomach and transverse colon and the upper front chest. The ideal corset has not appeared but, allowing for our present methods of woman's dress, a distinct advance has been made in some adaptation of the corset to physiological function. To risk a "bull": The ideal corset is no corset,—but that implies such large changes in women's habits and dress as to be foreign to this paper.

THE HOME (SANITARIUM) TREATMENT VERSUS THE CLIMATIC TREATMENT OF CONSUMPTION.¹

BY VINCENT V. BOWDITCH, M.D., BOSTON.

Is entering upon any discussion of the relative merits of home (sanitarium) and climatic treatment of phthisis, we are confronted not only by a certain vagueness in the terms used but also by the lack thus far of evidence sufficiently reliable to warrant an absolutely fair comparison. We have to rely up to the present, it seems to me, upon strong impressions made upon our minds from individual experience, rather than upon absolute data, the result of large collective experience.

We all know that up to the last few years there has been an astonishing lethargy in the medical world in regard to the sanitarium treatment of phthisis, a lethargy which has of very recent years been replaced by enthusiasm extending even to the laity, and to such a degree that those of us who have been preaching this gospel for some time feel it often necessary to take almost a conservative ground, fearing that rash and unwarranted statements will only end by bringing discredit upon a system which thus far has been productive of better results than any other in the cure of phthisis. I need not reiterate before this society my own position in regard to sanitarium treatment, for I have on several occasions had the pleasure of presenting to you the results obtained at the Sharon Sanitarium near Boston. Of late my connection with the large State Sanitarium at Rutland, Mass., would indicate my attitude on this question. My experi-

ence, however, is of course confined to a section of the United States which has always been considered a most unfavorable one for tubercular patients. The results obtained in these sanatoria certainly have justified us in materially changing our views as to the curability of phthisis even in New England under certain conditions. I have been deeply impressed, too, by the large percentage of not only those patients in whom the disease has been completely arrested but with the gratifyingly large number who have had no apparent return of the disease, even when obliged, as in some cases, to return against advice to occupations unfavorable to health. Bearing these facts in mind, the following questions come to us:

(1) How far is it necessary to send patients to distant climates to regain their health, provided they will submit themselves to a prolonged stay in a sanitarium near at home?

(2) Will the percentage of cures in patients who receive treatment in home sanatoria be as large as those treated similarly in climates usually thought to be more favorable for cure than others?

(3) Will the after-histories of "arrested" cases, including those "apparently cured," for instance in a sanitarium in Massachusetts, show equally favorable results with those of patients who have been in a similar institution in Colorado, and who have remained in that region?

At this juncture we are confronted by the fact of the singular lack of sanatoria thus far in certain Western climates, which are now considered to be the most favorable for consumptives. From the few which exist I know of no published and reliable statistics which would enable us to make fair comparisons, and, as I said at the outset, for our conclusions we are compelled thus far to rely upon general impressions rather than absolute data.

In answer to the first question, I can only say that it would be impossible for me to lay down the law absolutely for all cases. We know beyond a shadow of a doubt that the percentage of those who get well in unfavorable climates when properly treated in sanatoria is vastly better than when such cases are left to themselves at home, and yet I am perfectly certain that there are some cases which, not having done well even under sanitarium treatment in New England, have greatly improved when sent to Colorado, for instance, or some other health resort. That the reverse is true, I can also testify, for we have had cases at Rutland who have shown signs of going down hill in Colorado, but who have greatly improved upon their return to the hills of Central Massachusetts. It would seem to me, therefore, equally foolish to say that it is no longer necessary to send patients to a distant climate, or that every patient must go far away in order to regain his health. Each case must be treated individually and not as one of a class, and every attempt must be regarded always at first as experimental.

¹ Read before the American Climatological Association, May 31, 1901.

In answer to the second question, there can be no doubt in reasonable minds, it seems to me, that in following old methods of merely sending patients away from home haphazard, without special supervision, the chances of permanent cure are much greater if the patient selects a favorable climate, for instance, like Colorado, New Mexico or California, than if he stays without supervision in our changeable and harsh New England climate.

Sunshine and a dry, porous soil are known to be among the most important factors for health, and in the Western regions just mentioned these conditions are found in a remarkable degree, to say nothing of the altitude which doubtless has its own favorable effect for various reasons, some of which can be obtained only by artificial means at a lower level.

Taking these facts into consideration, then, and although greatly impressed by results which I have seen accomplished in most unfavorable climates, especially in New England, I am at present strongly of the belief that if sanitarium methods are adopted and thoroughly carried out in what are considered the most healthful climates, we shall accomplish even better results than in less favorable regions.

In regard to the third question, it would seem to me impossible, with our present knowledge, to answer it with any degree of precision, and we can only give our impressions gained from our experience in general.

In a paper read before this society two years ago, I gave you the subsequent histories of cases of arrested phthisis,² which had been at the Sharon Sanitarium. Some of you may remember that the percentage of those who had remained well after a number of years was gratifyingly large, even when in some cases they had again taken up occupations not of the most hygienic nature.

It is too early yet to give satisfactory data upon this point at the Rutland Sanatorium, for not enough time has elapsed since the first arrested cases left the institution to make their subsequent histories of much value as yet. In our last annual report (1900), however, the following statement was made: "Of the 35 cases 'arrested' at time of discharge during the year 1898-1899, all are alive, and, with the exception of 3 cases, have not relapsed. Two of these relapsed cases have been readmitted. The recurrence of disease in these cases appears to be wholly due to lack of means and consequent inability to live under proper conditions. A large number, however, of the 'arrested' cases, although advised to the contrary, returned to the former environments, in which the disease originated, and have, contrary to our expectations, almost uniformly remained (to this date, October, 1900) free from abnormal symptoms or disease. A few with care have become even stronger and heavier than when they left the institution."

²Subsequent Histories of Arrested Cases of Phthisis Treated at the Sharon Sanitarium; Boston Medical and Surgical Journal, June 22, 1899.

This is, to say the least, gratifying as far as it goes. The future alone must decide the matter when similar conditions prevail in the East and West as far as the erection of sanatoria is concerned. Here again my belief at present is that the latter will show superior results.

I trust that the foregoing remarks may not be so misconstrued that I shall be thought to have abated in the least in my desire to have sanatoria for consumptives erected wherever that disease may prevail. Such would be an entire misapprehension of my position. In every community there are many who for various reasons cannot go to distant resorts, and it is for these people especially that we need large numbers of properly equipped sanatoria throughout the country.

In a few words, then, my position in this discussion is as follows:

(1) From my own experience in New England I am strongly in favor of the erection of sanatoria for the treatment and cure of consumption wherever that disease prevails.

(2) As to the relative results to be obtained by this method in favorable or unfavorable climates, I do not think we are in a position to judge fairly at present.

(3) I believe that at present better results can in all probability be obtained by this form of treatment in the Western sections of our country, like Colorado, New Mexico, Southern California and similar regions, than in the Eastern sections.

EOSINOPHILES AS CONSTITUENTS OF PUS.

BY EDWARD T. WILLIAMS, M.D., BOSTON.

THE study of the leucocytes forms the most interesting, and undoubtedly the most complicated problem of modern hamatology. This interest dates from the remarkable investigations of Professor Ehrlich on their staining properties about the year 1880. He discovered a marked difference in their behavior with the various dyes, and identified five distinct species, which he designated by the first five letters of the Greek alphabet. At the head of the list he placed the Alpha cell, now universally known as the eosinophile. Professor Ehrlich is an incorrigible Hellenist.

Since that time a vast deal of speculation has been going on as to the nature and origin of all these cells. It is safe to say that a great deal of misleading nonsense has been written about them.

It is tolerably well ascertained that the acid uninuclears (lymphocytes) take their origin from the lymph glands and lymph spaces. The lymph spaces, as is well known, are in open communication with the terminal lymphatics, and form a vast and continuous cavity extending all over the body through the meshes of the connective tissue. These spaces are filled with innumerable myriads of free cells, the so-called wandering cells, which exactly resemble the lymph cells, and are, without doubt, identical with them.

The supposed origin of other leucocytes from the bone marrow, the spleen and the ductless

glands is more or less problematical. It has not yet been scientifically proved. The present tendency is to ascribe a myelogenous origin to many very different cells. Hence the doubtful applicability of such terms as myelocytes. The myelocytes are simply uninuclear leucocytes with a neutral or alkaline cell-body. How they originate is as yet uncertain. They are very probably degenerated lymphocytes.

The same uncertainty exists as to the origin of the multinuclears. The prevalent opinion is that they are developed out of the uninuclears by division of the nucleus, and that the change takes place in the blood itself, where all the materials for their growth are ready to hand. I incline to this opinion myself.

The eosinophiles are the greatest problem of all. They have been much discussed. Their striking and beautiful appearance when properly colored has always attracted particular notice. They are, in brief, multinuclear leucocytes with alkaline bodies. Ehrlich evidently regarded them as a distinct species *sui generis*. Ewing informs us that they are eosinophilic cells, derived solely from the eosinophilic cells of the bone marrow, finding their natural habitat in the tissues and not in the blood, and constituting a distinct, self-perpetuating series. An overwhelming assumption.

In all this confusion it seems strange that no one has yet thought to make a systematic study of the leucocytes in pus. The pus-cell is simply a leucocyte at large, melted out of the tissues by the liquefying action of the pus-germs. Yet I believe no complete investigation of their staining properties has been attempted. Neisser's gonococcus stain of eosin and methylene-blue, I fancy, first made us aware of the remarkable affinity of the pus-corpuscle for eosin. The body of the corpuscle stains red, the nuclei blue, and the diplococci a still deeper blue, almost a blue-black. A very pretty picture of this can be found in Warren's Surgical Pathology (1st edition) Fig. 12. It has been observed that pus from other sources stains equally well with eosin. This is imperfectly shown in Warren's Fig. 29, but here the bodies of the pus-cells are too much broken up and lack definition. Still they show perfectly well their affinity for eosin. I have employed these stains many times myself. It is the most perfect method in the world for the demonstration of micrococci, far preferable to the old Gram process, yet I never thought to notice until recently whether or not these eosin-staining pus corpuscles showed the true granular structure of the eosinophilic leucocyte. And yet eosins have been found in pus. Bettmann, quoted by Ewing, found them common in gonorrhoea. Ewing admits that they occur in cutaneous pustules, while Bettmann and others demonstrated them in herpes, pemphigus, eczema and other diseases of the skin.

To test the question I have lately been searching for myself. I profess no skill in such matters, except that of the average practitioner. I made simple smears on cover-glass, stained them with eosin, and counterstained with methylene-blue.

The great danger is in overstaining with the blue. Neisser's method of staining 15 seconds with concentrated alcoholic solution of methylene-blue completely drowns out the eosin. The blue solution should contain from 1 to 3% of dyestuff. The pus should be fresh, alkaline pus from an acute abscess. The power not less than 1,000 diameters. The examination should be made in salt water, 4 grains to the ounce, since plain water bloats and distends the corpuscles. They usually show best on the second day, when they are completely dry, but yet not dry enough to shrivel them up.

To state it briefly, I found eosins in every specimen examined. They form a large proportion of the cells present. Many had 2 or 3 nuclei, others only 1. The protoplasm of these eosins was coarsely granular, as in the blood eosins. These granules, as I judged, averaged from 1 to 2 micra in diameter, 2 or 3 times as large as the accompanying staphylococci, and a tenth or more of the diameter of the containing corpuscles. They are readily distinguished from the cocci by their color, size, and relation to the pus-corpuscles; the granules being intracellular, the cocci extracellular. Occasionally we find a few granules escaping from a crushed or broken cell, yet they are always easily distinguished. They average, I should say, from 30 to 40 granules to the cell, yet it is not easy to count them. The reason for this is plain. The eosinophile in nature is quite a different object from the same body in a color plate. It is, in fact, impossible to picture them on a plane surface. The pus-cell is a globe about 10 micra in diameter. The granules lie at different depths within these globes, hence they are not all seen at a single glance. It is necessary to focus carefully up and down to bring them all into view. Begin at the top of the cell and first focus the superficial layer. Then screw down a little and bring out the middle layer; the upper ones will become less distinct. Then go down a little farther and bring out the lower layer, which may put the upper ones entirely out of view. They cannot be satisfactorily demonstrated in any other way.

You will sometimes notice an apparent clumping of the granules. Three or four granules seem to be run together, and look like larger bodies than the granules, and of quite irregular shapes. But this is usually an optical illusion. It occurs when two or more granules happen to lie nearly in the same line of vision, but not all in focus. By focussing closely up and down one generally succeeds in resolving the clumps into separate granules. Still I am not prepared to deny but there may be a genuine coalescence of granules. At any rate the clumps are not always resolvable. But this is a fine point.

A more important question is as to what the granules really are. Heidenhain, Gulland and Ewing contend that they are integral parts of the cytotreticulum. They appear to me like precipitates of the cellular protoplasm. My reasons for this view are twofold. (1) The granules are sometimes seen extruding from a crushed or broken cell,

looking like coins dropping out of an open purse. If they were integral parts of the reticulum they would not run out in this manner. (2) They shrink upon drying. If you let your specimens dry in the air for a few days you will find the granules shrunken and distorted, and around and among them innumerable vacuoles or air spaces. If you attempt to preserve them in Canada balsam you will find them completely mummified and distorted beyond all recognition. If they were parts of the reticulum they ought to keep perfectly well in balsam. Therefore I conclude that they are precipitates, and probably of a plastic consistency, as we might expect protoplasmic precipitates to be.

If the foregoing observations are correct, it is clear that the eosinophile can no longer be regarded as a specific cell. It is a purely pathological product, resulting from a natural, alkaline decomposition of the body of a common leucocyte. It is a necrotic cell.

The decision of the case must be left to the discerning judgment of the profession.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. G. BALCH, M.D., SECRETARY.

REGULAR meeting Jan. 2, Dr. F. S. WATSON in the chair.

Dr. FRANCIS S. WATSON read a paper on

MOVABLE KIDNEY.¹

Dr. C. B. PORTER: With regard to the new ideas which Dr. Watson has advanced, I have nothing to say. As I thought over this subject, it occurred to me that a copy of the report of the first case of movable kidney I recollect operating upon might be interesting. It was in 1889. A number of the points in connection with it are so characteristic of floating kidney that I thought I would have a copy made, which I will read.

May 13, 1889. Mrs. R., 21 years, Montreal. Thinks she was perfectly well till 9 years ago, when in a coasting accident her left patella was fractured, and she received a general shaking up; since this accident she has never been perfectly well. For several years treated by a doctor for consumption. The symptoms then were too frequent menstruation, fainting spells, pain in back and general debility. Symptoms were improved a little, but after a year recurred. The only time since then when she has felt entirely well was while carrying her baby, who is now 3 years old and her only child. One month after the birth menstruation began and appeared ever since at periods of about 18 days. Has been troubled much for a long time with indigestion and flatulence, occasionally vomiting.

For about a year past has had "stitches" in right side, especially when sitting in a forward position. Pain in small of back and right thigh, at times very severe; frequent micturition, sometimes painful. During past 3 months has noticed at intervals a "lump" in right iliac and lumbar regions; would appear for a time, and then suddenly disappear to reappear without apparent cause at intervals of a varying number of days. Tumor very tender.

Diagnosis, movable kidney.

Operation, May 15, by Dr. Porter, under ether. Patient was placed on left side with pillow under flank. Incision about 3 inches long made in usual line of lumbar incision; dissected carefully through the various layers of muscles, several bleeding points being tied with catgut. Finally a fibrous layer with fat-filled meshes was exposed; upon incising this the kidney was developed and was seen to move up and down freely with each respiration. The incised capsule was then held up by forceps, and 6 silk stitches were placed in its free edges. With kidney held firmly in place by manual pressure from in front, the 6 stitches were passed through the muscle layers at edges of wound and tied tight. Respiratory movement of kidney now ceased. The wound was thoroughly irrigated with corrosive, and closed with deep silk sutures without drainage. Antiseptic dressing.

Convalescence uneventful; discharged well June 12.

I had examined this lady in private before she went to the hospital and readily felt a floating kidney. The history of this case showed many of the symptoms of movable kidney, and followed trauma; was relieved for a time by the support of the pregnant uterus and restored to health by nephrorrhaphy.

Dr. Watson did not speak specially of the surgical treatment other than the last. So far as my experience goes the symptoms vary very much in different cases, and that the detecting of movable kidney needs an examination in the dorsal position and also in the upright position. In the dorsal position sometimes forced expiration will not dislocate the kidney and bring it down where it can be felt between the two hands, but when the patient is erect or leaning over to relax the abdominal walls, the kidney can frequently be felt making large excursions downwards. When a kidney is quite movable, it can be pushed out past the middle line or down into the pelvis. The mobility does not seem to be the element which enters into the production of the severity of the symptoms in all cases. A very mobile kidney sometimes does not give any severe symptoms except when pressed upon, and a slightly movable kidney may give a great deal of pain. To what that is due I cannot say, unless when the pedicle is short the weight of the kidney drags more than when it is long. The method of operating which I used on this case, and have practically used since, was by exposing the kidney and sewing the kidney in place, attaching it to the muscle and the deeper fascia, not bringing the

¹ See page 318 of the Journal.

stitches out through the skin at all. I have always used silk. I believe it is the best suture material in such cases; it lasts much longer than any other material, and one can close the wound without any fear of sepsis. I have found also, in some cases where there is a very marked degree of adipose tissue, that the incision between the lower rib and the crest of the ilium does not give sufficient room in which to attack the kidney. One must make a T incision, the base of the T running towards the middle line, to be able to expose the kidney. I found yesterday in a very well-marked case where I was operating for stone in the kidney, where the fat was 3 inches thick and the muscular walls correspondingly strong, that the depth of my wound was $4\frac{1}{2}$ to 5 inches before I reached the kidney, and a considerable T cut had to be made to bring the kidney up to where I could open it and get the stone.

With regard to artificial appliances, I have never known any success from their use.

One or two points I think must be considered with regard to the danger. All anatomists know that the pleura sometimes comes down below the last rib, and, unfortunately, in a number of reported cases the pleural cavity has been opened with collapse of the lung during the operation for nephrotomy. There is also the danger of tearing the peritoneum in endeavoring to get the kidney to where it can be sutured.

I have always made it a point to sew up the wounds always. And I want to say one word more with regard to the fat in the operation for nephrorrhaphy. I remember going a distance out of town, not knowing what sort of a patient I was going to operate on before I went, except that she had been a neurasthenic for years; she had been almost bedridden for a long time. I found a patient whose kidney was about 7 inches distant from the skin. I had a large number of curved needles of different sizes, and there happened to be just one in my armamentarium which I could use at the bottom of that wound, which was so deep. I speak of that as one of the complications.

Dr. Watson spoke of intermittent hydronephrosis. I have in mind a case I operated on a number of years ago. The patient came to the hospital with hydronephrosis, having suffered over and over again from these acute attacks, passing large quantities of water, and relief for a few months. I tapped over the sac. The tumor was so fluctuant I thought it wise to tap and did so; she was so completely relieved she insisted she would have nothing further done and went home. In the course of 2 or 3 months she had another attack and was finally persuaded to have her kidney anchored. About a year after the operation she had another attack, and the pain was so severe that she had to be relieved by morphine, and made up her mind to have the kidney removed, which I afterward did, and she has been perfectly well since.

Dr. Watson spoke of athletes as possibly suffering from displaced kidney. It seems to me athletes of all men should be those who would be apt to get a floating kidney from traumatism, and it

seems to me that trauma is a very important element in the production of a floating kidney.

With regard to the method of operating I suppose the various steps are familiar to all. I have always made it a point to anchor the kidney by sewing it to the muscle and lumbar fascia, then closing the muscle with another set of sutures, and finally closing the skin with continuous catgut or buried silver wire. I have had many cases of absolute and perfect relief. The case which I read had been an invalid a number of years and lost flesh. She came to see me a number of years afterwards, and I did not know her she had changed so in general character and was so absolutely well. A sister of hers lives in town, who tells me she has been absolutely and perfectly well, so far as her kidney is concerned.

Dr. LEXY: The question of movable kidney has interested me very greatly for a number of years, and it seems to me that it is a very difficult and complicated subject, like certain other subjects where we have to deal with obscure abdominal tumors and obscure abdominal symptoms. The data obtained from autopsies are not reliable, and it is impossible to put absolute confidence in everybody's examination. With regard to the skill of medical men in examining for movable kidney, I have found those who were interested in the matter fully as skilful as the surgeons in palpating their cases. In 1896 I examined 46 subjects in the dissecting-room and found 5 cases of movable kidney, and in all those cases there was more or less trouble with the other viscera. Three were in women, and there was general ptosis, ptosis of the stomach, ptosis of the colon. The stomach in one case came below the umbilicus and in one down to the pubes. In one male subject I found gallstones in the gall bladder and adhesions around the gall bladder. I was led to think movable kidney might be complicated with other pathological conditions, and on looking up the matter I find that the majority of cases of movable kidney are associated with more or less ptosis of the other viscera.

The kidneys are solid organs lying in the upper part of the abdominal cavity, and depend, I think, for their support to a certain extent upon the maintenance of intra-abdominal pressure. In patients whose abdominal walls have been relaxed by repeated pregnancies, there is a stretching of the gastrohepatic omentum, allowing the stomach to fall, stretching of the mesentery of the small intestine and frequently ptosis of the kidney. Ptosis of the kidney is found much more frequently in patients with relaxed abdominal walls. I have no doubt that relaxation of the abdominal walls allows the kidneys to fall by their own weight, but it is also much easier to feel the kidney in a patient with relaxed abdominal walls, which fact may also partially account for the frequency with which movable kidney is found in multiparæ.

With regard to operating on movable kidneys. In a medical clinic including a large number of women with relaxed abdominal walls a large

number of cases of movable kidney will be found with no symptoms especially connected with that movable kidney. The patients generally will suffer from neurasthenia, what is called nervous dyspepsia, abdominal pain, eructations, alternating constipation and diarrhea. Those symptoms cannot be attributed to the kidney. I do not think there is any reason to say that a movable kidney in a neurasthenic woman is the cause of the symptoms, unless the symptoms can be shown to be distinctly due to the kidney. Where you get torsion of the renal vessels, renal colic or hydronephrosis, as in Dr. Watson's cases, you have distinct indications for operation. I have seen cases in which neurasthenic women have been treated by medical men and other gentlemen for a long time without getting any better, when suddenly somebody discovers a movable kidney and says: "There is a pathological condition which is the cause of the symptoms." That kidney is sewn up, and the patient not cured. That patient likely has ptosis of the other viscera. We have all seen a good many cases where uteri have been sewn up for neurasthenic symptoms, and the patient not benefited. In some of the cases there is benefit from the fact of something being done, but that is not always the case. I think we must choose our cases very carefully before promising to cure them by operating for movable kidney.

There are a certain number of cases of movable kidney in young athletes, as Dr. Watson and Dr. Porter have said; also in young women who have not borne children, who have firm, unyielding abdominal walls. In those cases I do not see how any benefit can be got from a pad and bandage. In the first place, there is a firm abdominal wall, and any pressure will cause spasm of the muscles and keep the pad away from the kidney. Where movable kidney is incident to general ptosis of the viscera, great relief is obtained by an abdominal bandage, but I do not think there it is due to any direct pressure on the kidney, but to restoration of the tone of the abdominal wall and of the circulation in the vessels of the viscera. Even in cases of relaxed abdominal wall a pad does not seem feasible. The constant movements of the patient and the movements of the abdominal wall prevent the pad from holding the kidney in place.

I would not say that in all cases of neurasthenia where there is marked mobility of the kidney, even without symptoms of torsion of the ureter, an operation should not be done. There are a certain number of cases of neurasthenia where there is a marked excursion of the kidney in which that may be sewed up as a part of the general treatment, but you have got to treat dilated stomach, constipation, a number of nervous symptoms, to cure that patient, and if you sew up a kidney in a patient like that and promise that she will get well, you will be apt to be disappointed. I think there is so little danger connected with an operation that it may be advocated, but must be followed by medical treat-

ment. In such cases it is important in all cases to find out the exact condition and position of the stomach as to dilatation or ptosis, and the gastric and intestinal conditions are as important as the kidney. Those cases seldom do well under hospital treatment. You sew up the kidney in the hospital case, and they soon leave, are afterwards not under skilled medical care, and the result is not as satisfactory as if the patient would continue under treatment.

In regard to the complication of movable kidney with other pathological conditions, I have stated that my attention was first called to these in the dissecting-room, where there were gallstones and immense dilatation of the stomach in a male patient. Since then I saw in consultation a woman in whom I found a movable right kidney, and who had had attacks of severe pain in the right side. I saw her in an interval and concluded the attacks were due to movable right kidney, and sutured the kidney. The attacks of pain continued after operation, and I had the pleasure of seeing her in a well-defined attack. There was marked peritonitis around the gall bladder. I opened the gall bladder and removed 5 stones, and she recovered. I have seen another case very similar to this in the practice of a colleague.

In 1 case which I saw in consultation I made a diagnosis of gallstones in a young woman with rather relaxed abdominal walls. She was etherized, and I was about to make the incision when on palpating I discovered a movable right kidney. I continued the operation and removed 50 gallstones. That shows it is not at all infrequent to find a complication of movable kidney with other pathological conditions.

The last case of movable kidney I operated upon was interesting. A young unmarried woman, with firm abdominal walls, had a retroverted uterus, for which she was treated by one of our best gynecologists who replaced the uterus and held it with a pessary. Subsequently I discovered movable kidney and the presence of pus in the urine. Tubercle bacilli were absent. No attacks of renal colic or pain. I made a diagnosis of pyelitis of the right kidney. Her symptoms had been previously relieved by straightening up the uterus, and she was averse to operation. She finally went to the hospital, and I found on repeated examination that this kidney varied in size. I made a diagnosis of hydronephrosis, and was intending to catheterize the ureters when I thought of the possibility of stone, and with the x-ray we saw a branching stone in the pelvis and several other stones in the kidney. Cutting down upon it through the loin I bisected the kidney and found a stone extending through the pelvis, several other stones in the dilated cysts into which the calices had been converted, and the kidney was converted into a series of cysts. Nephrectomy was performed, and the patient has recovered and gained in weight and strength.

I have not operated upon a very large number of cases of uncomplicated movable kidney. I

think a majority of the cases I have seen have been complicated with other pathological conditions. In a majority of the other cases of movable kidney which I have seen but not operated upon the symptoms have been neurasthenic, and often converted into a general enteroptosis and gastrop-tosis. Several were hospital cases and probably could not be successfully treated after operation, so that I have advised against it.

With regard to the technique of the operation I think Dr. Watson's method is the most satisfactory method I have seen. People make a mistake in thinking they can fix the kidney in the normal position behind the thoracic wall. They push it up behind the ribs, leaving only the lower end to suture. This results in the kidney rotating around its lower pole, and toppling over, as Dr. Watson has illustrated. I have seen that technique followed with bad results. You want to get the kidney fixed, not up, and you have to fix it where you get a wide approximation to the muscles. I have modified the method by not bringing the sutures out through the skin, but through the muscles.

DR. M. H. RICHARDSON: I have enjoyed this paper very much indeed. I think that the discussion would be simplified if we could have a definition of movable kidney. Dr. Watson's cases would certainly demand—not justify merely—operation. Such cases as Dr. Lund has described, which are neurasthenia or hysteria possibly dependent upon movable kidney as well as upon other abdominal conditions, must be studied and operated upon with the greatest caution. I agree perfectly with what Dr. Lund said about the frequency of slight mobility of the kidney. I think in thin women it is very common. I have abstained in nervous women from telling them that the kidney was movable, because they seize upon that symptom, worry about it, and never are satisfied until something is done for it. After the operation they are quite as likely to be even more dissatisfied and nervous than before it. Any kidney that can be felt when the patient is erect must be extremely movable. One that sinks into the iliac fossa cannot but cause more or less impediment to the flow of urine, and demands operation. It is this class of cases that Dr. Watson has directed especial attention to, and it is this class that is so much benefited by this operation. I have, like other surgeons, been called upon to operate a number of times. The results have been, on the whole, encouraging. The more prominent the element of neurasthenia, the more doubtful the prognosis as to ultimate recovery. My first patient was so benefited that she wrote me every year for many years to tell of her splendid health. I shall be much interested to know whether Dr. Watson's explanation of the mechanics of movable kidney, which strikes me as very reasonable, proves to be the correct one.

DR. A. K. STONE: I have been interested in the subject of movable kidney for a number of years, and have seen a very large number of cases at my clinic, and am prepared to defend what has been

called the "medical idea" in regard to movable kidney.

In any clinic devoted to women you will find a certain number of cases presenting a definite symptom-complex. I will return to assert that Dr. Watson's colleague was not far out of the way when he stated that in fully 80% of such cases he could find a palpable kidney.

In a comparatively short time a physician can teach any surgeon who will attend the medical clinic to recognize this condition of movable kidney. Almost all such kidneys are simply part of a symptom-complex, and have nothing whatever to do with the operable cases of movable kidney.

In addition to the above cases there are a number in which the movable kidney is present, not as a part of a neurasthenic condition, but due to the attitude which the patient has to assume.

The orthopedic surgeons look at the back and speak of the attitudinal spine. The medical men search the abdominal cavity and find misplaced organs, and each puts the emphasis where he thinks it belongs.

I recall the case of a young woman, with very prominent bosom and hips and hollow back, who came to the clinic complaining of pain in the back. I found that she was obliged to stand behind a counter all day long. As a result her muscles became tired. The shoulders swayed back, the belly wall was not strong enough to hold her up, and she pressed further and further forward, seeking a brace against the weak belly walls, and absolutely forced both her kidneys out of position.

There were no neurasthenic symptoms. The whole condition was relieved by a suitable bandage and exercise.

There are also a number of well people in whom you accidentally discover a well-marked movable kidney; sometimes so low in the abdomen that you can palpate the whole organ, and yet there are no symptoms whatsoever referable to this dislocated organ.

All told the medical man sees a large number of cases of movable kidney.

The whole question of movable kidney is very largely a matter of observation, dependent somewhat on the clinic and the skill, which is easily acquired, to recognize the kidney as it passes over the fingers.

Whether we shall accept the assertion of Glengard, that every palpable kidney is a pathological kidney, is a matter about which I am not prepared to make a dogmatic statement.

There are a number of cases where, as Dr. Lund has so well explained, there occurs from time to time a kink in the ureter, accompanied with colic, and later the development of hydro-nephrosis.

Many of this class of cases should be operated upon. Even here cases where there has been repeated attacks of colic have been able to get on perfectly well with a properly applied bandage, being able to ward off any threatening attacks by proper postural position and massage.

I have such patients, who have been under observation for several years, and have had no severe attacks since the cause was diagnosed, and the patient taught how to meet them.

As a result of my experience I should say that not every case of movable kidney, even if there were attacks of colic, should be treated by operation.

The cases where various expedients have been tried with ineffectual results are naturally those that the surgeon sees. Of course he does not see the successful cases.

No one should say to a case presenting itself to a physician for the first time that an operation is necessary, until a fair trial of properly fitted appliances has been made. Let us hope that the new style corset will help us out, for it is very difficult to get a properly fitting bandage.

Proper support will relieve a very large number of disagreeable symptoms of backache, and will also relieve a certain number of cases that are on the border line between operation and nonoperation.

It is only through careful study of the cases presenting themselves, that a judicious selection of the few requiring an operation can be made.

DR. WATSON: If my paper has conveyed the impression that I am a rabid advocate of operation in the treatment of these cases, or even in a majority of them, I have not represented myself correctly, for so far from this being the case I advocate decidedly either no treatment at all, in the absence of definite symptoms referable to the kidney,—and have treated some of those in which they have been present by hygienic measures,—or mechanical appliances, or both. I have even gone so far with regard to the latter as to invent an abdominal belt of a special pattern which has proved useful, and which, if I am not mistaken, Dr. Greene, who is here tonight, will tell you he has adopted. I cannot therefore be classed as an over-zealous surgical partisan. What I did want to emphasize was the importance of surgical intervention in those cases in which the condition leads to serious consequences, to demonstrate that these consequences do result, and to protest against the medical man's view, too often held, that the condition is harmless with but very rare exceptions, and merely a neurasthenic manifestation. The fact is not often enough recognized that the neurasthenia may, and frequently does, result from the repeated attacks of pain which occur in some of the cases, and why should this not be so in connection with pain arising from this, as well as other sources.

With regard to what Dr. Stone has said as to the failure to detect these kidneys, because of faulty methods of examination on the part of surgeons, I am perfectly willing to accept it as being true of myself, but can only repeat what I said in my paper; namely, that it does not seem to me probable that that contingent of the profession whose sense of touch is most highly trained is likely to be defective in it with respect to this particular condition.

DR. BLAKE: The first case of floating kidney I had illustrated to me that not only must operation be done in certain cases, but that the after life of the patient must be modified to a certain extent. A woman 30 years old, who had a baby about 4 months previously, came to the hospital with a most palpable kidney and a series of symptoms, part of which were neurasthenic and part referred to the kidney. I sewed the kidney in place. I could not fasten it at the point where it should normally be, but fastened it a little below that point. She left the hospital and came to see me once or twice afterwards not fully relieved; she still had pain in the back and in the scar, and once she told me she thought the kidney had broken away. I went to her home and found that her baby had been put to the table and was eating everything; that she was carrying it around all day long; that she could not sleep in the afternoon because the baby would not let her; that she did not sleep at night because she was afraid something might happen to the baby, and was steadily going down hill. I told her that although the operation was satisfactory, it would be unsuccessful if she did not give herself a chance to fully recover. After getting some one to assist her, enlarging her diet, compelling her to take moderate daily exercise in the open air and to give up worrying over the baby, she began to improve, and when I last saw her had few, if any, of her original symptoms.

DR. AGNES C. VIETOR read a paper entitled

A NEW FACTOR IN THE ETIOLOGY OF VISCERAL PTOSIS: THE RELATION OF THE MODERN CORSET TO THIS FACTOR.²

DR. AGNES C. VIETOR: I should have stated that 3 of these cases under observation have a history of repeated attacks of ureteral colic, but since they have been under this treatment they have had none, so that I am withholding operation in the hope of curing them in this way. In all these cases I fit the corset myself. I think the physician should either do that or train his office nurse to do it; and the important thing is to put the corset on loose and then fit the abdomen, making the tension from below upward, then fit the chest according to the lungs, so that the lungs are free, and leave the waist alone.

Recent Literature.

A Manual of School Hygiene. Written for the Guidance of Teachers in Day Schools. By E. W. HOPE, M.D., and E. A. BROWNE, F.R.C.S.E. Cambridge, Eng.: C. J. Clay & Sons. 1901.

In a published code of regulations issued by the London School Board, the head teacher of each department is held responsible for seeing that the code of regulations is carried out. These regula-

² See page 325 of the Journal.

tions include very many instructions of a sanitary nature, and it is specially desirable that teachers should be well informed upon all points which relate to the health of the children who are entrusted to their charge.

Much has been said in recent years as to the importance of frequent medical inspection of schools. But it is quite as important that the teacher who has the daily and hourly supervision of school children should have at least an elementary knowledge of those principles which pertain to the health of the child.

This book may be recommended to teachers as an admirable guide for the purposes for which it is intended. The style is terse, intelligible and free from the technicalities which are so often out of place in a popular book of this nature. The chapter on the care of the eyes is specially good, and plainly written by an expert ophthalmologist who knows how to present his subject in the best possible manner.

A System of Practical Therapeutics. By Eminent American and Foreign Authorities. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics, Jefferson Medical College; Physician to Jefferson College Hospital, etc., Philadelphia. New (24) edition, thoroughly revised. In 3 very handsome octavo volumes, containing 2,593 pages, with 427 engravings and 26 full-page colored plates. Philadelphia and New York: Lea Brothers & Co. 1901.

These three volumes are admirable, and the editor deserves the hearty commendation of American physicians. His indefatigable zeal shows throughout the work, and his personal contributions are of the highest order. A large proportion of the articles have been rewritten, and revision has been the rule in the remainder. It is a pleasure to note that this has been done without enlarging the volumes. Indeed many of the articles have been appropriately condensed—notably malaria and diphtheria—thus illustrating the fact that progress brings simplicity. We regret this rule was not followed with Barch's account of hydrotherapy which, barring its length, is most helpful. The article on syphilis is a model of its kind.

The treatment of rheumatoid arthritis is given in a very ordinary manner, and that of diabetes mellitus exhibits an unpardonable lack of acquaintance with recent German literature. It may have been unavoidable, but the rules for prophylaxis and disinfection in yellow fever appear very old-fashioned.

The volumes are practical. They reflect the editor's appreciation of modern medicine by devoting so much space to remedial agents other than drugs. The third volume is given up to surgery and the specialties, and thus makes the set suitable for the general practitioner.

The well-worn volumes of the first edition, which are on the shelves of the Boston Medical Library, attest their popularity in the past. If this popularity is to be retained, the third edition

must not wait for the completion of another decennium.

The Hygiene of Transmissible Diseases. By A. C. ABBOTT, M.D., Professor of Hygiene and Bacteriology and Director of Laboratory, University of Pennsylvania. Philadelphia: W. B. Saunders & Co. 1901.

The infectious diseases of mankind are everywhere present. To recognize them when present, to distinguish them from each other, and to apply the proper measures for preventing their spread, constitutes one of the chief duties, not only of the sanitary official, but also of the general practitioner. The object of this work is to present in outline the characteristics of the principal infectious or transmissible diseases, as shown in their natural history, and then to state the best methods of disinfection, isolation and other measures necessary for preventing their transmission.

In this second edition the author has brought the work fully up to the existing state of knowledge in this most progressive department of medical science, having introduced new material relating to the etiology of malarial, yellow fever, plague, tuberculosis and other diseases, and of such other topics as have required revision. The topics are clearly and intelligently treated, and the work is illustrated with many cuts, diagrams and charts. Not only the student of hygiene, but also the general practitioner, will find it a most useful book for reference and for study.

Handbuch der Physikalischen Therapie. HERANGEGEBEN VON DR. A. GOLDSCHIEDER, A. O. Prof. in Berlin, and DR. PAUL JACOB, Priv.-Doc. in Berlin. Theil I, Band I, mit 69 Abbildungen. Leipzig: Verlag von Georg Thieme. 1901.

This first instalment, comprising 563 pages of a comprehensive treatise on physical therapeutics, is a noteworthy addition to the literature of the rational treatment of disease. Under the immediate supervision of Goldscheider and Jacob, it includes among its collaborators a long list of distinguished men, among whom may be mentioned Eichhorst, Frankl-Hochwart, Hoffa, Klemperer, Nothnagel, Posner and Zander. The expressed objects of the book are to make clear the technique and dosage of methods of physical treatment, to give the scientific basis of their application, to determine indications and contra-indications, to render clear their relations to other therapeutic measures, to review objectively and critically experience thus far gained, and finally to discuss the application of physical methods of treatment in such a way that they may be included in a general plan and put in proper relation to other therapeutic knowledge.

The authors are of the opinion that the time has come for a more definite general recognition and scientific appreciation of the rôle of physical means of treatment, a point of view with which we are in entire agreement. They have carried out their conception in this first volume in a most

thorough-going manner. The individual articles, which include among others climatotherapy, inhalationtherapy, hydrotherapy and thermotherapy, are written in much detail, and prefaced by historical introductions. They should prove valuable reading to all who are desirous of knowing not only facts, but also the reasons underlying those facts. The book will unquestionably fill a much felt want in bringing a well-digested and properly proportioned outline of types of treatment before us, which have hitherto been too much and unjustly associated with narrow and often prejudiced therapeutic practice. It is a significant fact that an independent series of books on precisely the same general topics is simultaneously appearing here in the United States.

The volume before us is well printed and illustrated sufficiently to make clear the statements in the text.

A System of Physiologic Therapeutics. A Practical Exposition of the Methods, other than Drug-Giving, Useful in the Treatment of the Sick and in the Prevention of Disease. By American, English, French and German authors, and edited by SOLOMON SOLIS COHEN, A.M., M.D. Professor of Medicine and Therapeutics in the Philadelphia Polyclinic; Lecturer on Clinical Medicine at Jefferson Medical College; formerly Lecturer on Therapeutics at Dartmouth Medical College; Physician to the Philadelphia and Rush Hospitals, etc. In 11 octavo volumes, with many illustrations, maps and full-page plates. Philadelphia: P. Blakiston's Son & Co. 1901.

The first instalment of this comprehensive work has appeared in two volumes on *Electrotherapy* by Dr. George W. Jacoby of New York. Dr. Jacoby has discussed his subject under the general headings of electrophysics; apparatus required for the therapeutic and diagnostic use of electricity; electrophysiology and electropathology; electrodiagnosis and electropognosis; electrotherapeutics and special electrotherapeutics. One hundred pages have been added, including treatment of special forms of disease and a comprehensive index. These volumes are to be unreservedly recommended; they present a clear, sufficiently detailed and conservative statement of what a student of electricity as applied to medicine should know. That they will meet with a cordial reception from physicians at large is hardly to be expected. The excellence of many modern books on medical topics is in inverse ratio to their popularity.

We have no reason to doubt that the succeeding volumes of the series will maintain the high standard set by these earlier ones. What we have said above of the recently published first volume of Goldscheider and Jacoby's *Handbuch der Physikalischen Therapie* applies exactly to this series. They are planned, and no doubt will be carried out, in a similar way. The era of a broadly conceived therapeutics which includes, but by no means confines itself to drugs, has evidently dawned.

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THE DEATH OF PRESIDENT MCKINLEY.

WHEN our last issue went to press the reports regarding President McKinley's condition and apparent progress toward recovery were all favorable. We were, in fact, given to understand through official bulletins that the time for anxiety was past, and that we might expect a rapid and complete convalescence and recovery. There was no reason to doubt or question these facts, given out as they were by physicians of the highest repute and broadest experience, who alone were able to judge impartially of the patient's condition. That anything was held back or concealed from the public we do not for a moment believe. From the first the statement was made that it was desired to give to the people in understandable language the exact state of the case from day to day. To imply that there were ulterior motives at work, which led to the desirability of concealment and prevarication, and that the physicians in attendance were implicated in such concealment, is a supposition which needs only to be mentioned to be dismissed. Legitimate differences of opinion there may have been, but that the bulletins expressed the general condition of affairs from day to day as agreed upon by all the consulting physicians is not open to doubt. The medical profession and the laity alike were satisfied that they were being treated fairly and openly.

With these assurances each day becoming stronger and more confident, the revulsion of feeling when the announcement came, late in the week, that a serious, and evidently fatal, complication had arisen, was almost too great to be accepted philosophically. Now that we can look at the matter with a measure of calmness, the decision must be, not that the physicians and those in close attendance on the President were aiming to

deceive others as to the true state of affairs, but simply that they themselves were deceived. No medical man will be inclined to assert, even in the light of the outcome, that such a grave misinterpretation of the clinical picture was not excusable. More conservative opinions would, no doubt, have served as useful a purpose,—opinions which some of the physicians are said to have had,—but this is said in no spirit of criticism. The lesson the incident has taught is not likely soon to be forgotten by anyone concerned, and we may well allow this phase of the whole lamentable occurrence to drop.

When we turn to the findings of the autopsy, there is much more profitable food for reflection and instruction. The technical surgical work had been admirably done, as well as the circumstances would permit; the wounds in the stomach had been completely closed, preventing any further leakage of the stomach contents. Sepsis, in the ordinary use of the word, apparently did not exist; pus was not discovered at the autopsy, the official report of which is given in another column. Gangrene, which might occur without the presence of pathogenic organisms, was the predominant condition found, and is given by the pathologists as the direct cause of death. This process had evidently steadily developed in the entire course of the bullet, so far as it was possible to follow it. The pathologists apparently attach little importance to the condition of the heart, the walls of which are somewhat inadequately described in the report accessible to us merely as "thin," nor do they regard the injury to the pancreas and kidney as significant.

The lesions found at the autopsy were certainly unexpected and have, in conjunction with the clinical course of the case, naturally given rise to much speculation and surmise, as yet unsupported by scientific experiment or proof. The President's vitality was low, due probably to a sedentary life, unassociated with much physical exercise, hence the entire failure of reparative processes, upon which the surgeon must always largely depend. This much seems to be established. More than this we do not, at present, definitely know. The theory has been advanced, and, if we may trust popular report, has received the sanction of several prominent physicians, that the bullets were poisoned, hence the unusual course of the case, with its unexpected fatal outcome. We await with interest and considerable skepticism the result of the chemical examination of the undischarged cartridges, which is said to be contemplated. In the meantime it is desirable that we suspend judgment, ignorant as we are of the effects of poison when introduced into the body in this unusual way. Another hypothesis, reported to be advocated by one of the surgeons

directly concerned in the case, is to the effect that the pancreas was injured in the passage of the bullet, that the pancreatic fluid escaped and ultimately passed into the circulation, leading to the heart disorder, which was the immediate precursor of death. Here, again, we must await the verdict of experiment; mere speculation in such a matter is wholly worthless, and actual evidence is at the present time not obtainable.

When all is said, it must be frankly confessed that the case was obscure in its clinical course, that the autopsy findings were unexpected, and that previous experience in wounds of the stomach did not ensure a correct interpretation of the clinical symptoms. The physicians in attendance were wholly conscientious in their efforts and sincere in their belief of the favorable outcome. All that may in justice be said in the future is that they were fallible, a human weakness from which we, as physicians, are, unfortunately, far from free.

THE HOSPITAL FOR TUBERCULOSIS.

It is announced that the mayor has recommended the appropriation of \$150,000 for the purpose of establishing a hospital for chronic disease, with special reference to tuberculosis. The matter has been agitated now for a year or more, and we are glad to note signs of a consummation. Although the wording of the message appeared to include chronic disease of other forms than tuberculosis, we presume that the latter alone was meant. The establishment of such a hospital means a large outlay of money, but one which it is eminently proper the city should assume. One hundred and fifty thousand dollars will not go far toward the building and equipment of such a hospital as the city should have to do the best work, but in all such public enterprises it is desirable that the utility of the undertaking be forcibly impressed upon the people at large before large inroads are made upon the financial resources of the city. With the establishment of this hospital and the new double ward designed primarily for tuberculous patients about to be constructed at a cost of \$60,000 at the Long Island Hospital, we may well congratulate ourselves that a hopeful beginning has been made toward the treatment of the disease, and so indirectly toward its extermination. We have before had occasion to remark, and we are constantly impressed with the gross injustice of our law, which demands that a person be declared a pauper before admission to the Long Island Hospital, where alone he may at present be treated for a chronic tuberculous disease, or any other of the multitude of chronic affections to which man is liable. Before many years reform must come in this matter, so that the social status

of a person with chronic disease may not differ from that of a person with an acute disease. We welcome the proposal for the new tuberculosis hospital for many reasons, but not the least because it marks a step toward the humanitarian treatment of the chronic sick. It will, we hope, not be long before a like treatment will be accorded to patients suffering from less menacing, but equally pitiful chronic disorders. A hospital for paupers should be a combination of terms unknown in a medically enlightened community, such as ours boasts itself to be.

MEDICAL NOTES.

BANQUET IN HONOR OF DR. NATHAN SMITH DAVIS.—Under the auspices of the Chicago Medical Society a banquet and celebration has been organized in honor of Dr. Nathan Smith Davis, M.D., L.L.D., who is the oldest living president of the society, and widely known and honored among the profession by his long connection with the American Medical and other associations. The banquet will take place at the Auditorium Hotel, Chicago, Saturday evening, Oct. 5, 1901.

COMPULSORY VACCINATION IN BERNE.—It is reported that some years ago the question of compulsory vaccination was submitted to a popular vote in the Swiss canton of Berne and decided in the negative. In consequence there were on Aug. 5, 1901, 120 cases of smallpox in one community,—Niederbipp,—and the doctors are now vaccinating.

HONOR FOR PROFESSOR VIRCHOW.—Berlin, it is said, will celebrate the eightieth birthday of Professor Virchow, on Oct. 13, by contributing \$25,000 to the Virchow foundation and an official banquet in his honor at the Rathaus.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Sept. 18, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 22, scarlatina 18, measles 20, typhoid fever 43, smallpox 2.

REQUESTS TO HOSPITALS.—By the will of the late Charles H. Hayden the following bequests to hospitals are made: The Massachusetts General Hospital receives \$100,000. The testator directs that a sufficient sum be set apart for the establishment of a bed which shall bear his name. The rest of the money is to be used or invested according to the discretion of the proper officials of the institution. The Children's Hospital, Huntington Avenue, receives \$50,000. The Massachu-

setts Charitable Eye and Ear Infirmary \$50,000. The New England Hospital for Women and Children, Dimock Street, the Home for Aged Women (white), Revere Street, the Perkins Institution and Massachusetts School for the Blind, South Boston, Boston Home for Incurables, and the Massachusetts Society for the Prevention of Cruelty to Children are also remembered.

POSITION OF AUSTIN TEACHING FELLOW OF HISTOLOGY AND EMBRYOLOGY.—The position of Austin teaching fellow in histology and embryology at the Harvard Medical School is vacant. The value of the fellowship is \$500. The appointment is annual. The holder is expected to give about one-third of his time to teaching, and two-thirds to original research. A valuable opportunity is offered for training and experience as a preparation for the further pursuit of medical science, whether in anatomy, pathology, bacteriology or some allied department. Applications should be addressed to Dr. Charles S. Minot, Harvard Medical School.

PAYMENT REFUSED FOR CARE OF CAMBRIDGE DIPHTHERIA PATIENTS.—It is reported that the Overseers of the Poor of Cambridge, Mass., announce that they have refused to pay bills sent by outside cities and towns for services rendered to diphtheria patients who have a settlement in Cambridge. The Overseers of the Poor claim that the responsibility falls upon the Board of Health. It is possible that a special appropriation may be made to the Board of Health to meet the indebtedness, which amounts to about \$1,000.

HOSPITALS FOR TUBERCULOSIS.—The draft of an ordinance providing for the creation of a new department to have charge of chronic diseases, especially consumption, has been sent by the mayor to the City Government. The mayor stated that \$150,000 is now available for the erection of a hospital for consumptives. The proposed ordinance provides for a board of seven trustees, at least two of whom shall be women. The matter was referred to the Committee on Public Improvements.

SMALLPOX IN BOSTON.—A new case of smallpox in the Roxbury district has been reported. The death of a woman of 75 has occurred from the disease at the detention hospital. In general the situation is very much improved, and the schools closed for the first week of the term have been reopened.

A CASE OF SMALLPOX IN MEDFORD, MASS.—A young woman has recently been taken to the isolation hospital in Medford, suffering from smallpox. It is said to be the first time in 23 years that it has been necessary to open the pesthouse to receive a patient.

NEW YORK.

MORTALITY REPORT.—The mortality in the city during the month of August, as shown by the Health Department reports, represented an annual death-rate of 20.82, as against 25.91 in July and 20.21 in August, 1900. The weekly average of deaths from diphtheria and croup declined from 23.5 in July to 19.75 in August; of deaths from scarlet fever, from 23.75 to 9.25; of deaths from measles, from 11.5 to 7.25; from smallpox, from 19.75 to 7.75; from cancer, from 51 to 39.25; and from diseases of the urinary system, from 102.75 to 93.75. During the week ending Aug. 31 there were but 6 deaths from diphtheria and croup, and it has been a considerable number of years (even before consolidation) since such a low mortality was reported. In the same week the deaths from smallpox were reduced to 4, and this is the smallest number from that disease in any one week for several months. The weekly average of deaths from diarrheal diseases in August (401.5) was considerably larger than in July (347.5). This is an exception to the rule, and is the more singular from the fact that the weather was cooler in August. There was no one week in the latter month, however, when the mortality from this cause was by any means as high as in the last week of July. Among the other diseases in which the mortality increased were the following: The weekly average of deaths from typhoid fever increased from 11.5 to 17; of deaths from pneumonia, from 54.5 to 62.5; and from bronchitis, from 15.25 to 18.25. During the month 1 death was reported from influenza and 1 from actinomycosis.

ACCIDENT INSURANCE.—Rees E. Thomas, a member of the bar of Utica, N. Y., died from the effects of a gunshot wound while out hunting. His gun was resting against a tree, near which he was sitting eating his luncheon, and it slipped from its position and fell, exploding in such a way as to send the charge through his heart. The deceased held an accident policy for \$5,000 in the Mason's Fraternal Accident Association of America, and in an action by his wife to recover thereon a judgment for the full amount has been reversed by the Fourth Appellate Division of the Supreme Court, unless Mrs. Thomas stipulates to reduce the recovery to \$1,000. Mr. Thomas was insured as a lawyer, but a clause in the policy provided that if the insured were killed while engaged in other more hazardous occupations his beneficiary could recover only \$1,000, and one of these was that of a hunter for pleasure. The court holds that Mr. Thomas came in this class. The defendant claimed that the deceased committed suicide; that his death was the result of a

voluntary exposure to unnecessary danger, and that he was handling firearms, which was expressly forbidden by the policy. Justice Rumsey, for the court, states that the claim of suicide was completely disproved, and that it could not be said that the deceased was voluntarily exposing himself to unnecessary danger. "We are of the opinion," he continued, "that he was not handling firearms, so as to forfeit the policy, within the meaning of this provision. The defendant, seeking to bring him within that provision, is bound to prove the necessary facts. It did not prove that at the time the injury was received Thomas had touched the gun, the explosion of which caused his death. The defendant, however, rightly claims that as Thomas, at the time of his death wound was engaged in hunting for pleasure, and was actually exposed to the risks incident to that employment, the plaintiff is entitled to recover only so much as would be paid to one engaged in that occupation. We can see no answer to this contention. . . . That he was at the time of his death temporarily engaged in hunting is admitted."

MEETING OF ASSOCIATION OF HOSPITAL SUPERINTENDENTS.—The third annual meeting of the Association of Hospital Superintendents was held at the Murray Hill Hotel, New York, on Sept. 10, 11 and 12. Among the papers read were the following: "The Possibilities of a Hospital Superintendent's Personal Influence," by Dr. C. Irving Fisher, superintendent of the Presbyterian Hospital, New York; "The Non-Resident Indigent Patient," by John Fehrenbach of the Cincinnati Hospital; "The Relation of the State to the Hospital," by B. M. Child, superintendent of the State and Alien Poor of the New York State Board of Charities; "The Hospital from the Standpoint of the Visiting Physician," by Dr. H. A. Fairbairn; "Figures and Thoughts Regarding Hospitals and the Care of Charity Patients," by T. Sutton, editor of the *National Hospital Record*; and "Hospitals of the Future," by C. S. Howell of the Western Pennsylvania Hospital, Pittsburgh. Philadelphia was fixed upon as the next place of meeting, and the following officers were elected for the ensuing year: President, Dr. J. T. Duryea, King's County Hospital, Brooklyn, N. Y.; Vice-President, Dr. Charles O'Reilly, Toronto General Hospital; Secretary, Dr. D. T. Test, Pennsylvania Hospital, Philadelphia; Treasurer, A. D. Shaw, Harper Hospital, Detroit.

PLAYGROUNDS TO BE OPEN IN SEPTEMBER.—The Municipal Assembly has made an appropriation of \$1,000 to keep the recreation piers and children's playgrounds open during the month of September.

REMOVAL OF THE SPLEEN.—The rare operation of removal of the spleen was performed by Dr. H. Hassbold at the Harlem Hospital on Sept. 10. The patient was a boy of 6 years, who was run over by a milk wagon. When brought to the hospital, he was found to be suffering from severe internal hemorrhage, and when laparotomy was performed it was discovered that the spleen was so badly lacerated that its extirpation was necessary. The lad reacted satisfactorily after the operation and is reported to be doing well. Repeated examinations will be made of his blood for the purpose of throwing light, if possible, on the functions of the spleen. Three other successful removals of this organ have been done by New York surgeons.

OFFICERS OF NEW YORK STATE VETERINARY ASSOCIATION.—The annual meeting of the New York State Veterinary Association was held at Ithaca on Sept. 10 and 11. The following officers were elected: President, Prof. James Law, Dean of Veterinary Faculty of Cornell University; Vice-President, James Robertson of New York City; Secretary and Treasurer, W. H. Kelly of Albany. It was decided to hold the meeting next year in Brooklyn.

A CENTENARIAN.—William Harrington, a veteran of 4 wars, died in the borough of the Bronx on Sept. 10, at the age of 101 years. He was a native of Delaware and partly of Indian blood. In the War of 1812 he was badly wounded while serving as a "powder monkey" on the American gunboat *Hornet*. Afterwards he fought in the Seminole and Mexican Wars and went through the Civil War with the 66th Regiment, New York Volunteers.

TYPHOID FEVER IN BOROUGH OF DUNELLEN.—An outbreak of typhoid fever is reported in the borough of Dunellen, near Plainsfield, N. J. The trouble is said to have originated from an old drain in the rear of some dwellings on Prospect Avenue, and the health authorities promptly took measures to remedy the conditions believed to be responsible for the disease.

GIFT TO A NEWPORT HOSPITAL.—It is announced that Mrs. Cornelius Vanderbilt of New York is to make the gift of a new building to the hospital at Newport which will be a memorial of her husband and bear his name. Mr. Vanderbilt himself gave \$10,000 to the institution.

Miscellany.

PRESIDENT McKINLEY'S DEATH.

On the fourth day after the shooting rectal alimentation was in part discontinued and food given by the mouth, which was apparently well borne.

The following day, Thursday, some solid food was given. Thursday evening a rapid change for the worse took place, and vigorous stimulation was used, improving somewhat the action of the heart, which was irregular and very weak, reaching 140. Friday a slight change for the better took place. In the evening the President grew rapidly worse, but lived, with short intervals of consciousness, until 2.15 Saturday morning, September 14.

The autopsy report follows, signed by Harvey D. Gaylord, M.D., Herman G. Matzinger, M.D., P. M. Rixey, M.D., Matthew D. Mann, M.D., Herman Mynter, M.D., Roswell Park, M.D., Eugene Wasdin, M.D., Charles M. Stockton, M.D., Edward G. Janeway, M.D., W. W. Johnston, M.D.; W. P. Kendall, Surgeon, U. S. Army; Charles Cary, M.D.; E. D. Munson, Assistant Surgeon, U. S. Army; Hermann L. Baer, M.D.

"The bullet which struck over the breast bone did not pass through the skin and did little harm. The other bullet passed through both walls of the stomach near its lower border. Both holes were found to be perfectly closed by the stitches, but the tissue around each hole had become gangrenous. After passing through the stomach the bullet passed into the back walls of the abdomen, hitting and tearing the upper end of the kidney. This portion of the bullet track was also gangrenous, the gangrene involving the pancreas. The bullet has not yet been found. There was no sign of peritonitis or disease of other organs. The heart walls were very thin. There was no evidence of any attempt at repair on the part of nature, and death resulted from the gangrene, which affected the stomach around the bullet wounds, as well as the tissues around the further course of the bullet. Death was unavoidable by any surgical or medical treatment and was the direct result of the bullet wound."

The cause of death is officially given as gangrene of both walls of the stomach and pancreas, following gunshot wound.

METEOROLOGICAL RECORD

For the week ending Sept. 7, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Bar- ometer	Ther- mometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Wet't'r °		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S....1	29.98	68	68	63	97	92	94	N	E	N	E	.23
M....2	30.02	66	72	66	84	77	80	N	E	S	W	
T....3	30.10	78	74	63	76	90	83	N	E	S	W	
W....4	30.07	70	77	62	92	91	92	W	N	E	W	
T....5	30.09	78	89	66	75	77	76	W	S	E	W	
F....6	30.12	74	79	68	78	74	76	W	S	E	E	
S....7	29.92	75	82	68	76	69	72	N	W	N	W	
SEP	30.04	77	64			82						.33

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
SEP—Mean for week.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, SEPT. 7, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrheal diseases.	Diphtheria and croup.
New York.	3,437,202	1,418	649	39.99	4.72	1.90	26.16	1.13
Chicago.	1,698,000	—	—	—	—	—	—	—
Philadelphia.	1,299,697	—	—	—	—	—	—	—
St. Louis.	675,238	—	—	—	—	—	—	—
Baltimore.	608,957	177	72	37.29	5.65	2.82	16.38	.56
Cleveland.	351,268	—	—	—	—	—	—	—
Buffalo.	335,287	—	—	—	—	—	—	—
Cincinnati.	325,002	—	—	—	—	—	—	—
Pittsburg.	321,416	—	—	—	—	—	—	—
Washington.	278,718	—	—	—	—	—	—	—
Milwaukee.	285,315	—	—	—	—	—	—	—
Providence.	175,597	67	26	34.33	—	1.49	19.40	2.28
Boston.	560,892	216	84	42.59	5.56	3.24	18.06	1.85
Worcester.	118,121	57	24	48.65	5.41	—	24.32	—
Fall River.	104,963	39	27	58.97	5.13	2.56	46.15	—
Lowell.	94,869	49	23	28.57	4.08	—	10.29	4.08
Cambridge.	91,886	36	15	27.78	2.78	—	19.44	—
Lynn.	85,443	41	6	9.52	—	4.76	—	—
Lawrence.	62,559	27	9	55.56	3.70	—	29.63	—
New Bedford.	62,442	39	14	53.33	3.33	10.00	26.67	—
Springfield.	62,659	112	3	33.33	—	8.33	16.67	—
Somerville.	45,712	37	2	5.30	—	—	15.67	—
Holyoke.	45,712	12	7	41.67	—	—	8.33	16.67
Brookton.	40,063	6	3	66.67	—	—	33.33	—
Haverhill.	37,175	19	6	36.84	—	5.26	15.79	—
Salem.	35,956	10	6	60.00	—	—	53.85	—
Chelsea.	34,072	11	2	36.36	—	9.09	—	—
Malden.	33,964	7	2	28.57	—	—	14.29	—
Newton.	33,587	9	4	55.56	—	11.11	33.33	—
Fitchburg.	31,731	6	3	50.00	—	—	—	—
Taunton.	31,636	16	6	37.25	—	—	25.00	—
Glooucester.	26,121	4	1	25.00	—	—	—	—
Everett.	24,536	10	6	60.00	10.00	—	—	—
North Adams.	24,200	3	2	33.33	—	—	33.33	—
Quincy.	23,899	9	2	44.44	11.11	—	22.22	—
Waltham.	23,491	9	3	33.33	—	11.11	22.22	—
Pittsfield.	21,706	8	2	—	—	—	—	—
Brookline.	19,731	—	—	—	—	—	—	—
Chicopee.	19,167	2	2	66.67	—	—	33.33	—
Medford.	18,214	4	1	—	—	—	—	—
Newburyport.	14,478	1	1	100	—	—	100	—
Melrose.	12,962	1	—	—	—	—	—	—

Deaths reported 2,455; under five years of age, 1,089; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) acute lung diseases 107, consumption 249, scarlet fever 13, erysipelas 2, typhoid fever 62, whooping cough 21, cerebrospinal meningitis 11, smallpox 1.

From whooping cough, New York 6, Baltimore 5, Boston and Worcester 2 each, Lowell 1, Cambridge and Holyoke 1 each, Pittsburg 3. From cerebrospinal meningitis, Worcester 1, New York, Boston and Marlboro 2 each, New Bedford, Brockton, Malden and Gloucester 1 each. From scarlet fever, New York 8, Pittsburg 4, Boston 1. From typhoid fever, New York 27, Pittsburg 11, Baltimore 5, Boston 7, New Bedford 3, Providence, Fall River, Lynn, Springfield, Haverhill, Chelsea, Newton, Waltham and Northampton 1 each. From smallpox, New York 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,153,026, for the week ending Aug. 21 the death-rate was 21.6. Death reported 4,730; acute diseases of the respiratory organs (London) 126, whooping cough 49, diphtheria 58, measles 87, fever 61, scarlet fever 28.

The death-rate ranged from 11.3 in Huddersfield to 30.2 in Gateshead; Birkenhead 26.7, Birmingham 27.2, Bradford 19.5, Brighton 19.0, Bristol 14.1, Cardiff 11.8, Derby 18.7, Halifax 17.9, Hull 27.0, Leeds 24.7, Liverpool 22.9, London 19.2, Manchester 21.9, Newcastle-on-Tyne 28.7, Norwich 21.0, Nottingham 23.2, Plymouth 18.8, Portsmouth 21.4, Salford 27.5, Sheffield 25.0, Sunderland 29.1, Swansea 27.0, West Ham 22.3, Wolverhampton 21.0.

CHANGES IN THE MEDICAL CORPS OF THE NAVY
FOR THE WEEK ENDING SEPT. 7, 1901.

E. THOMPSON, assistant surgeon. Detached from the "Solace" and ordered home and to wait orders.

E. S. BOWEN, medical director, retired. Detached from the Boston Navy Yard, Sept. 5, and ordered home.

I. W. KITE, surgeon. Detached from the "Monterey," upon reporting of relief, and ordered home and to wait orders.

V. C. B. MEANS, surgeon. Detached from the marine recruiting rendezvous, Sept. 25, and ordered to the "Monterey" as relief of Surgeon J. W. Kite, sailing from San Francisco, Cal., by Army transport about Oct. 1.

G. T. SMITH, surgeon. Ordered to the "Amphitrite" as relief of Surgeon J. M. Edgar.

J. M. EDGAR, surgeon. Detached from the "Amphitrite," upon reporting of relief, and ordered home and to wait orders.

J. F. MURPHY, assistant surgeon. Detached from the Naval Academy, upon reporting of relief, and ordered to the "Indiana."

W. M. GARTON, assistant surgeon. Detached from the "Indiana" and ordered to the Naval Academy as relief of Assistant Surgeon J. F. Murphy.

G. P. WINSTLOW, medical director. Ordered to the naval recruiting rendezvous, Boston, Mass., Oct. 1.

C. J. DECKER, surgeon. Ordered to the marine recruiting rendezvous, San Francisco, Cal., Sept. 25, as relief of Surgeon V. C. B. Means.

P. F. McDONALD, assistant surgeon. Detached from the Naval Museum of Hygiene, Washington, D.C., Sept. 9, and ordered to the "Constellation" as relief of Assistant Surgeon C. A. Crawford.

C. A. CRAWFORD, assistant surgeon. Detached from the "Constellation," upon reporting of relief, and ordered to the Naval Hospital, Chelsea, Mass., as relief of Assistant Surgeon R. R. Richardson.

FOR THE SEVEN DAYS ENDING SEPT. 14, 1901.

H. WELLS, medical inspector. Ordered to the Boston Navy Yard, Sept. 14.

W. E. TAYLOR, medical inspector, retired. Ordered to the Honolulu Naval Station.

R. C. PERSONS, medical inspector. Ordered to duty at the marine recruiting rendezvous, New York, N. Y., Sept. 9, and to other special duty.

M. H. CRAWFORD, surgeon. Detached from duty at the marine recruiting rendezvous, New York, N. Y., Sept. 9, and ordered to duty in connection with fitting out the "Illinois" and to duty on that vessel when put in commission.

D. N. CARPENTER, passed assistant surgeon. Detached from the naval hospital, Norfolk, Va., and ordered to duty in connection with fitting out the "Illinois" and to duty on that vessel when put in commission.

G. D. COSTIGAN, passed assistant surgeon. Resignation accepted, to take effect Sept. 16.

J. C. GORDON, pharmacist. Detached from the naval hospital, Mare Island, Cal., ordered home and granted sick leave for one month.

C. E. RIGGS, passed assistant surgeon. Detached from the New York Navy Yard and ordered to the Port Royal Naval Station.

R. M. YOUNG, assistant surgeon. Detached from the naval hospital, New York, Sept. 14, and ordered to the New York Navy Yard, same day.

SOCIETY NOTICE.

MEDICAL SOCIETY OF STATE OF NEW YORK.—The Medical Society of the State of New York will hold a semi-annual meeting at the New York Academy of Medicine, 17 West 43d Street, New York City, Oct. 15 and 16, 1901.

SECOND INTERNATIONAL CONGRESS OF LIFE INSURANCE PHYSICIANS.—The second meeting of this association will be held in Amsterdam, Sept. 23, 24 and 25.

BOOKS AND PAMPHLETS RECEIVED.

Arterio-Sclerosis: The Greatest Fear of the Life Insurance Company. By Talbot Jones, M.D., of St. Paul, Minn. Illustrated. Reprint. 1901.

Stimulants in Forensic Medicine. A Review of Drug Consumption in Vermont. By A. P. Grinnell, M.D., Burlington, Vt. Reprint. 1901.

A Guide to the Clinical Examination of the Blood for Diagnostic Purposes. By Richard C. Cabot, M.D. Illustrated. New York: William Wood & Co. 1901.

Schoolboys' Special Immunity: addressed especially to those who have the charge of boys. By Marlow G. Hine, M.A., LL.D. London: J. & A. Churchill; Philadelphia: P. Blakiston's Son & Co. 1901.

Malta Fever. A Report of Four Cases of Malta Fever in the United States Army and Navy General Hospital, Hot Springs, Ark., Among Soldiers and Sailors Returned from Tropical Stations, with Remarks on the Serum Reaction in Malta Fever. By Joseph J. Curry, M.D., Captain and Assistant Surgeon, U. S. A., Philippine Medical Service. Reprint. 1901.

Address.**PROBLEMS IN MEDICAL EDUCATION.¹**

BY HERBERT L. BURRELL, M.D., BOSTON.

To be present at the opening of this clinical laboratory that you have established, to have the privilege of addressing you on this occasion, is an honor that I deeply appreciate. It is an occasion of congratulation, and you are to be felicitated on having made this most important step towards giving to students an opportunity to acquire knowledge from the patient at first hand.

I do not doubt that this laboratory will stimulate other medical schools to establish similar ones, and hence the occasion is one which concerns the whole profession.

For a number of years I have been interested in medical education and have watched with satisfaction the growth of opinion which is producing change in methods. Today educators are keenly awake to the necessity for improvement in methods of teaching, not alone in medicine but in all knowledge. The Western Reserve University Medical School is known to be actively interested in improvement in methods of education, and it has seemed to me that this occasion lends itself to a consideration not only of the value of clinical laboratories, but of some of the other problems of medical education.

While much has been written on this interesting theme, and good has come from the addresses of Welch, Bowditch, Minot, Cabot, Councilman, Keen and others, yet much work remains to be done.

I shall take it for granted that the end to be attained in a medical school is to "train men for power," as Mr. Eliot has said. How the student shall acquire this education concerns us all. It seems to me that the student in medicine should be trained in the scientific method to acquire definite, accurate knowledge, sound reasoning and the humanitarian sense of the care of the individual. I therefore invite your attention to a few of the problems that have interested me. They are:

- I. The value of experience.
- II. The value of laboratories.
- III. The value of the combination of the laboratory with the patient.
- IV. The position of teachers.
- V. The value of the lecture, recitation, demonstration and sectional teaching.
- VI. The value of extra-mural teaching and graduate teaching.
- VII. The function of a medical school as that of a university of medicine.
- VIII. The curricula of medical schools.

Incidentally there are many aside thoughts that will naturally be presented, and if this consideration leads you to think of these problems I shall be content.

I believe that with truth it may be said that in no country does the individual sick patient receive such personal kindly attention from his physician as in America. It should also be said, I believe, that the patient in this country is often ignorantly and incompetently treated, and this, in part, is due to the character of instruction in some of our medical schools.

Graded instruction in medical schools is only a quarter of a century old, and in only a few of the schools has the importance of giving the student the opportunity to acquire knowledge at first hand been thoroughly recognized. The professional dictum of "I say so" in many schools still holds sway, but fortunately the modern student demands more than to be told opinions; he insists upon knowing, and, where practicable, receiving demonstrable facts. This laudable spirit of knowing for one's self has much to do with the progress of our people, and in medicine it is a force which moves the dead weight of tradition.

The pendulum of agitation is making wide excursions, and the missionary spirit of advance is almost fanatical in its attempt to upset old methods. There is hardly a medical school in this country that is not considering in what way it can improve its methods of teaching.

A new era is at hand. This is dependent upon demands that are made for better care of the sick patient. With the material growth of our country the middle class, who are really the moving force of our land, demand better houses, better food and water, better clothing, and they demand skilled knowledge in the treatment of their ailments. They are no longer content to receive assiduous attentions and to have hope given them. They demand, whenever they can afford it, definite, accurate knowledge of their disease. They appreciate the inestimable benefits of preventive medicine, the value of public sanitary work, and often possess a fairly accurate knowledge of the methods of research in diagnosing disease. This is well shown in the change of public opinion which has occurred towards hospitals, almost within a decade. Today the public know that in the wards of an hospital they will receive the best skilled attention, and do not deem it, as formerly, as next to the poorhouse.

There is, then, both the demand and the desire for medical reform. The intrinsic difficulty in the problem of reform in medical education is the absence of accepted knowledge. Theory in methods and sweeping generalizations are being constantly presented. This condition is not satisfactory. The conservative who has taught for years, who feels that his structure is being shaken to the foundation, and the radical, who believes that knowledge is only to be acquired by the adoption of his method, clash.

1. THE VALUE OF EXPERIENCE.

Perhaps the most valuable method of acquiring knowledge is by personal experience. To bring a student, under supervision, actually in contact with a sick patient, to have him establish the

¹An address delivered at the opening of the Clinical Laboratory of the Western Reserve University Medical School at Cleveland, Ohio, on June 12, 1901.

diagnosis of the case, to watch its progress, to treat the patient, and to know the solution of the problem, is undoubtedly a very valuable method of instruction. The adage that "experience is the best teacher" is so generally accepted that it seems superfluous to question its value, yet if all knowledge were obtained by experience the progress of the world would be very limited. If we were forced to learn all things for ourselves and not to benefit by the experience of others as recorded in literature, progress would be limited essentially to a generation. To learn all things by experience is wasteful of time and opportunity. The teacher can show the student short cuts to knowledge. He can point out to him methods which are of value and methods which are useless, and above all can inspire him by force of word and example with a love of knowledge. So we must accept that experience is not the only method of obtaining knowledge.

The practitioner of medicine is an autocrat; his dicta are received in the sick room as the truth, and from his environment he is not forced to know his facts.

It is rare that a practitioner in observing a patient has the opportunity of proving his conclusions. He deals with chance, he does not solve nature's riddles, and this dealing constantly with clinical problems which are never solved leads, unless he has been carefully trained in scientific method, away from controlled, accurate observation.

A deal is said of the judgment of the practitioner which can only be gained by long experience. After all, this experience is of value solely where the facts are known in an individual case. The only method of acquiring the habit of forming accurate judgment is, as Spencer¹ has said: "The constant habit of drawing conclusions from data, and then of verifying those conclusions by observation and experiment, can alone give the power of judging correctly."

How important it is, then, that the foundation knowledge of a student of medicine shall be firmly laid by the scientific method as taught in laboratories for research work. There every fact is verified, and the student will form the habit of scientific thought.

Obviously the teaching of medicine should be as a science, not as an art, but until the truth is accepted of Minot's statement² that "Medicine is one department of applied biology, just as dyeing is one department of applied chemistry, or electric lighting a department of applied physics," the art of the practitioner which alleviates suffering must be taught. This art of the practitioner consists of the empiricism of experience rigidly controlled by scientific thought.

This habit of scientific thought is greatly to be desired, and will go far to disarm the criticisms that are justly made of the impractical charac-

ter of some medical men. Bowditch³ says that "highly educated men have often been found singularly lacking in mental balance. Schools for the inculcation of common sense have never yet been established." Our countryman, the philosopher, Mr. Dooley, says that "ye can laide a man up to th' university, but ye can't make him think."

II. THE VALUE OF LABORATORIES.

At the present time it seems as if the progress in medicine were largely to be made by research work done in laboratories. Laboratory men have come to the front, and the work that they have done gives them the right to declare that they are carrying forward knowledge in the science of medicine. The influence of laboratory men is now being felt in all science, and in medicine it is rightly the force which is obliging men to revise medical education. The important advances in science have almost invariably been made by men who observed, experimented and reasoned.

Students who are taught in laboratories are sometimes inspired with the belief that only from research work in laboratories comes knowledge, and there is danger that the coming generation of medical men will be unduly impressed with the importance of abstract scientific facts. The danger from laboratory work alone is that students will know only part of the truth, that their facts will be disconnected and not a part of a common whole. To know that a streptococcus infection is present, and to fail to appreciate the resisting power of the patient, is defective knowledge.

Unfortunately, many of the so-called facts which have come from a laboratory of medical research have been short-lived, and the lack of caution on the part of laboratory men in the exploitation of their alleged facts has rightly made many men cautious in accepting their findings.

The spirit which stimulates laboratory men to contribute their bit of accurate observation to the wealth of scientific knowledge is worthy of the highest commendation, but at times it has seemed as if they would be better fitted for their work in advancing that knowledge if a broader and more comprehensive view of the facts presented were taken by them.

How often we see in man a high degree of skill developed in a special line at the expense of broad comprehension. Unless this tendency to narrowing is constantly combated by the special worker, it becomes a dominant force.

The research man in medicine is to exist as a seeker of abstract facts. He will work in special laboratories in cloister-like seclusion, and from him will come knowledge. The future practitioner of medicine, however, will have his foundations laid in laboratories, and will carry the training he has there received to the individual patient.

III. THE VALUE OF THE COMBINATION OF LABORATORIES AND CLINICAL MATERIAL.

A clinical laboratory, it seems to me, has the following advantages:

(1) The habit which the student will form of examining clinical products in each individual

¹ Herbert Spencer. Education.

² Knowledge and Practice. Science, C. S., July 7, 1899, vol. x, No. 256, pp. 111.

³ The Medical School of the Future. Transactions of the Congress of American Physicians and Surgeons, 1899, vol. x.

patient as he presents himself. I fear that, in many instances in the actual practice of medicine, the lack of training and facility in examining sputa, the urine or the contents of the stomach, has much to do with the lack of precision in diagnosis and treatment.

(2) The training of students to apply their abstract scientific knowledge to the concrete example of a patient.

(3) The stimulus to acquire knowledge at first hand, which will not alone be felt in his laboratory work but in his clinical work in the wards and out-patient departments of an hospital. In after life this will lead him to be not alone thorough in his examination of patients, not to rest content with a "snap diagnosis," but to search until the problem is solved and the patient relieved.

(4) The impetus it will give to research work. At present research work is largely being done in laboratories, but the scientific method of work having been acquired in laboratories must, of necessity, be carried into the wards of an hospital, which is, after all, a great laboratory for observing nature's processes. Control experiments cannot be carried out on living patients, but much work of scientific value has been, and can be, done by the clinician, who does wrong to accept that the laboratory man alone can make advance in medicine.

This clinical laboratory, which you have established through the munificence of Messrs. John Hartness Brown and Samuel M. Mather, it seems to me, furnishes the link that binds the application of abstract science to the patient. It places on a definite laboratory basis the practical branches of medicine and surgery. In this laboratory the student will not alone have the keen pleasure that comes to a special worker of controlling absolutely one's work at a laboratory desk, but in addition he will have the controlling influence of the attrition of dealing with living patients. To see a patient, to examine him, to bring material to this laboratory, and at his own desk to apply the tests which will determine the diagnosis of the disease, connecting the abstract knowledge of the laboratory with the applied knowledge of practical work, is a great step.

Occasionally and rarely will come forward a man fitted to do original work. The spirit of original investigation, properly conducted, is given to but few men. These men should be encouraged to pursue their work, and there is perhaps nothing more encouraging than to see men of great wealth establishing, and, let me add, endowing, laboratories for medical research work.

IV. THE POSITION OF TEACHERS.

The position and compensation of the teacher of medicine is not satisfactory. At present the clinician who holds a position as a teacher is tacitly told that he is in a position of such prominence that the prestige of his position will give him a large consulting practice. Hence his salary is relatively a bagatelle. Naturally, being a wise man, he arranges his life somewhat as follows: (1)

His private practice; (2) his hospital work; and (3) and last, his duties as a teacher. Not until boards of trustees of medical schools make a teaching position the principal object of a man's life, and compensate him for doing the work, will medical schools have trained teachers.

The fact that laboratory men, as a rule, regard their position in a school as of prime importance is one of the reasons why advance in methods of teaching has come from them rather than from clinical teachers, who, at best, consider their teaching position as only an incident in their careers. Medical education should command the first and best interests of the teacher, and until this is recognized progress in clinical teaching will advance haltingly.

V. THE VALUE OF THE LECTURE, RECITATION, DEMONSTRATION AND SECTIONAL TEACHING

is open to argument. I believe that they are all of value, under certain conditions, but that their real position is undetermined. They are on trial. The present tendency in many schools is to adopt sectional teaching and to give up the lecture entirely. There are certain subjects that can and always will be best presented by a lecture; for example, the unusual diseases, such as beriberi, hydrophobia, tetanus, etc., it will often be necessary to present to students by a lecture. One thing that is perfectly plain is, that the teacher who does not believe that he can or should lecture successfully never will.

The clinic must always be of great value, for it gives an opportunity for the teacher to present a series of cases, either in contrast one with the other, or different phases or epochs of the same disease.

VI. THE VALUE OF EXTRAMURAL TEACHING AND GRADUATE TEACHING.

Extramural teaching should be carefully tried in all large centres of population. From the ranks of these teachers must come those who will be of real value to medical education.

Graduate instruction is at present too commercial and not sufficiently scientific. The physician who comes to a school for therapeutic tips, latest dodges in operative technique, and who goes back to his practice with a reputation of having the latest scientific facts, is not to be encouraged. Graduate instruction should be planned on such lines that the practitioner who desires real scientific knowledge shall be able in the shortest possible time to thoroughly acquire real knowledge.

VII. THE FUNCTION OF A MEDICAL SCHOOL THAT OF A UNIVERSITY OF MEDICINE.

Formerly the training of a medical school fitted men, as best it could, for one thing,—the practice of medicine. Today a school of medicine should fit students for at least three definite lines of work: (1) The general practice of medicine; (2) the practice of a special branch of medicine; (3) for work in biology as applied to medicine.

Three is often spoken of as synonymous with "scientific medicine," but I prefer to keep the phrase "scientific medicine" in its legitimate place, as including scientific work in both laboratory and clinical work. Excellent scientific work has been done by clinicians, but of late some of the laboratory men have come to considering themselves the only workers in scientific medicine.

This new demand upon a medical school removes it from the college class and brings it into a university position. A university of medicine, if not in name, at least in fact, is not far distant, and from it should come knowledge. To quote from President Eliot's essay: "Universities have three principal direct functions. In the first place, they teach; secondly, they accumulate great stores of acquired and systematized knowledge in the form of books and collections; thirdly, they investigate, or, in other words, they seek to push out a little beyond the present limits of knowledge, and learn, year after year, day after day, some new truth. They are teachers, storehouses and searchers for truth." The teacher, museums and the research scholar all exist in the modern medical school.

Granting that there are at least three principal lines of work which graduates of medicine are to do, why not establish a common standard of fitness for all, and then allow each group of men to develop along their chosen line of work? That the requirements for a degree should be the same for these different lines of work seems hardly necessary, and a judicious elective system is much to be desired.

The pressure of modern life makes success imperative; attainment of living results alone justifies our existence. Early specialization and material gain are the spirit of the times. The evil results of these high-pressure forces can be guarded against by taking care that the student's foundation is sufficiently broad and comprehensive, that it is the scientific method of education,—namely, observation, experimentation and reasoning.

With the growth of medical knowledge and with the keen demand for special training which gives success to a practitioner, it becomes obvious that the time is not far distant when the student must be trained in a different manner from what he is in medical schools at present. Either the length of study must be increased to five, or even six, years in order that time shall be given for acquiring special knowledge in the work the student is to carry out in life, or the requirements of each of the individual branches taught in medical schools must be reduced to a minimum, and the latter part of the course be devoted entirely to elective or optional work on the part of the student.

Granting the general principle that there are different lines of work for which a medical student must be prepared, the establishment of a minimum required course of instruction, with electives, becomes necessary. Any student who

possesses a degree in arts, letters or sciences should be made a well-grounded man in three years. He should not be given a degree in three years, but his required instruction should cease at the end of three years, and this should be followed by a fourth year of electives. But, in order to accomplish this, the curriculum must be arranged as a whole and not dominated by the enthusiasm of the head of one or more departments. How shall this be accomplished? One way would be for the head of each department to submit the minimum number of hours of instruction that he considers necessary in his subject. These submitted minimum hours of instruction could then be given to a judiciously selected dooming committee, who should scale down the number of hours in each of the different departments so that they can be fitted in to a given length of time. The subjects required would naturally be reduced to the minimum.

Accepting for the time that three years' required instruction is sufficient, the fourth year would be devoted entirely to elective and optional courses; then a student would take elective or optional courses in the lines of work that he expected to be called on most to do. If, for example, he were going to be a general practitioner he would devote his time to pathology, medicine, surgery, gynecology, pediatrics, etc., *ad lib*. If he were to be a surgeon he would take electives in anatomy, pathology, medicine and surgery, etc. If he were to be a public sanitarian a still different line of work would be adopted, and if he were going into scientific medicine he could take up his life work comprehensively grounded in general medicine.

Spencer⁶ says that, "Before there can be a rational curriculum, we must settle which things it most concerns us to know; or, to use a word of Bacon's,—now unfortunately obsolete,—the relative value of knowledges." "Had we time to master all subjects we need not be particular. To quote the old song:

"'Could a man be secure
That his days would endure
As of old; for a thousand long years,—
What things might he know,
What deeds might he do!
And all without hurry or care.'"

"But we that have but span-long lives must ever bear in mind our limited time for acquisition."

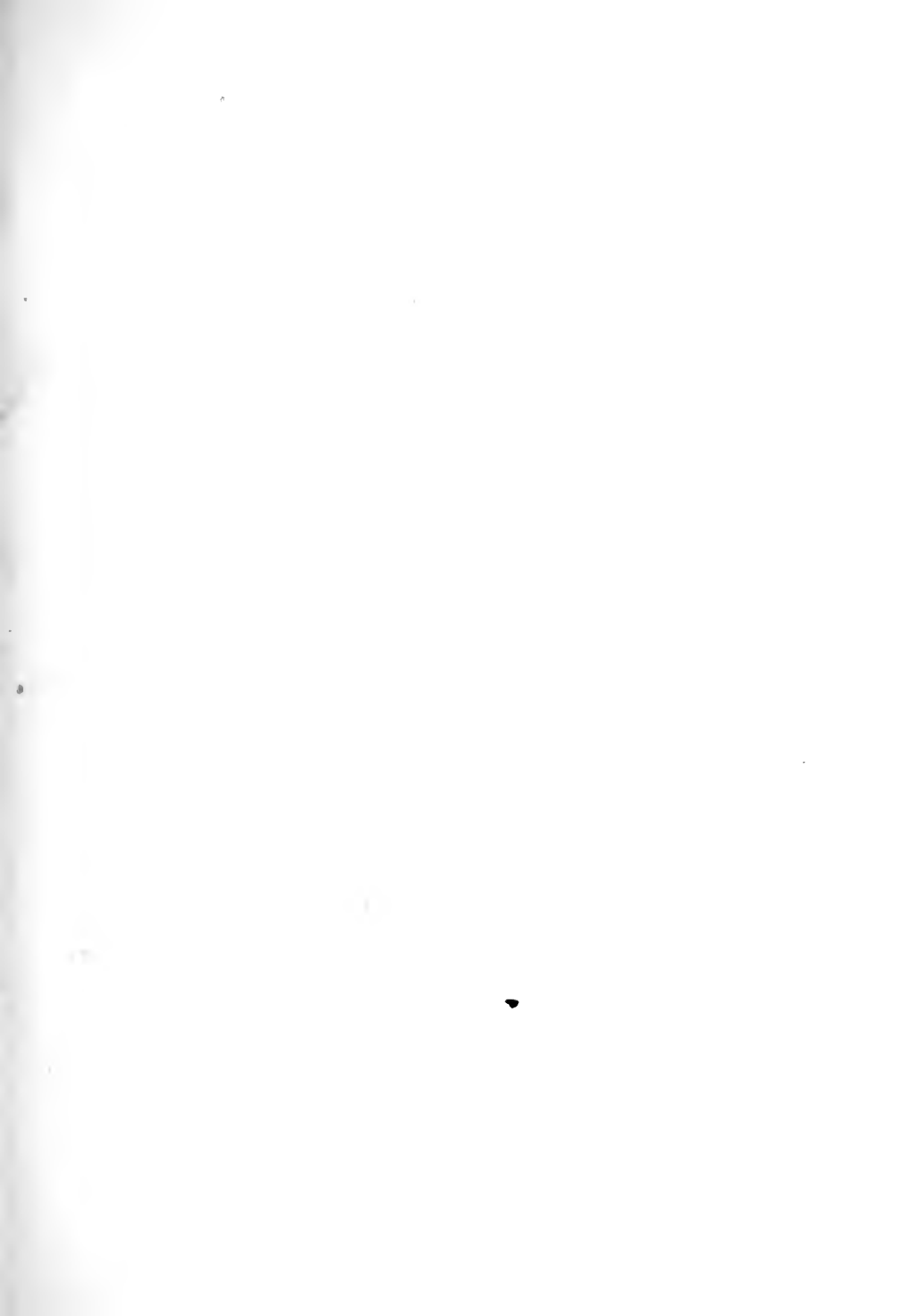
VIII. THE CURRICULA OF MEDICAL SCHOOLS.

What a student of medicine shall be taught is a mooted question. In order that I might know the present conditions of medical instruction I turned to the curricula of many of the medical schools of the country, and, at my request, Drs. F. J. Cotton and H. S. Warren have formulated and placed in graphic diagrams the hours of instruction in four of the principal medical schools.

In the accompanying diagrams you will see the

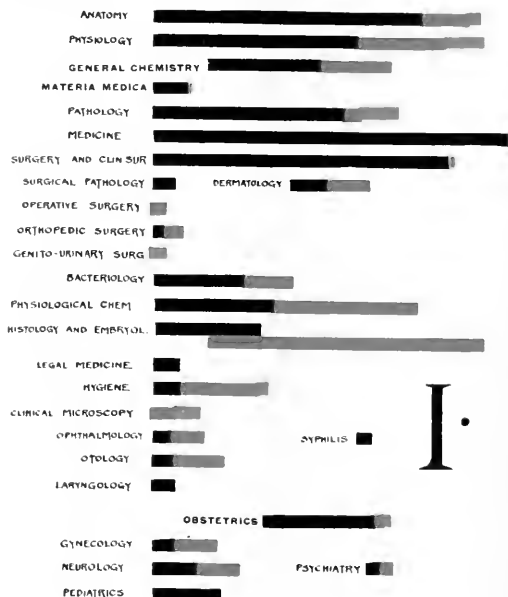
⁵ The Aims of Higher Education, Educational Reform, p. 225.

⁶ Herbert Spencer: Education.

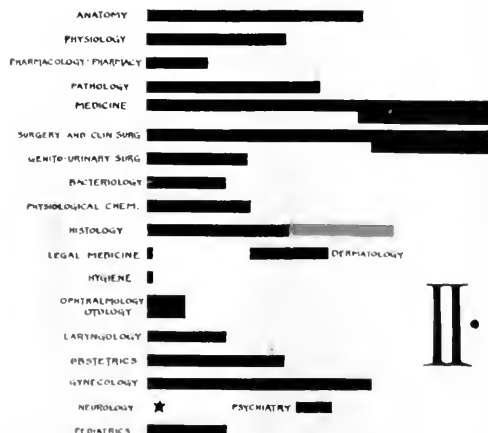


SCALE
 1/2 inch = 1 hour.

Required ■ Elective ■ Optional ■

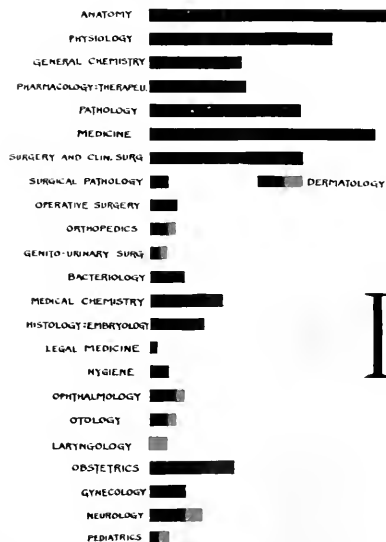


I.



II.

* 40 hrs. Neurology included in medicine.





number of hours devoted to each branch of medicine, as set forth in the published statements of the schools. The hours of instruction in these diagrams are represented as follows: Required subjects are in black; elective subjects, counting for a degree, are in red; optional subjects are in yellow.

Some of the published statements of medical schools do not give sufficient information to allow one to determine the amount of time given to a subject.

The advantage of presenting these diagrams is that one is led to consider the whole curriculum and not alone the subject that one is interested in. I, therefore, beg your consideration of them as a whole. It will be unnecessary to mention the names of the schools; I shall call them Schools No. 1, 2, 3 and 4.

Perhaps the most striking difference in these schools is the absence of elective and optional courses in Schools 2, 3 and 4. The initiative force, enterprise and enthusiasm of the head of the department is shown in many of the black lines. For example, in School No. 3 it will be noticed that anatomy occupies a very large number of hours, and the school could be justly termed a school of anatomy rather than a medical school; whereas, School No. 2 can properly be termed a school of medicine and of surgery, and possibly of gynecology. Again, School No. 4 could be called a school of anatomy rather than one of medicine and of surgery.

If the hours of instruction in so-termed general chemistry and physiological chemistry in School 1 be added together, they will nearly equal the total time devoted to medicine. *Materia medica* and gynecology occupy a relatively small position in School No. 1. The number of hours given to minor departments in all the schools is apparently largely dependent upon the enterprise and force of the head of the department.

It is obviously unjust to bring all subjects to be taught down to the one standard of the number of hours devoted to the subject. The intrinsic difficulties of a subject may demand a comparatively large number of hours to present it. Then, again, the hours spent in the laboratory courses are of more than the apparent value in that the student is drilled to use scientific methods. It would be of great benefit if one could represent the values of the instruction by degrees of black, red or yellow. But who could determine the values?

In some instances it was impossible to determine the exact number of hours given, but, as a whole, the diagrams represent, with fair accuracy, the curricula of four of the principal schools of the country.

A closer comparative analysis of these tables can be made by anyone interested in the subject, and many deductions can be made, some of which will be of value.

Incidentally I have alluded to the quality of instruction as given in different courses presented in a curriculum. How can this quality be im-

proved? The stimulus of competition between different instructors in the different schools of this country should be encouraged. The custom of calling laboratory men from one school to the other is fairly well established, but the calling of clinical men from one school to the other is hampered by the lack of control of clinical material by medical schools.

This difficulty is gradually being done away with, and the day is not far distant when young men who are to be teachers of medicine will be called to clinical as well as laboratory positions. Even without the control of clinical and laboratory material a step can be made to secure competition, the life of progress.

If the principal medical schools would co-operate by requesting the heads of their respective departments to confer and to establish a uniform minimum required standard of instruction in their respective departments, such a standard curriculum could be established.

A student might take his first year under the best teachers in one school, his second year at perhaps the same or another school, and his third year at still another school. If an excellent course in anatomy were being given in School X, in surgery there might be an indifferent course being given. If the students left the school where a weak course in any subject were being given, it would quickly act as a healthy stimulus to improvement.

It is justly considered that the past century was the era of the birth of personal liberty; the coming century is to be the era of co-operation of like enterprises. Medical schools have a common purpose; they are rapidly becoming a part of universities, and co-operation in establishing curricula is desirable.

The economy of time of the medical student has not been seriously considered. It is an imperative need — one that must soon be met. Those who are in charge of the problem of education must carefully consider the economics of life. It is their duty to minimize the amount of time required by the student to attain a competent knowledge of medicine and to accord to him early electives.

To summarize: (1) Every school of medicine should establish a curriculum which is not dependent upon the wish of the head of each department, but is planned for the good of the student in medicine. (2) It is desirable that every medical school should establish in each of its departments a minimum uniform required course of instruction for the average student. (3) During the fourth year of instruction the work should be essentially elective and optional in order that students may prepare themselves for the special line of work that they are to engage in. (4) Improvement in methods of instruction can best be secured by active competition. This can be attained by the medical schools of this country adopting a standard of minimum required work. At what period this minimum required work should cease is open to argument.

Original Articles.

OBSERVATIONS ON HEART DISEASE.¹

BY ROBERT T. EDIS, M.D., BOSTON.

It is the function of the heart to move a certain quantity of blood in the right direction against a certain resistance. The healthy heart does this within wide limits of resistance and of mass, and as happens with many other important organs it is undoubtedly endowed with powers very considerably in excess of the average and usual demand upon it.

The movement depends upon the myocardium, understanding by this word not only the muscular substance, but the complex of nerves and ganglia situated in close connection with the muscular valves, and the resistance upon the arteries, and mass and stimulating and regulating its action.

The direction of the flow depends upon the sometimes in part upon the valves.

In the point of view of diagnosis and pathology it is very obvious why, when methods bidding fair to clear up so much that had been obscure and indefinite were applied to the study of heart diseases, the lesions of the valves, which could be seen after death and heard during life and easily understood, should absorb almost the whole interest of the diagnostician, and that this interest should have only slowly yielded, as it became clearer how much these gross defects could be compensated and made comparatively harmless on the one hand, and counterfeited on the other by those changes in the propelling power which are less accessible to any form of observation.

It is within the easy recollection of many of us (perhaps we need not go beyond our own case books for instances) when prognosis was based upon the observations of cardiac murmurs almost exclusively, as indicating valvular disease, and as a consequence was often unwarrantably serious either from actual mistakes in diagnosis or from a failure to recognize the modifying effects of the other factors. I was, however, surprised to be told after the symposium of Feb. 4 that even now that much depreciated individual the "average practitioner" was supposed to be still in bondage to the old ideas, notwithstanding the large amount of literature in monographs and articles which has now been showered upon him for many years, and the teachings of textbooks as old at least as Flint's "Practice."

The exact diagnosis of the condition of the heart muscle is certainly not so easy, but its importance has not been undervalued of late years. But even if absolute precision is unattainable, an estimate of the relations between the amount of work to be done and the power of the heart to do it may often be made to an extent sufficient for purposes of prognosis and therapeutics.

The variations in the load which the heart has to work under arise to some extent from the mass

of the blood, that is, as to anemia and plethora, but much more — we may say for practical purposes in most cases entirely — upon the demands of the voluntary muscular system for its supply of oxygenated blood, and upon the resistance offered to its distribution by the contractions and dilatation of the vessels under the influence of the vasomotor system.

The constant resistance — that is, the resistance above the normal — may come from a chronic contraction of the arterioles, the theoretical precursor of organic disease, or from the developed arteriosclerosis, and from imperfection of the valves.

When the heart is able readily to adjust itself to widely varying demands without distress, it is functionally healthy. When it cannot furnish all the blood that is called for without suffering, or at any rate without continuing to suffer after the strain is over, or when, after the strain has ceased to exist, it fails to return to its former condition, it is not healthy, whether we suppose that any structural change would be discoverable or not.

It seems at once that the line between the healthily acting and the inefficiently acting heart cannot be a sharp one but is represented by a margin of varying width, which may be called the margin of adjustability or safety, having upon the one side the maximum of endurance called for by the extremes of intense and prolonged muscular exertion and on the other a minimum just sufficient to cover the demands of a carefully regulated life with as slight as possible variation from uniformity of muscular or emotional exertion.

The width of this margin, or perhaps more correctly the position of its lower limit, it is of the utmost importance to estimate correctly in diagnosis, to be able to tell a patient what he may or may not do.

There is one way to tell with a good deal of precision, and that is by experiment; but it is one to be tried with caution, and the patient should not be placed in a position where he cannot retreat before carrying it too far. It is in a methodical and careful manner of trying it, so that it may be stopped before it becomes dangerous, it seems to me, that the chief advantage of the method of Oertel consists. It is the object of therapeutics to place, so far as possible, the working capacity of the heart well above all probable demands upon it, and this may be accomplished to some extent upon either side. Diminution of resistance, when it depends upon organic narrowing of an orifice or rigidity of the great arteries, is of course out of the question, but when it is the result of too great tonicity of the arterioles it is not altogether out of reach of eliminatives like cathartics and alkalies, of diet, or of vasomotor paralysants, as nitroglycerin and other nitrites.

Even the upper limit of this margin may be transgressed in the way of violent long-continued exertion, especially when combined with under-feeding, or when of such a character or exerted under such circumstances as to require the fixation of the thoracic muscles and to impede respiration. This has been pointed out by Allbutt, DaCosta and

¹ Read before the Boston Society for Medical Improvement, April 15, 1901.

others in soldiers and heavy laborers. The results of this transgression may be permanent or at the best recovered from slowly and imperfectly. There is evidently here an extreme exhaustion, which is in rare cases a paralysis but more frequently a paresis with loss of muscular tone although not completely of muscular contractility; but there is no reason to suppose that it is connected until after a considerable time with any lesion detectable by the usual means of observation.

It is, however, chiefly in the increase of the power of the muscle, and in so regulating it that it may be expended with the greatest economy, that the most important results are to be obtained. This means on the one hand proper nutrition and a combination of rest and exercise suited to the peculiarities of each case, and on the other the use of cardiac regulators and stimulants, as digitalis and its congeners, and of strychnine. The myocardium, if of healthy structure, can, like any other muscle, gain somewhat in energy by judicious exercise, and also, like other muscles, can be so thoroughly exhausted by overstrain as to be practically paralyzed. The difference between them is that while the voluntary muscle can be usefully exercised at long intervals of hours or days, with intervals during which it is called upon to expend little or no energy, the heart must get its training while it is constantly at work, although with a minimum or average load, yet never without any load at all. The heart must receive the benefit of exercise not at intervals of hours or even minutes but at intervals of a second or usually less, and then as an addition to an average which may be near the maximum capacity,—in many cases we cannot tell just how dangerously near.

The observation of the pulse, of the venous circulation, of localized congestion and edema, is the real guide as to how efficiently the heart is acting. If the work is not done thoroughly, easily, and without disturbance, or if a little extra call for exertion shows that the margin of adjustability is a very narrow one, it is then the part of the physical examination to distribute the difficulty properly between the two factors—propelling force and resistance.

The mistake may be, and undoubtedly has been, frequently made—and it is really a very natural one—of attaching the greatest importance to that which furnishes the most definite and clearly marked signs; that is, valvular disease; and when these signs or their counterfeits are almost accidentally discovered, of drawing from them alone the meaning they can justly carry only when in combination with others less prominent.

The pulse was more carefully studied by our grandfathers than by ourselves, but its characters, even when distinct, are not always easy to describe. Perhaps it was for this reason its study has been allowed to fall into the background.

The sphygmograph, although it is true that it requires care in its application, that the greater or less thickness and elasticity of the superjacent tissues obscure its indications of arterial pressure,

and that tracings from the same pulse may be made to vary very widely from each other by changes in pressure, in position, or in the weight of the levers, and has, consequently, not unnaturally been depreciated by the physiologists, to whom of course it cannot yield results comparing in numerical precision with those of the manometer, is not unworthy the attention of the clinician. It is of much more value in determining the flow and resistance in the arteries, than it is in interpreting the peculiarities of the heart's impulse, with the valvular lesions; but that it does demonstrate with considerable accuracy actual facts of varying pressure may be shown by comparing an average tracing with that simplest of all sphygmograms—the marks made on a strip of moving paper by a jet of blood from an artery or even a trocar thrust into the ventricle itself.

But it is probably inferior in some respects, beside that of convenience, to the trained finger, which can better take in at one time all the components that go to make up the character of the pulse. But I say advisedly *trained* finger, and for the training of the fingers there is nothing better than a constant use of them side by side with the sphygmograph, for I suppose sight will always be a more definite and accurate sense than feeling. I think it is Vierordt who winds up his remarks upon the sphygmograph, of similar tenor to my own, by saying that it "teaches the student what he ought to feel." The fingers should determine how large and how elastic is the artery, how full it is filled by each beat of the heart, how long the blood is retained there without running back through the aortic valves, how rapidly does it escape from the arterioles, how much pressure is required to extinguish the pulse. The sphygmograph cannot do all these things at once, but it can do some things that the finger does not (see Hayden). It shows a diastolic murmur not perceptible at least to the average finger, it deciphers some forms of irregularity better than the finger does, and besides these it records what it does find for exhibition, which is clearer than any description, and for future reference. The relation between a sphygmogram and the palpation of the pulse is somewhat like that between an instantaneous photograph and the eye. Nobody ever knew before Muybridge what shapes a galloping horse got himself into, but the artist and the prospective buyer still prefer for their purposes their own eyes and hands to the camera. There is no form of pulse evident either to the finger or to the sphygmograph which is pathognomonic of any form of cardiac degeneration. It may indicate want of tension or extreme feebleness, but a tracing is of value only in connection with other symptoms. Feebleness of the pulse, in the absence of aortic stenosis or other obstruction, or of mitral regurgitation which allows the force of the ventricle to be expended in the wrong direction, means of course feebleness of the contraction of the heart, but no tracing is evidence of this unless we know what pressure was used in taking it, and whether it is the best possible tracing with the most ad-

vantageous pressure. Of this condition of the pulse and heart, especially if extreme, the educated finger is a better standard than the sphygmograph.

Is it possible by any combination of symptoms to diagnosticate actual degeneration of the cardiac muscle? It seems to me not with absolute certainty, but under many circumstances with a degree of probability entirely sufficient for practical purposes. It is one of the common remarks that fatty degeneration is sometimes suspected for the first time upon the autopsy table, but the question at once arises, what were the opportunities for suspecting? I must doubt if a muscle which has begun, even to a very small extent or degree, to show a degeneration visible to the microscope could have retained its full efficiency or have had more than a very narrow margin of adjustability or safety.

Such a muscle might of course have been perfectly able to respond without trouble to the average demand upon it, and this average may have been at no time sufficiently exceeded to show how near the danger line was until it was fatally passed, but such an even tenor of life is not likely to be more than a rare exception.

Quain, whose paper,² now 50 years old, has been but little added to or improved, says:

"It should be stated that many cases are recorded in which patients have died, and in whose hearts this condition has been unexpectedly found. Some of these cases are said to have been in the enjoyment of perfect health, others have been ailing, but not in connection with the heart; others ailing likewise, and the heart being suspected has been examined, and failed to give evidence of the existence of the disease, which post-mortem examination has subsequently shown to be present. I have not met with such cases. On the contrary, even in some instances in which the individual dying was said to be in good health, I have found on inquiry that symptoms, more or less marked, had existed, and might have been previously recognized if attention had been called to them."

If the heart is weak to a degree not accounted for by its dilatation, if it fails to improve with rest and treatment, if the sounds are sharp and snappy as if destitute of the muscular element and dependent solely upon the closure of the valves, if the impulse, instead of being either limited to a small spot or strong and heaving, be a sort of wave passing over a considerable area or, as Leyden says, a "tremor," the grounds for suspecting actual degeneration are very strong. The presence or absence of a systolic murmur at the time of examination is not conclusive either way, but the history of a murmur may be very significant. The slowed pulse of obesity (Kiseli), between 50 and 60, is not dangerous. The somewhat slowed pulse is not of great diagnostic significance. It is said to be quite frequently met with in the fatally overloaded heart in corpulent people.

The extremely slow pulse, the "permanent slow pulse" of some authors; that is, below 10, has been

by some considered as closely connected with fatty degeneration; but although the coincidence is too common to be altogether accidental, it is by no means invariable, and cannot be conclusive for diagnosis. There have been many cases where careful examination has failed to find any fatty degeneration. Is it of great importance to distinguish between a simple dilated heart and a fatty dilated heart?

Acute dilatation is, as Dr. Prince has shown, a physiological adjustment. When too great or too long continued it becomes pathological, and fatty degeneration marks further progress in the same direction; but there is no proof that dilatation is always capable of recovery, any more than that fatty degeneration never is.

Murmurs disappear, the area of the heart's dullness may diminish, and patients recover from conditions which, when they go a little further, are well known to be accompanied by extreme fatty degeneration.

A heart may be slowly losing reserve force; its store of energy, or, more correctly, its ability to restore the amount of energy as fast as it is expended, may be gradually diminishing; that is, the margin of safety may be growing slowly narrower, and yet, if never called upon for more than the expenditure of the usual or average amount, will give no very obvious or urgent sign, perhaps under specially favorable circumstances even none at all.

If, however, the call comes for an increase of exertion—perhaps extreme, perhaps only slight—demanding an expenditure greater than the margin, whatever it may be, the organ can no longer respond, or does so with difficulty and distress, and we have an overstrain resulting in an attack of cardiac dyspnea or a sudden death. If not fatal it may result in a partial recovery or a permanent increase of the disability. The prognosis may depend very largely upon causes within the heart itself, like a valvular lesion which has been comparatively unobtrusive, or upon general conditions, like an attack of acute disease or the slow impairment of nutrition by alcohol. The pathologists can certainly tell us of many cases where death has been rapid and, so far as their data can decide, unexplained, as well as of others where signs have existed so slight that they have been neglected or misinterpreted until death has come too late to tell us what they mean, and also of others where the symptoms have been extreme and pointing with the utmost definiteness to the heart, in all of which no lesion can be detected in the course of an ordinary post-mortem examination, no matter how skilfully and carefully conducted. They find, if not absolutely nothing, no more than a little arteriosclerosis or a trace of fatty degeneration, such as may often be seen in cases dying of entirely different diseases.

As pathological anatomy sheds little light, we have certainly the right to compare such cases as to symptoms and manner of death to others where we *can* find a lesion. In aortic stenosis and regurgitation, for instance, we may have a train of events like what has just been described. Here

² *Medico-chirurgical Transactions*, xxxii.

also the margin of safety has been narrowed. The heart cannot do an increased amount of work, not because the muscular force is diminished,—on the contrary it may have been, under exercise, considerably increased,—but because the obstacles have been becoming disproportionately greater. The margin has been narrowed from the other side.

Now, with all due respect to the board of health, it appears to me that no more properly descriptive phrase can be found for this state of things than the objectionable “heart failure,”—objectionable only because it is so easy to misapply.

In the latter case—that of valvular disease—we describe the causative lesion because it can be seen and felt, and it is of course understood that the myocardium was not strong enough to carry so heavy a load. In the former the patient dies in the same way, and the last link in the chain of causation is the same; but as we cannot yet put our finger on the lesion, we are obliged to give a name to the functional result. What we want to know in such cases is, why has the heart failed to do what it should do?

Shall we always be obliged to rely entirely upon symptoms as we do now in describing and classifying what we call the functional diseases of the heart? It would certainly be strange in these times, when new and delicate laboratory methods are throwing the light of pathological anatomy upon so many conditions of the nervous system hitherto supposed to be beyond its province, if some of the clear and definite groups of cardiac symptoms did not yield their secrets to the microscope.

Hardly any department of physiology has been more thoroughly and fruitfully studied than the innervation of the heart, and yet one of the most recent, most learned and most concise statements, by one who has himself contributed largely to its original investigation, acknowledges that many points are yet far from decided. And pathology is far behind this point.

The relations of the vagus and accelerator nerves, presenting the most complete and typical example of stimulus and inhibition, have often been called upon to explain irregularities in the cardiac rhythm. The vagus has also been called the trophic nerve of the heart, but I am not aware that any distinct connection has been traced between its affections and the demonstrable degenerations of the heart muscle.

There are two very distinct groups of cases in which the rhythm of the heart's beats appears very closely connected with nervous influence, but in which anatomy has given no demonstration.

In one of these, Graves' or Basedow's disease, the connection is so intimately involved with the action of some peculiar autogenetic substance that it is perhaps hardly reasonable to expect anatomical changes. At any rate the chemical side of the question appears likely to be cleared up first, and will then throw light upon the structural.

In the other an extremely slow pulse associated with epileptiform or syncope paroxysms has not as yet been placed on a thoroughly satisfactory

basis of pathological anatomy, nor any constant relationship established with changes in the nutrition of the muscle.

A slow pulse is not one of the usual accompaniments of any recognized form of cardiac degeneration and, although it is true that in a large number of cases, where the slow pulse has been observed, there have been found arterial and muscular degenerations to a greater or less extent, yet these conditions are altogether too common and the symptom too rare not to make it evident that another cause, either in conjunction or separately, must be at work. There are also too many well-marked and most typical cases in which practically nothing has been found to be neglected. The supposition is a very obvious and reasonable one, that we are dealing with some kind of nervous phenomenon. A stimulation or irritation of the vagus is naturally the first thought and is easily applied clinically, having in its support a considerable number of cases of slow pulse where anatomical conditions, producing irritation of the vagus nucleus in the medulla, were found. One of the most decisive of these is the celebrated and oft-quoted one of Holberton,² where a man whose pulse had previously been 60 had a fall which produced some injury to his neck. He had fainting fits, his pulse became habitually slower than before, and at times went down even as low as 7. Five years after the accident he died. The heart was large and weak. The medulla oblongata was small and extremely firm. The occipital foramen scarcely admitted the little finger, from enlargement of the odontoid process and the thickened ligaments anteriorly. This was before the days of section cutting and of staining, and the condition of the vagus nucleus is only to be surmised. There have been cases similar to this but none quite so clear and definite.

There are, however, left many and in fact the majority of typical cases, where such an explanation, if urged at all, must rest entirely upon conjecture.

In a case reported by Prentiss, which I had the opportunity of examining both before and after death, sections made at the level of the vagus nucleus failed to show any lesion. The slight enlargements upon the course of the cardiac branches of the vagus were probably not of importance although not examined microscopically.

It would of course be perfectly possible that the irritation might take place at the other end of the cardiac nerves; that is, the inhibitory ganglia of the heart itself; but observation on the effects of atropine seem to put aside this hypothesis very distinctly. It is well known that this alkaloid paralyzes the vagus completely, including its cardiac end-organs, thus completely destroying its influence. Now if atropine be given in cases where the pulse is known to be slowed by central irritation, as for instance in some cerebral diseases, it quickens it materially; but in cases of the kind

² Medico-chirurgical Transactions, xxiv.

we are considering it produces no effect at all or only an insignificant one.

The nervous centres of the acceleratory system are those to which, finding nothing satisfactory elsewhere, we should next turn for an explanation. Theoretically a degeneration in them would produce the symptoms we are seeking to account for, but for very obvious reasons actual observation has furnished little basis for the theory.

The cardiac ganglia of the sympathetic, in particular the united inferior cervical and first thoracic, might well have been the seat of changes; but, so far as I am aware, none have been found. Certainly few, if any, observations have been published. I was unable in Prentiss' case to find in them any increase of connective tissue or atrophy of the cells.

As to the intrinsic ganglia of the heart situated chiefly in the auricular septum, they have been extensively and carefully examined for pathological purposes but, with very few exceptions, without reference to cases of this kind. In a great many cases where degeneration of these ganglia have been found, the pulse has been rapid. These ganglia are by no means easy to find and are surely not likely to be the objects of examination in the gross at any ordinary post-mortem. For this reason I am inclined to be extremely skeptical as to a single case of permanent slow pulse, in which it is stated, in an incidental sort of way, that there was found "atheromatous degeneration of the aorta and of all the large arteries, fatty degeneration of the heart and a change of the heart ganglia, which were enlarged, hard, and a part of them the seat of calcareous degeneration."

Several series of observations of these ganglia in fever and in organic disease of the heart have been published, but in none, with one exception, having reference to permanent slow pulse.

Even this case¹ was not exactly of the class I am speaking of, but of mitral stenosis with pulse beating half as fast as the heart. Even with this allowance, however, the heart was slow, and the examination, which was made by cutting serial sections through the part of the auricular septum which contains a great many small ganglia and staining them by modern methods, was an interesting one. The upshot of it was, however, that the writer was not sure that the Nissl sections represented anything more than post-mortem changes, or at the very utmost such as may be found in temporary changes of activity in other nerve cells as in the well-known experiments of Hodge and others. An apparent shrinkage of the cells he also supposed to be post-mortem, since there were no traces of edema or thickening of the capsules to account for it.

The suggestion made by Jacobi, that the difference between the cases of fatty degeneration with a very slow pulse, of which there are some, and those with quick and weak ones, of which there are more, consists in the involvement of the cardiac ganglia in the same process which affects the muscle and very frequently the coronaries in both,

is a very plausible one and has some clinical evidence in its favor, but does not as yet rest on an assured anatomical basis. Although recent embryological observations show that the intrinsic cardiac ganglia take their origin from the sensitive ganglia of the cord, and are hence themselves to be looked upon as sensitive and having nothing to do with the muscular action of the heart, yet there is too much physiological evidence of their connection to allow them so easily to be laid on one side in discussing this subject. The accelerator or augmentor nerves of the heart join the cardiac plexuses through the ganglia of the sympathetic, even if not connected with the cells in passing among them. It seems to me that the ganglia, if not strictly motor, stand in somewhat the same relation to the heart that the ophthalmic ganglion, for instance, does to the iris, a sort of local reflex centre; or as the plexuses in the walls of the intestines do to the muscular walls, carrying on the regular succession of contractions producing the peristaltic movements. They receive the stimulus of distension by the blood and convert it into the motor impulse which produces the successive contractions of the auricles and ventricles, co-ordinating them so as to carry on the progressive forward movement of the blood.

THE PUPIL IN GENERAL DISEASE.

By EDWIN F. JACK, M.D., BOSTON.

For the recognition and correct interpretation of pupillary symptoms it is necessary that there be a clear understanding of the normal actions of the pupil, the mechanism of those actions, the proper method of testing them, and the variations within the normal. It must be borne in mind, too, that abnormal pupils are often caused by pathological lesions local to the eye.

The normal movements of the pupil are reflex and associated. The reflex movement is contraction under the influence of light falling on the retina and dilatation on the removal of the light. The associated action is the contraction in the accommodative effort, the focusing from a distant to a near object, and in the converging movement of the eyes in fixing that object.

The nerves governing the iris are the third and the sympathetic. The stimulus of light falling upon the retina is transmitted through the optic nerves and tracts branching by some path to the pupil-contracting nucleus of the third nerve in the floor of the third ventricle and from here out to the iris. The associated contraction is brought about by the coincident action of this centre and those for convergence and accommodation which are near it. The active pupil-dilating centre is the so-called ciliospinal centre in the sympathetic system in the lower cervical cord. It is considered that the normal moderate dilation of the pupils is dependent on the constant psychical and sensitive stimuli transmitted through this nerve to the iris, — the sympathetic reflex.

¹ *Jona. Riv. Ven. d. Sc. Med.*, 1898.

² Read before the Massachusetts Medical Society, June 11, 1901.

In testing for the light reflex it is a common error that the patient is looking at the source of light or at some near object, thus bringing into the test the contraction associated with accommodation. The eyes, tested one at a time, the other being covered, should look at a distance of twenty feet or more into darkness or at some object. The source of light should be in front and slightly to one side, a condensing lens being used in doubtful cases; direct daylight may be used. If perception of light only be present the reflex will take place. The pupil of the second eye will also react to the light thrown upon its fellow because of the connections between the two sides. A blind eye will not react to the light thrown on its own retina, nor will the second eye, but both will react perfectly if light be thrown on the other, sound eye. There is a rare exception to the rule that the pupils of blind eyes will not react, and that is when a lesion is high up in the optic tracts beyond the reflex arcs; as, for example, in uremia. There are, too, frequent cases in which seeing eyes give no reaction, mention of which will be made later.²

There is no absolute normal standard for the size of the pupils. They vary, of course, in different lights; they vary in different individuals, both in size and activity, and according to age. Babies have small pupils, young and middle aged larger and active ones, old people small and sluggish ones on account of the more unyielding nature of the iris tissue. They are larger in myopia. The pupils are contracted in sleep, because then all psychical and sensitive stimuli are in abeyance.

Mention may best be made here of the dilatation of the pupil in psychical emotion, fright, anger, in painful sensory impressions, in fatigue, in dyspnea, deep inspiration and with labor pains, through the agency of the sympathetic. The dilatation in anesthesia is a warning. Patients with tobacco amblyopia have small pupils from the toxic action of the nicotine on the contracting centre, and watchmakers and other people whose daily work compels constant close looking may develop miosis;—all these taking place in both eyes. One other reflex, that from irritation of the eyeball itself, should be spoken of. A foreign body on the cornea, for example, will cause the pupil to contract.

Irides bound down by adhesions to the anterior capsule of the lens may cause a pupil to be small and irresponsive to light, or the dilatation and contraction may take place only in a part or parts of the circumference. Chronic noninflammatory glaucoma causes dilated and irresponsive or sluggish pupils, without other visible signs of disease,—a paralytic mydriasis from pressure on the fibres of the nerve. The same is seen in orbital disease and after contusions of the eye, lasting long after the injury. General disease may cause blindness, and that in turn give loss of pupil reflex; as, for example, in the optic atrophy of tabes, or after gastro-intestinal hemorrhage.

² The reaction in accommodation and convergence is readily demonstrated by directing the patient's gaze from a distant to a near object (the finger for example) in the same line.

Mydriatic and miotic drugs, as belladonna and pilocarpine, may act through the general system as well as locally. I have seen a paralysis of the pupil and accommodation follow the taking of frequent doses of Hilton's Specific No. 3, so largely advertised, and a moderate degree of paralysis after a large amount of A. S. & B. pills, the effects, of course, being in both eyes. The importance of recognizing the local action of these drugs is often seen; patients using others' eyedrops in one or both eyes for some trivial trouble, not apparent at the time of the examination, and in some cases denying their use. The applications in others are accidentally made by the fingers or towel, or dropper which has been used for atropine. Ptomaines (fish, meat, etc.,) may cause dilated pupils with paralysis of the accommodation.

Coming now to the effect of general disease on the pupil, it will be inferred from the nature of the nervous supply of the iris that dilatation may be paralytic,—third nerve, or irritative,—sympathetic; and that contraction may be paralytic,—sympathetic, or irritative,—third nerve. With this in mind the variations of the pupil in disease can be more readily understood, and a detailed account of the many pathological conditions which cause pupil changes becomes unnecessary. Speaking in a general way, paralytic mydriasis is seen in progressive paralysis, where at first there was miosis, and in various diseased processes at the base of the brain affecting the third nucleus or nerve. Irritation mydriasis occurs in spinal meningitis of the cervical portion of the cord, in the spinal irritation of anemic or chlorotic patients, after severe illness, as a premonitory sign of tabes, from intestinal worms, psychical excitement,—for example, acute mania, melancholia,—in general paralysis, often then in one eye with miosis in the other. Unilateral mydriasis occurring at short intervals, first in one eye and then in the other, is, according to Von Graefe, a premonitory sign of mental derangement. It is said on high authority that unequal pupils are always pathological, but I have seen cases in which an inequality has lasted for years from childhood up without other symptoms developing. They are said by some to occur in hysteria. Irritation miosis occurs in the early stages of inflammatory affections of the brain and meninges, later there is dilatation in the stage of depression. Paralytic miosis occurs in spinal lesions above the dorsal vertebrae; for example, tabes, in injuries, inflammation, etc. In acute mania, if miosis comes on, general paralysis may be prognosticated.

The lesions in these cases of course affect one or both sides, and in many instances involve other twigs of the third and other nerve branches.

There are two pupils which demand more than passing notice, the Argyll-Robertson and Wernicke's. In the first, reacting in accommodation and not to light, the reflex arc is broken somewhere probably between the place where the optic fibres leave the tract and the third nucleus. This is a very frequent and early symptom in tabes; with it the pupils are usually small, even

pin-hole (paralytic miosis, spinal miosis), but may be normal or even dilated, also of unequal size and oval, as is common in miosis. The sympathetic reflex is lost later, and later still the reaction in convergence. The same phenomenon is present in general paralysis, but less frequently and usually later. In this disease pupil symptoms are frequent and early, beginning in most cases as an inequality; the same being present in other forms of insanity. It is an important question whether the Argyll-Robertson pupil is ever present without meaning the presence or approach of serious nervous disease, and the best authorities say that it never is. It is thus of very decided value.

Wernicke's symptom, the hemianopic pupil, is of important localizing value when it can be demonstrated. Light thrown on the blind half of an hemianopic eye will still cause reflex if the lesion be above the reflex are in the brain, leaving the arc intact, but if it be in the tract below the point where the optic fibres branch to form this arc there will be no reflex. As an exception, however, the pupil may react when the lesion is in the tract, the special fibres for the reflex being perhaps more resistant than the visual fibres. It is difficult in testing for this reaction to limit the light to the blind half of the retina, and the theoretical value of the test is not always realized. It is usually a more sluggish pupil that is found and not a total lack of reflex. Lesions causing this pupil are not necessarily limited to the tract, neighboring processes may cause it by extension or pressure on the tract. Lesions at the chiasma have also been observed to cause this hemianopic reaction.

A peculiar form of pupil movement known as the paradoxical pupil symptom is the slight oscillation of the pupil when light is thrown into the eye, so-called hippus, which rapidly goes on to dilatation instead of contraction. It is considered an early sign of coming paralysis, but is also reported in hysteria and disseminated sclerosis. Investigation into the state of the pupil in the algid period of cholera has shown that if the light reflex is present prognosis is good, if absent it is bad; the size does not aid. In epilepsy conditions vary, but there is usually contraction at first and dilatation later, the light reflex being lost, this point being important in distinguishing the attack from hysteria. (I am positive, however, that I have observed dilated and irresponsive pupils in cases of hysteria.) Both bilateral and unilateral mydriasis have been noted in diabetes.

The question naturally arises, of how much value are pupil symptoms? In diagnosing the situation or nature of an intracranial lesion they are, if alone, of but little significance, except that the lesion must affect the nucleus itself or be peripheral. If, however, with this isolated symptom there are those from the involvement of other branches or nerves, the importance may become considerable. The early period at which some pupil changes come on in organic nervous

disease, often being the first symptom seen and, it may be, of characteristic form, gives them much value.

Mention may be made of the dilated and irresponsive pupils of brain compression after injury which call for interference. If we could take as absolute the difference in the pupils in epilepsy and hysteria, apoplexy and alcoholism, etc., we would have valuable data, but authorities do not wholly agree, and I have no personal experience to give. About the great importance of the Argyll-Robertson and Wernicke's pupil, of course there can be no doubt, and the value of pupil symptoms as an addition to others is often experienced.

REPORT OF CASES FROM THE SECOND SURGICAL SERVICE OF THE CHILDREN'S HOSPITAL, BOSTON.

BY H. L. BURRELL, M.D., R. W. LOVETT, M.D., AND J. E. GOLDTHWAIT, M.D., BOSTON.

1. IMPERFORATE RECTUM; OPERATION; RECOVERY.

E. L., a girl baby 3 days old, was admitted to the hospital on Jan. 21, 1901. The parents were well. Since birth the baby had had no defecation. Castor oil had been given without effect, and the baby refused milk. The nurse finally noticed an imperforate rectum. Vomiting began 24 hours before admission, the vomitus being yellow and greenish. The child was well-developed and nourished, and there was an entire absence of any anal opening.

Operation was performed shortly after admission. An incision was made through the lower part of the sacrum in the median line about 5 cm. downward, and the dissection was carried down to the opening, the lower part of the sacrum and coccyx exposed, and just below this a bluish mass was seen showing through. The upper part of the wound was closed with interrupted silk sutures. An incision was made through the perineum in the region of the normal opening of the anus, through a depth of about one-eighth of an inch, where there was an escape of gas. This opening was dilated with the escape of a large amount of meconium. The upper wound was dressed with corrosive 1-3,000; a gauze drain left in the opening of the anus, and a sterile napkin applied.

Jan. 24. The child has taken food well and gained during the past 2 days. Wound in good condition; some gaping of edges; drawn together with *crêpe lisse*. Anal opening in good condition.

Jan. 28. General condition excellent. Child has several defecations daily. Wound in good condition.

Feb. 6. General condition excellent. Gaining in weight. Several defecations daily. Wound closed, except for small part at centre.

Feb. 15. Wound practically closed. Several normal defecations daily. Discharged to parents.

H. L. B.

II. ACUTE ARTHRITIS OF HIP-JOINT, WITH DISLOCATION OF FEMUR; INCISION AND REDUCTION OF DISLOCATION.

Alice O'D., 11 months old, a State charge, was admitted to the hospital on May 20, 1901, with a swelling of the right hip of two weeks' duration. A month and a half previously a nevus on the left arm had sloughed, and a month previous there had been an abscess below the left knee. The child's general condition was poor. The right leg was everted and abducted and fixed by muscular spasm. There was one-half inch shortening, so far as could be ascertained by measurement. The right hip was much swollen, and there was marked thickening about the trochanter. Motions, as stated, were sharply limited. The trochanter was found to be above Nelaton's line. Fluctuation was present over part of the swelling.

A radiograph showed that the right hip was dislocated, and that the head of the femur was above the acetabulum. Temperature was exceedingly high, and the child's general condition that of a patient with a serious septic inflammation. The diagnosis of acute arthritis of the hip was made.

On May 22, 1901, ether was given, and an incision was made 2 inches long over the anterior aspect of the swelling in front of the trochanter. An abscess was opened, and considerable pus evacuated. A culture of this pus showed the presence of streptococci. On introducing the finger through the opening the head of the femur was felt above the acetabulum, and the joint capsule appeared to be disorganized. By manipulating the leg the head of the femur could be turned in any direction. The position which the dislocated femur assumed of itself was upwards and forwards, but it could be easily reduced into the acetabulum and as easily fell out again. The head of the femur was reduced, the wound washed out and packed, and a dry dressing applied. The hip was sharply abducted, and the child put upon a Cabot posterior wire splint with the leg abducted and the foot somewhat inverted.

The child made a perfectly good recovery, and the wound healed. Radiographs taken on June 12 and 29 showed the head of the femur to be in place, but it showed a distinct thickening of the upper part of the neck and shank of the femur, apparently due to an osteomyelitis which was not noticed in the first radiograph.

On June 26 the wire splint was removed, and the child was put on a bed frame and allowed to move the leg.

On Aug. 2, 1901, the child was discharged from the hospital, wearing a leather spica splint. At that time the wound was healed, the swelling about the hip had largely disappeared, and the child allowed about 45° of motion in flexion and good motion in other directions.

The case is of interest in showing the possibility of reduction of the head of the femur during the acute process.

R. W. L.

III. A CASE OF DISLOCATION OF THE HIP OCCURRING DURING AN ACUTE INFLAMMATORY PROCESS, PROBABLY RHEUMATIC, THE CONDITION BEING CORRECTED, WITH A NORMAL JOINT AS THE END RESULT.

Annie M., 8 years of age, was admitted to the medical service at the Children's Hospital Dec. 4, 1900. The history given by the parents was that the child had been sick for 4 weeks with pain in left ankle and left hip; both had been swollen at the time of entrance; both thighs were flexed on abdomen, and motion of the legs, especially the left, was very painful. There was some edema of the left leg, so that the thigh and calf were both three-fourths of an inch larger than the right. There was a slight systolic murmur at the apex, and the apex was outside the nipple line.

Under medical treatment the child improved, so that when she was transferred to the surgical service, Feb. 8, 1901, the left hip was the only part to need attention. This was flexed, the leg rotated inward and adducted. Motion was restricted. Under traction the position improved, but as soon as it was omitted the deformity recurred. There were no night cries, and unless disturbed the child was comfortable.

A radiograph, taken after traction had been tried for a short time, showed the head of the femur to be out of the acetabulum, the outline of the bones being perfectly distinct, with nothing to indicate bone disease. Soon after the leg was manipulated under ether, and with little difficulty the head was replaced in the socket. A plaster-of-paris spica bandage was used and not disturbed for 2 weeks. At the end of this time the bandage was removed once daily for manipulation. This was kept up for from 6 weeks to 2 months, after which all treatment was omitted, the left hip being normal in function and to examination.

J. E. G.

SPERMINE CRYSTALS IN PUS.

BY EDWARD T. WILLIAMS, M.D., BOSTON.

THE presence of nuclein bases in pus was first demonstrated in 1865 by Naunyn, who extracted from pus obtained from the pleural cavity a considerable quantity of a substance which, according to Vaughan and Novy,¹ was probably either adenine or guanine, or both. Later sarcine (hypoxanthine), another of the nuclein series, was found in the same fluid by Kossel himself.² These statements led me to question whether spermine might not be present also.

A chance case of cervical abscess gave me the opportunity to test it. The abscess was of several months' duration. I opened it and withdrew a full ounce of thick, curdly pus, slightly mixed with blood. I tested some of it in the hanging drop on a warm slide for amoeboid movements of the pus-cor-

¹ *Protamines and Leucomaines*; second edition, p. 284.

² *Ibid.*, p. 285.

puscles, but found none. I then made a few smears for staining purposes, and added to the residue a sufficient quantity of salt solution (8 per mille) to reduce it to the consistency of ordinary pus. The bad quality of the pus made me very doubtful of the success of the experiment. However, I stirred up the mixture thoroughly with a glass rod and set it aside for two days. I then decanted the supernatant liquid, and added to it a considerable proportion of a saturated solution of neutral phosphate of ammonia. I borrowed this method of examination from Friedländer.³ I thought there seemed to be a faint precipitation, but the solution was roiled to such an extent that I could not be sure whether there was or not. Certainly the conditions seemed very unfavorable for my test, and I have since regretted that I ever allowed the pus to stand at all. Still I set it aside for another day to settle, picked up a drop from the bottom of the glass with a pipette, and put it under the microscope. I used a simple dry lens and partly closed diaphragm, as in examining for urinary crystals. But the power must be fully twice as great. I used a broad-angled, $\frac{1}{2}$ inch objective, which, with a $\frac{3}{4}$ inch eye-piece, gives over 700 diameters.

I examined over a dozen of these slides and found spermine crystals in almost all. They were few in number, most of them quite small, many fragmentary, but I saw some exquisite and typical specimens. Their perfect geometrical shape, that of elongated octahedra, six or eight times as long as they are broad, makes it impossible to mistake them when seen. An illustration from Strümpell, copied into Starr's Textbook of the Diseases of Children, and another from Riegel in von Ziemssen's Encyclopaedia, copied into Pepper's Textbook of Medicine, gives some idea of their appearance. But they give no idea of the numberless broken forms found in my specimens;⁴ some mere bodies with both points broken off; some points with the bodies broken off; some cracked in two at the middle; some with pieces split off their sides; but always breaking, like other crystals, in the regular lines of cleavage. The special distinguishing mark in all the forms, whole or broken, is the longitudinal ridge running down the middle. This appears sometimes as a dark line, sometimes as a white line, as the reflections of light vary in focusing up and down and in opening and shutting the diaphragm. I never quite succeeded in bringing out the transverse line, and doubt if this is possible except by oblique light, so helpful in the resolution of diatoms. Unfortunately, my microscope, an altered Hartnack, does not permit the use of oblique light. The crystals were sometimes seen alone, sometimes three or four together, varying greatly in size, and often under, over, and among the clumps of pus-corpuscles. I thought once or twice I could verify the observation of Zenker (the discoverer of the trich-

ina disease), that they are sometimes seen inside the pus-corpuscles. The study requires close attention and is a decided strain on the eyesight. I sometimes spent a day over a single slide. Unfortunately, they cannot be preserved. When they become dry, the phosphate of ammonia, previously held in solution, precipitates on the covers, forming immense arborescent and polygonal crystals, which quite obscure the view of everything else. Unless some better method of examination can be found, they can only be seen in the fresh state. After keeping my pus solution for several days, it became fetid and ammoniacal, the pus-cells became more and more shadowy and broken, and the crystals melted away and disappeared. The reaction to test paper was alkaline. This, I believe, is the first recorded observation of spermine crystals in pus.

I found also great numbers of needle-shaped crystals, which, when attentively examined, seemed to be mostly three- or four-sided prisms. These I fancied must be either adenine, guanine or sarcine.

Besides these I found a few others, which I took for xanthine. They resembled the xanthine crystals sometimes seen in urine, were of a perfect almond shape and of a buff color, a peculiarity from which they take their name. In their chemical composition they are closely allied to uric acid, which sometimes crystallizes in a similar form. Still they belong to the series of nuclein bases, and were obtained by Kossel from decomposing nuclein.

If my observation is not at fault, this makes the fourth or fifth of the nuclein bases thus far observed in pus: adenine, guanine, or both, by Naunyn; sarcine by Kossel; spermine and xanthine by myself.

The significance of this discovery will be best appreciated by those who have honored me by reading my three previous papers in the JOURNAL.⁵

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

REGULAR meeting, April 15, 1901, Dr. E. H. Bradford in the chair.

Dr. ROBERT T. EDGS read a paper entitled

OBSERVATIONS ON HEART DISEASE.¹

Dr. BRADFORD: As I understand it, the suggestion in regard to atrophy is entirely original?

Dr. EDGS: No. A Russian professor (Debio) made the observation I spoke of. I made the remark that it had been given in a good many cases on empirical grounds and without special reference to diagnosis, and the results seemed to

³ Use of the Microscope. Translated by Coe. D. Appleton & Co., New York, 1885, p. 175.

⁴ A plate by Liebhaf, to which I cannot give an exact reference, gives a fair picture of these broken crystals. A less perfect one may be found in Salter on Asthma.

⁵ The Chemical Properties of Leucocytes, Sept. 5; Eosinophils Leucocytes and Nuclein Bases, Sept. 12; Eosinophiles as Constituents of Pus, Sept. 19, 1901.

¹ See page 318 of the Journal.

agree with his observations. An ordinary dose of perhaps 1 or 2 mgm. is given. I have not seen an account of where it has been used in the paroxysm with extremely slow pulse, 30 or 40 or less.

DR. BRADFORD: Where it has been given has it been empirically or with a knowledge of its physiological action?

DR. EDEN: I won't say as to that. The medication that has seemed to have the most effect has been the nitrites.

DR. BRADFORD: That has really no action on the heart, but on the arteries?

DR. EDEN: I think it has an action on the heart as well.

DR. BRADFORD: But not on the vagus?

DR. EDEN: No; not on the vagus at all.

DR. EDWARD O. OTIS read an abstract of a paper on

HEALTH RESORTS.

A change of climate and environment is one of the most valuable means we possess for the treatment or prevention of disease. To obtain the maximum benefit from any climate one must live in it; that is, out of doors. The use of the health resort should be regarded as a therapeutic measure to be as carefully considered and watched as the administration of a drug. Many climates, like many drugs, are, and must be, empirically used. In prescribing a health resort one should consider (1) the classification of climates and their geographical distribution; (2) the value of the various climatic factors and their influence upon the human organism; (3) the adaptability of special climates to the treatment of special diseases; (4) the qualifications other than those of a purely climatological character which should be possessed by a health resort. Climates may be classified as marine and inland. The ocean climate is characterized by purity of atmosphere, moisture and equability of temperature. Such a climate is a *sedative tonic*. A sea voyage is applicable to some forms of tuberculous disease, mental exhaustion from overwork, insomnia, various forms of scrofulous disease, anemia and chlorosis. The climate of small islands sufficiently removed from the mainland is much like that of the ocean. Bermuda, Block Island, the Isles of Shoals are good examples of island climate. Coast climates resemble that of the ocean modified by the land influence. Equability and purity of air would be less. The configuration and character of the adjacent land would influence a coast climate. Marine climates may be divided into humid marine and marine with moderate or slight humidity. Under the above subdivision such climates as are warm are chiefly to be considered. Of the warm, humid marine climates Madeira, the Canaries, the West Indies, Florida are examples. Such climates exercise a sedative effect upon the nervous system and mucous membranes, and are useful in chronic bronchitis with emphysema, bronchial catarrh, and pulmonary congestion in elderly people without

cardiac complications. Of the warm marine climates with moderate or slight humidity we have the Riviera, the coast resorts of Southern California, Southeastern Georgia. The effect and uses of such climates are practically the same as those of the previous class. The sea-coast resorts of the North may be classed under cool marine climates with moderate humidity.

Of the inland climates we have first the low ones, such as Egypt, France, Lakewood, the interior health resorts in the Southern States, the low plains of Arizona, portions of Texas and the inland resorts of Southern California.

Such climates are also susceptible of classification according to temperature and humidity. Their uses as health resorts are very varied; pulmonary tuberculosis, bronchitis, cardiac and renal disease, gout, rheumatism are some of the diseases likely to be benefited by a low, dry, warm inland climate.

Medium and high altitude climates differ only in degree. Not only does the elevation influence the character of the climate, but the latitude, their proximity to the ocean and to mountain ranges, and the configuration of the surrounding country. The general climatic characteristics of mountain health resorts are: A rarefied atmosphere, aseptic air, increased diathermancy, dryness, abundant sunshine and a comparatively low temperature. The chief peculiarity is the lessened barometric pressure, and upon this feature probably depends a large part of the value of such a climate in the treatment of pulmonary tuberculosis. High altitude climates are found in all the four quarters of the globe, but many which are climatically valuable are unavailable on account of the absence of suitable accommodations.

To consider briefly the value of various climatic factors and their influence upon the human organism:

Temperature.—Extremes of temperature, unless more or less neutralized by some modifying influence like the greater diathermancy of the air in altitudes or extreme dryness, are incompatible with a genuine health resort.

Humidity.—In the majority of health resorts a dry or moderately dry air is desirable. When judging of the dryness or moisture of the air of a resort the relative humidity is generally taken as a guide, but must always be considered in connection with the temperature. According to Solly 50% or less relative humidity is dry; 65% to 75% is medium; 75% to 85% is moist. The dew point and evaporation point are also to be taken into account in considering the humidity.

Rainfall.—According to Weber considerable rainfall is not always an injurious condition, provided time enough be left for an individual to take exercise and sit in the open air. If the soil is porous the amount of rainfall is of less importance than if the soil is clayey and holds the water.

Winds.—Winds vary in their effects according to the temperature, humidity, purity and velocity of the air in motion. They often produce

great and sudden changes, which are undesirable for the invalid. Cold, damp winds are never good, and cold or hot, dry winds are too irritating or debilitating. The direction of the wind is also an important factor in its influence upon the invalid. From certain directions it may be laden with dust and germs, exhausted of its ozone, and deficient in oxygen.

Light and sunshine.—A large amount of sunlight is requisite for a good health resort. A cool, dry air and sunshine, such as is met with in the high altitudes, is a combination of striking value for the tuberculous patient. In considering any health resort the average number of clear, fair and cloudy days are to be especially noted. Outdoor life is what is desired, and without a large amount of good weather this is seriously interfered with. The presence of a large amount of electricity in the atmosphere, as in elevated regions, appears to enhance the favorable influence of a climate. The configuration of the land often modifies the climate of a health resort for better or worse. Vegetation is an important factor to consider in the selection of a health resort. Forests render the climate more equable, lead to increase of rainfall, and have a higher relative humidity. The character of the soil of a health resort is an important factor to know. Dryness of soil and subsoil is obviously of advantage. Dampness favors disease, especially phthisis.

A health resort should also possess facilities for comfortable living, pure drinking water, good sanitary arrangements and sewerage, proper accommodations as to ventilation and heating, food of proper quality and properly cooked, efficient attendants and facilities for an outdoor life. In a word, comfort, outdoor exercise, amusement and mental occupation are important features of a health resort, and all conducted under the active supervision of intelligent medical authority.

Ease of accessibility is often a strong point in favor of a resort. No resort should be chosen for a genuine invalid which does not contain one or more good physicians.

The establishment of good sanatoria under careful expert medical supervision, especially for pulmonary tuberculosis, is greatly to be desired.

For phthisis, for which a health resort is sought more frequently than any other disease, the essential climatic conditions are pure air free from dust, protection from high winds, moderate dryness and equability, and a dry soil. It must be combined with the most careful, continuous medical supervision; hence the great value of sanatoria. The stage of the disease, its activity, and the general condition of the patient, are always to be carefully considered in deciding upon a resort.

Assuming that the patient is in the incipient, curable stage, and there are no contra-indicating conditions, the writer would arrange the favorable climates in the following order of excellence: (1) High altitudes, like Colorado, New Mexico, the Alps; (2) low altitudes, like the Adirondacks,

Asheville, the Southern pine belt and Southern California; (3) coast climates, represented by the Riviera resorts; (4) island climates, like Madeira and the Canaries; (5) ocean voyages. As to the results, according to Solley, high altitudes are the best, the sanitariums next, and the lowland climates come third.

Dr. Otis then considered climate in its relation to other affections, including bronchitis, pleurisy, asthma, hay fever, scrofula, rheumatism, renal disease, cardiac affections, chronic diseases of the genito-urinary organs, nervous maladies, neurasthenia, also senility and convalescence from acute diseases.

In regard to home climates: In looking for health resorts we too often forget the possibilities of our own home climate. In the treatment of phthisis as well as other diseases we can not always obtain surprising results by the painstaking utilization of the favorable climatic conditions existing in a patient's own locality. A judicious arrangement of rooms and verandas so as to obtain the utmost possible sunshine and out-of-door life, ingenuity in providing shelter from the wind, ample ventilation and an equal attention to the hygienic, dietetic régime which we would give in a health resort, with the same assiduous devotion to getting well, may produce as happy results as those obtained in many well-known health resorts. Therefore the physician or his patient should not give up hope by any manner of means if the conditions preclude a change of climate. "I can cure consumption in any climate," said Dettweiler.

Dr. Farlow: Dr. Otis' paper reminds me of an incident at the Boston Dispensary last January. I had just been examining a woman with tubercular laryngitis who had recently returned from Arizona in much worse condition than when she left Boston.

In contrast to this case Dr. Otis asked me to see two young women who had spent the winter in Rutland. Before leaving Boston one had a large cavity in one lung, and the other patient had marked tuberculosis of both lungs. They lived in a boarding-house kept by a man who had suffered from tuberculosis. He insisted on their being out-of-doors nearly all day, and the windows of the house were kept constantly open. One patient had gained about 10 lbs., and was the picture of health, and the signs had practically gone from the lungs of both of them. They said they did not like the smells in the houses in the city, and did not see how any one could live with the windows closed and the registers open.

I remember the case of a young man who had trouble with his lungs and larynx. His friends secured him a position to look after the sheep in Franklin Park. He had an occupation, got his board and a little extra, and his condition improved very much.

At this season of the year there are many persons who complain of our springs being too severe for their throats and lungs. They stay in Florida until it gets too warm and then come directly home. It is much better to make stops on the

way North in order to accustom themselves gradually to the colder weather.

I have been impressed in the last few years with the improvement in the buildings in the various health resorts. Formerly many of the hotels were not provided with good piazzas, sun parlors and shelters, and patients were obliged to stay in their rooms in stormy weather; but now better provision is made to enable patients to be in the fresh air, even when the weather is bad.

The fact that many unsuitable cases go long distances from home in search of health should not be laid too much to the fault of the physician, because the patient and his friends often insist that a change should be made, even against the advice of the medical attendant. If there were suitable sanatoria in healthy regions near home, it would be a great boon to the whole community.

The question of climate for asthmatics is a very difficult one, as each case is a law to itself. As regards hay fever, I have only one patient who suffered from the disease in Europe.

Dr. EDGES: Dr. Otis made the remark that the exhalations or the fragrance of spruce, etc., were considered beneficial, but I don't think he expressed very plainly how much real value he attached to that. He also spoke of traveling in Europe as a prophylactic to hay fever. Does he mean in Europe generally or climates analogous to what we should find here for the same purpose?

Dr. WITHERTON: It seems to me there is more than one consideration which should be borne in mind in trying to find a climate suitable for pulmonary tuberculosis. A certain number of people are found who go away without any medical direction about it at all, and others who are started off by some medical man and flounder about aimlessly with very little medical supervision. I have repeatedly seen cases of that sort. Within a few days I have heard of a former patient who, without my knowledge, had been sent to Florida, and the family have sent a trained nurse to bring him back. There was no reason I know of why he should have gone to Florida. Four or five years ago a man with advanced bilateral pulmonary consumption asked my opinion as to his going to Colorado, and I said I thought he had better not go. He went and chafed about there, undertook to ride horseback, had some hemorrhages, and was finally brought home nearly dead. I was asked to meet him with an ambulance. He is still alive and better than he was any time out there, simply because he is at home and contented to live in a sensible way. He has spent almost all his time in a place which is not, from the climatic point of view, particularly desirable, in the vicinity of Seitate, spends his time out of doors shooting occasionally, stuffing the birds he shoots. I cannot see that the disease has made any very great advance in the last three or four years. Certain it is that abstract climatic considerations are of much less value to the patient than well-ordered régime may be at home, as Dr. Otis said in the last paragraph of his paper. I suppose many of the gentlemen present are familiar with the sanita-

rium at Saranae. I had an opportunity of seeing it for the first time last autumn and was very much impressed by the method in which the patients' lives were ordered there even down to the smallest details. It was a particularly rainy time when I was there. These patients were out of doors, almost all of them, although it was raining at the time; I do not mean to say exposed to the rain, but sitting on the veranda. The place is a sort of plateau overlooking a river. There is a large building which is a central ground for meeting, and which contains the dining-room, to which all patients, except under unusual circumstances, are expected to come, as they are not allowed to have the meals served in the rooms except in extreme cases. They sleep in cottages scattered around, each containing four rooms with a common sitting-room. Each of these four rooms is ventilated by transoms and windows. Around the veranda of the central building there are little places set into the brick wall which can be opened and swung out on a hinge which contain receptacles for sputum. The patients are expected to use those and not the sputa cups which are so disgusting and so common in some other places. They rise and expectorate into one of these places, close the door which conceals it, and sit down. These are carefully looked after. Patients live there six months as a rule. The results certainly are vastly better, even in a place which is not altogether admirable climatically, than the average patient gets from an ideal climate if not properly supervised.

I think what Dr. Otis said about the possibility of carrying out a good sensible and effective treatment for early tuberculosis even at home is very important indeed. The avoidance of depressing influences, of homesickness, of improperly cooked food, of crowding in boarding-houses, etc., by residence at home certainly weighs very heavily in favor of that sort of treatment, unless the climatic treatment can be combined with suitable hygienic oversight exercised in some such place as Colorado.

Dr. BLODGETT: I can only express my great satisfaction at the paper Dr. Otis has presented; but I wish he had gone a little more deeply into the subject of home treatment. Dr. Witherton has alluded to the class of patients who are sent away somewhere, apparently aimlessly, without sufficient medical or other direction, and who often wander about in locations in which none of the conditions existing at home are to be found. Oftentimes the best friend and protector these unfortunate individuals can find is the undertaker, who in about 9 out of 10 such cases has to perform his final professional duty in a comparatively short time. I have had the opportunity of seeing a little of the Southwest, and while every other condition would seem to be favorable, yet those requisite and important essentials are very often lacking. In Colorado I saw some very desirable locations where the broad expanse of territory and the equable and salubrious climate afford ample range for all sorts of out-of-door exercises. Cat-

the ranching or sheep herding was considered at that time and place as the most suitable occupation for consumptives of a certain class, and certainly some of those thus affected seemed to do pretty well. I think the greatest cruelty that can be inflicted on the patient with advanced tuberculosis is that often observed, in which the physician at home who has had the care of the patient till the case is absolutely hopeless, then allows him to journey alone to some place which the physician knows little or nothing about, and the patient knows nothing at all about. I also believe in the very great efficacy of sensible, rational home treatment. I have seen tuberculosis get well here in Boston, even when hemorrhage had occurred, and bacilli were abundant in the sputum, and before the opening of any institution for the reception of tuberculous patients for a special form of treatment. We all know that the ordinary hospital treatment for tuberculosis is not as a general thing beneficial to the patient; but if the home, even with all the inequalities and disadvantages of our climate, can be made suitable for the patient, it is my opinion that many cases would be a great deal better among their friends and their familiar surroundings than if sent away under circumstances so very depressing and deprived of everything that has hitherto contributed to their welfare and comfort. I am more and more convinced of the value of home sanatoria, and I believe the time is coming when we shall look upon tuberculosis as a disease suitable for local treatment in suitable places in all parts of our country, and I think in this connection that the efforts of the Apalachian Club, the members of which are laboring for exactly the aim Dr. Otis has so clearly presented, should be encouraged by our profession.

DR. BRECK: I think a point to be considered in ordering a change of climate, especially where the change is radical, is to make it a gradual instead of a sudden change. As an example, I should refer to early tuberculosis where, for instance, the patient goes from this point to a point of high altitude. Oftentimes, the change being too radical, evil results are produced, notably hemorrhage, whereas if the change is made gradually such bad results are avoided, and the patient obtains great benefit.

DR. E. L. PARKS: I would like to say something about Santa Barbara. I was there a few years ago. I went, not for my health. There were a great many cases sent there by one distinguished Fellow of Massachusetts Medical Society from this neighborhood who arrived when I was there, far gone in consumption, and they should not have been sent. In many cases they came without any near relative to look after them, and were insufficiently provided with money. There were the hotel, rather expensive, and a lot of boarding-houses. The boarding-houses did not want to take that class of people, who had nobody to look after them personally, and who could not pay very well. Many of them were only too glad to come East. I mention this to emphasize the idea already expressed that if you are going to

send your patient off a very long distance from home two things should be considered, first, that they should have somebody with them to look after them, and also not to go with too small a cash account behind them. I think Dr. Otis rather favored high altitudes for consumptives. There were a good many cases in Santa Barbara who went up on the foothills only to come back to the tableland which is down by the sea. They could not stand the moderate altitudes of the foothills and wanted to get back as soon as possible to the sea level. I do not say this in opposition to what Dr. Otis said, but just as a suggestion. Some cases could not stand the altitude.

I should like to say something about Hot Springs, Va., because many people go there from Boston. I was there for my health two winters ago. It is not strictly climatic treatment. The baths there are extremely good for rheumatism, not extremely good for gout, and they do not want anybody with syphilis down there. The hotel which monopolized the valley is expensive; charged about what it pleased. Dr. Hunter McGuire told me he had been to the baths in Europe and considered these the best he had seen anywhere. The oldest practitioner there, who has practised for thirty years in Hot Springs, Va., was reported to me to have said that for any case of gout the springs in Michigan were better than the springs in Virginia. For certain nervous diseases it is an extremely restful place. The air and bathing are extremely good for many nervous people, and extremely good for rheumatism.

DR. J. S. GREENE: A sufferer from asthma, a physician whose name I do not recall, read a paper recently before the Norfolk District Society on asthma and the various resorts most suitable for asthma, and it is his opinion and experience that Arizona is the best of all.

DR. STONE: There is a great deal yet to be said, it seems to me, against the indiscriminate ordering of patients to go away. On the other hand, there is the pressure that comes from the patient himself or herself to go away, and almost forcing you to make some provision for them in a more favorable climate. Very often one finds, especially among the poorer patients or persons belonging to lodges, that the societies or friends come to realize that a certain member has consumption, and they have heard that going away is a good thing, and get together and offer a certain amount of money; and the man comes quite enthusiastic, having been promised \$100 or \$150 to go away somewhere, and where can he go? It is very hard to persuade that man that it is not the best thing to do, that he can expend that money a great deal better at home. There can be nothing more cruel than to send such a man away unadvisedly, as is often done. Patients frequently come to me asking one more bit of advice before they make the step of mortgaging their house or borrowing comparatively large sums of money in order to go away expecting to get cured within a few weeks or months. Then, when the patient is sent away, and you have selected the most suitable

place according to the needs of this special case, it is very important to tell them what they may expect in the way of weather. Last winter I saw a young man, evidently phthisical and very despondent, coming back from a trip to Florida. He had found the rapid changes from the hot weather in the middle of the day to the cold weather at night hard to bear, and, not having carried the proper clothes, nor provided for these changes, he had caught cold, and much discouraged he was going home, thinking he could do better in Maine than away.

Not only must the climatic conditions, as far as possible, be anticipated, but provision must be made for the occupation and amusement of the patient. If this is not done, homesickness and discontent is pretty sure to result before the patient can get an interest in the quiet life of the place to which he is exiled.

One serious question in regard to sanatoria has presented itself to me,—what is to be the result of three months to two years loafing on a large number of patients? They are simply kept in the open air and do nothing excepting to attend to their health. When they get through they are not prepared to do anything else except to watch their symptoms, and what is going to support them the rest of their lives is a pretty hard question to answer. It is a great misfortune, I think, that in our salubrious climates there is so little chance for actual wage-earning after a patient gets there, and especially after he gets better; and that so many are obliged to come back to conditions such as we have in and around Boston and spend so much of their vital energy in simply living; consequently have so little margin of strength, above what is required to meet the exigencies of the climate, for gaining their daily bread.

DR. BRADFORD: Dr. Otis did not mention the Sandwich Island as a health resort. I do not know anything about it, except that I have read it is a very good climate.

DR. OTIS: I don't think there are any reports in regard to the treatment of phthisis there. The climate has been thoroughly studied. It is a very remarkable, equable climate and a very sunny one and undoubtedly good for anything that requires continuous out-of-door life. I spoke of insular climate in general, and I suppose it would come under that. It has not been used for the treatment of tuberculosis to any great extent, so far as I know, I suppose on account of the distance. I do not know of any patients going there for the specific purpose of being cured of tuberculosis.

DR. BRADFORD: How is the climate of Santa Fe?

DR. OTIS: If I remember the elevation correctly it is from 5,000 to 7,000 feet high, and it is a place to which the Colorado people often send their patients when they desire them to have altitude and a milder climate than Colorado for a while in the winter. The trouble, I think, is that the accommodations have not been all that could be desired.

DR. BRADFORD: You spoke of the effect of the sun on the unclothed body. Have sun baths been used to any practical amount, and are they feasible?

DR. OTIS: As I remember it, Fr. Kneipe had a couple of elevated enclosed walks built and compelled his patients to walk up these in the morning sunlight and gradually divest themselves of their clothing till they arrived in a nude state. He is the only one who attempted it on any such scale, so far as I know. There are some interesting papers by Dr. Robinson in regard to experiments on the naked body, and he is of the conviction that we do not utilize as we might the benefits of air and sunlight upon the skin to give greater invigoration and tone.

With regard to Dr. Edes' question as to the balsamic exhalations, I said, "Supposed to be one of the benefits of the resort." Whether or no this is actually a fact I do not believe one can say. Where you get a resort surrounded by pines, there seems to be an idea that there is a subtle influence for good, but it may be merely imaginative.

In regard to traveling in Europe, Dr. Farlow, I think, has answered that question. I recall the case of a lady who had two different arrangements which she made,—she suffered with hay fever,—one was to go to Bethlehem, N. H., and the other to go to Europe; by both of which she enjoyed immunity from this disease. Whether the peculiar plant which is supposed to excite the disease does not exist in Europe I do not know.

I would like to emphasize what Dr. Farlow said; that the physician is blamed altogether too much. We talk about the physician sending away advanced cases. My experience is that they go themselves. A gentleman came to me last fall with his wife. He had sold his house and made up his mind to go to Phoenix, Ariz. I told him it was no use to go there, as his wife was hopelessly advanced. He said: "I don't care. I shall feel better if I take her out there and she dies." I think it is an element in human nature that does that thing. I do not think we should blame the physician; it is the last attempt on the part of the patient or his friends to do something which they blindly think may be beneficial. Until you change human nature, it seems to me, you will have a great many hopeless cases go to these health resorts and die.

One word in regard to Santa Barbara. I never should consider that as an ideal health resort for tuberculosis. I don't think any moist seaside climate with considerable fog, such as exists there, is a proper climate for tuberculosis. I dare say they may get well there, as in any climate where one can live out of doors. I do think, however, so far as we have statistics, that those of the altitudes show better results. Within the last year or two Tulpan has published most admirable results of sanatorium treatment at Davos, which I do not think can be equalled by those from the lower altitudes.

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OPENING OF THE MEDICAL SCHOOLS.

The leading medical schools of the country are about to reopen their doors for another year. There is probably no department of education in which a more active interest is being taken than in medicine. The unprogressive routine which for many years had marked the teaching in the various departments of medical knowledge has given place to an enthusiasm for reform and progress which bids fair in a very short time to place the whole subject on a high plane of efficiency. A very elaborate course of study, much of it in close affiliation with the academic department, has been arranged at the University of Chicago, which if successful will go far toward placing medicine where it properly belongs as a branch of liberal education, without in the least detracting from it as a special training designed to reach a definite practical end. This step taken by the University of Chicago is one which may well be imitated by all medical schools which stand in loose relation to universities. The tendency has been too much toward a complete separation, often necessitated in part by the location of medical departments in large cities at a considerable distance from the parent institution. Cornell has adopted the plan of allowing the first year of medical study to be passed at Ithaca and the last in New York, although, if we are correctly informed, not enforcing this separation. Whatever arrangement may be made, it is eminently desirable that students should be made to realize that their special study of the fundamental medical branches is not to be artificially separated from the body of general knowledge, of which the preliminary branches of medicine are an integral part.

This year, for the first time, Harvard requires the degree of bachelor of arts or its equivalent of candidates for admission to the medical school.

Several other schools have already adopted this plan, and, however unjust it may be in individual cases, there can be no question that it will tend toward raising the standard of the student body as a whole. It is almost equally evident that such a regulation by no means establishes a uniform or just standard of preliminary training. With the absolute freedom in choice of studies now being allowed in the academic department of the university, it is evident that students may come to the medical department with most diverse training, and many, no doubt, with but small equipment for the special advanced work of the medical course. What will be gained, however, is a general mental training, the value of which can hardly be overestimated. The unfortunate disparity in this respect which now exists so conspicuously, and which is a constant source of annoyance to teachers and unfairness to pupils, will be obviated in great measure. A second advantage will be a reduction in the number of students, which the recent ideas of sectional and individual teaching makes most desirable. The requirement of a higher standard of admission to our medical schools is unquestionably a step in the right direction, though we are equally convinced that many details remain to be settled by experience before a perfectly just solution of the question can be reached. The student now about entering upon his professional studies finds himself in a peculiar position. He is, in a measure, the subject of experiment in matters of teaching, and will no doubt be both benefited and harmed by the conditions through which we are passing. He will find his teachers enthusiastic and eager to demonstrate the correctness of the new points of view by careful and thorough teaching; he will also find himself in the midst of a transition in method which will undoubtedly lead to mistakes and errors in judgment, of which he will be the victim. The risk is not great, however, and we envy the well-equipped student as he starts on his somewhat unknown voyage. In this time of readjustment it must also not be forgotten that teachers have much to learn from students. There are no better critics of the success of new methods than the students who are being subjected to them. An intelligent student knows unerringly whether or not knowledge is being presented to him in assimilable form, and teachers would do well to curb their own enthusiasms when they run counter to the general opinion of the student body.

We print in another column a paper by a teacher of wide experience on some of the problems in medical education which are awaiting solution in the near future. Dr. Burrell has epitomized the lessons of the present and their bearing upon the future. We commend it to our

readers as a calm presentation of facts, about which we may differ in minor details but not in essentials. A valuable working basis of instruction will no doubt soon be reached, however impossible it may be with the rapid growth of knowledge to lay down arbitrary rules for the guidance of the rapidly multiplying classes of medical students. We may for the present rest satisfied that never before has there been such a degree of enthusiasm, so many reforms and so ardent a desire to teach for teaching's sake as now. We congratulate the incoming classes of students on the prospect of their four years of study, and can assure them that however unpromising the outlook may appear at the end of those four years, they will be far better equipped to meet the problem of a medical career than were their predecessors of a few years ago.

THE ARMY AS A CAREER.

To medical men about entering upon their professional work, the army and navy offers certain opportunities which should prove attractive. The examinations for positions in the regular army or in the navy are rigid, as they should be; the government does not want poorly-equipped men who turn to this life as a last resort, and, we are glad to note, is taking measures to prevent the admission of such persons to a service which should be dignified and useful, with all the opportunities it now offers for the development of the individual's special medical aptitude. A circular of information, recently sent out regarding the medical corps of the army, announces that the corps has recently been increased by congress from a total of 192 to a total of 321. Because of this increase of over 100, there are now 123 vacancies, and it is, therefore, pointed out that medical men desiring to enter the service have at this time an unusual opportunity.

To many men such a life does not appeal; it means an uncertain home, a lack of independence, and the possibility of not being able to carry out a cherished line of medical work. On the other hand there is the assurance of immediate self-support; the salaries, though by no means munificent, are sufficient for the requirements of the position; the possibilities are increasing year by year of doing original work of great general utility; the whole standard of the medical corps is being raised, which will undoubtedly lead in the near future to a juster appreciation of medical men by the rank and file of the army. To bring this about the quicker, it is desirable that a certain proportion of our best trained men be induced to enter the army; they would thereby be accomplishing the double end of adding to the prestige

of the medical department of the army, and thereby indirectly benefitting the profession at large. We cordially hope that the existing vacancies may be rapidly filled by men of high character and unquestioned attainment.

PANCREATITIS AS A CAUSE OF PRESIDENT MCKINLEY'S DEATH.

THE statement, to which we have already alluded, has been made with some positiveness in the daily press that the fatal bullet in the President's case had been poisoned, and that this was responsible for the gangrenous condition of the track of the bullet wound, as found at the autopsy. This theory, attributed to one of the attending staff, obviously appeals more to the popular than to the scientific mind, and has been made much of in the daily press. The theory that the necrotic condition of the tissues along the course of the bullet wound was due to the destructive action of the pancreatic juices is much more reasonable, and may very well furnish the true explanation of the conditions found after death. It is true that the pancreas was not observed to be wounded at the time of operation on the stomach, but such injury was not essential to subsequent disorganization of the pancreas and extravasation of its secretions. A secondary acute pancreatitis might very well explain the pathological changes in this organ itself and along the track of the bullet wound, as revealed post mortem.

MEDICAL NOTES.

THE ARMY CANTEEN.—The most severe blow which the prohibitionist element has yet received, in connection with the recent abolishment of the army canteen, was dealt by the American Public Health Association at its recent meeting in Buffalo, this society passing the following resolution: "*Resolved*, that this body deplores any action in curtailing the operation of army canteens or post exchanges, as formerly existing in the United States, and, in the interest of general and military sanitation and temperance, recommends their re-establishment on their former basis." This resolution was introduced by Dr. C. A. Lindsley, an ex-president of the association and the present president of the Connecticut State Board of Health, and was seconded by Dr. Wm. G. Bissell of Buffalo, an officer of the National Guard. A statistical paper, showing the advantages of the canteen from the sanitary standpoint, was read by Dr. E. L. Munson, U. S. Army, which was followed by strong addresses favoring the canteen, made by Dr. C. R. Greenleaf, assistant

surgeon-general, U. S. Army, late chief surgeon in the Philippines, and Dr. A. L. Gihon, medical director, U. S. Navy, retired. In the vote which followed only a single member out of the 200 present voted against the resolution. As similar resolutions have been passed at the recent meetings of the Association of Military Surgeons and of the American Medical Association, the Secretary of War will find himself officially supported, in his coming efforts to secure the re-establishment of the canteen by Congress, by the military surgeons, the sanitarians and the medical profession of the country at large. It would appear that the prohibitionists have seriously damaged their own cause by their unwise attack upon an institution the practical results of which are so uniformly regarded as beneficial to the army by those who are most interested and are in the best position to pass judgment in the matter.

APPOINTMENT OF DR. P. M. RIXEY.—It is announced that President Roosevelt has selected Dr. P. M. Rixey, in accordance with the expressed wishes of the late President McKinley, to be the next surgeon-general of the navy in place of Dr. Van Reyppen, whose term would have expired in December. Dr. Rixey has been the White House physician for many years.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Sept. 25, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 37, scarlatina 14, measles 9, typhoid fever 38, smallpox 5.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending Sept. 21, was 216, as against 227 the corresponding week last year, showing a decrease of 11 deaths, and making the death-rate for the week 19.6. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 23 cases, 1 death; scarlatina, 48 cases, 1 death; typhoid fever, 18 cases, 6 deaths; measles, 18 cases, 1 death; smallpox, 9 cases, no deaths. The deaths from consumption were 22; pneumonia, 13; heart disease, 13; bronchitis, 2; marasmus, 7. There were 12 deaths from violent causes. The number of children who died under 1 year was 72; under 5 years, 82; deaths in public institutions, 50.

ENFORCING THE LAW REGARDING EXPECTORATION.—Fifty-six men were recently summoned to appear in the Charlestown District Court, charged with expectorating on the floors of elevated cars and stations. Only one of the men appeared. He was fined \$20, which he paid. In imposing sentence the judge said he intended to

put a stop to the nuisance, and that he would probably hereafter impose the full penalty of \$100. Action has also been taken against others.

INVESTIGATION OF KOCH'S THEORY.—It is reported that King Edward has appointed a commission to investigate the relations between human and bovine tuberculosis. Sir Michael Foster, Dr. Sims Woodhead, Dr. Harris Cox Martin, Prof. J. McFadyen and Prof. R. W. Boyce compose the commission.

NEW YORK.

INTERNATIONAL CONGRESS OF TRAINED NURSES.—The annual meeting of the International Congress of Trained Nurses was held in Buffalo during the past week, and on Sept. 20 Miss Morten, a delegate from the Trained Nurses' Club of London, read an interesting paper on "London School-board Nurses." In the course of it she said that there is no daily medical inspection in primary schools in England, although the spread of both major and minor infection among school children is fully recognized. So, while the authorities are deciding what they will do with regard to checking this spread of disease, private individuals have been sending nurses to some of the schools in London, Liverpool and other cities and doing the work quietly as a charity. The staff of nurses, however, has always been small, so that they have been able to visit only the very poorest schools, leaving the others without such attendance. The work done by them consists in weekly, or, if necessary, daily visitation of the schools, seeing the children sent to them by the teachers, dressing small sores, cleaning dirty heads and bathing sore eyes. When necessary, the teacher is advised to exclude a child, or a bad case is followed to the home of the patient. After six months of regular visiting, according to Miss Morten, head and eye chronic cases are cured, and a higher standard of cleanliness exists in the school, so that the nurse's visits after that become less frequent and shorter. The ideal, she believes, would be for six school nurses in a district to visit under a physician, reporting to him when major infections, such as diphtheria, were found, and attending to the enormous number of cases of minor infections themselves. "Towards such an ideal," she said in conclusion, "we are slowly and surely tending, and then the School Nurses' Society will gladly dissolve and hand over its charitable voluntary work into the hands of the school authorities." Another English delegate, Miss Hughes, read a paper entitled "Historical Outline of the Origin, Growth and Present Status of District Nursing in England," and the discussion on district nursing was continued throughout the morning session. One of the most valuable contributions was on "Nurses' Settlements," by Miss Wald, head worker of the Nurses'

Settlement of New York, who described some of the systematic methods now in use in caring for the needy sick of the city. At the afternoon session on that day army and navy nursing was the topic considered, and the speakers included nurses who had served in Cuba, Porto Rico, India, South Africa and the Philippines.

A NARROW ESCAPE FROM DEATH.—A young man 18 years old recently had a remarkable escape from death. He was a riveter's apprentice employed on the new East River bridge, now in course of erection, and fell from one of the iron girders to the ground, a distance of 105 feet. Fortunately, however, he landed in a heap of sand in the street below, and, while rendered temporarily unconscious, the only injuries he sustained were a broken arm and some unimportant contusions.

A CENTENARIAN.—Patrick Condon died on Sept. 16 at Secaucus, N. J., at the age of 103 years. He was a native of Ireland and had lived in America since 1848.

Miscellany.

A FATAL STING.

THE folly of neglecting trivial accidents is fortunately seldom emphasized with such severity as it was in a case reported in the lay papers this week under the heading of "Death from Acute Blood Poisoning." A man while employed in some printing works complained of being stung over the left eye. Although the accident happened in the morning, he did not seek medical advice until the following day, and he died in the same afternoon. At the inquest it was found that "death was due to acute blood poisoning, caused by a sting, probably that of a wasp." We have no guide as to what evidence led to the suspicion of a wasp. Unless such evidence is strong the probability is rather in favor of the sting having been delivered by one of those flies, numerous in some localities, which are capable of perforating the epidermis, and which are more likely than wasps to be the purveyors of virulent septic material. However the poison was introduced, and wherever it came from, it must obviously have been of a high degree of virulence to have caused death so rapidly. The site of infection, close to the loose tissue of the eyelid, was unfavorable for the patient, and should have led to such medical measures being sought as might have prevented the untoward issue of the case. Strong antiseptics applied early might have controlled, if not counteracted, the poison, and the rapid spread of inflammation in the cellular tissue could most probably have been at least considerably diminished by suitable applications. We are never anxious to encourage people in making a mountain of anxiety out of every molehill of accident, but in such cases as those of a sting it is better to

pay a visit to a medical man, though it afterwards turns out to have been unnecessary, than to risk disaster which might be prevented by such a visit. — *Lancet*.

Correspondence.

NEEDS OF THE SHARON SANITARIUM.

BOSTON, Sept. 16, 1901.

MR. EDITOR: In accordance with the recent movements in favor of the establishment of sanatoria for consumptives, I venture to place before your medical readers a few statements about the Sharon Sanitarium, hoping that professional men may, by their influence, aid the institution financially, so that it may be gradually relieved of the constant dependence upon the public for support. It is of essential importance that money should be obtained without delay to meet the current expenses.

After ten years of existence entirely free of debt, the treasury, owing to the death of a large number of those who were generous contributors from the outset, is almost depleted. Recent additions to meet the ever-increasing demands for admittance have increased the outlay, and, unless funds are forthcoming, the institution may be obliged to close its doors, a condition which, in the minds of all connected with it, would be deplorable, considering what has already been accomplished and what can be done in the future in combating the ravages of consumption.

The lot of the consumptive is a hard one at best, but now made harder by the ever-increasing unwillingness of hotels or even private houses to admit those suffering from this disease. For this state of affairs the medical profession is responsible, for we have taught, and rightly, that consumption is a communicable disease under certain conditions, but it is our duty now to go farther and use every effort to make adequate provision for those who cannot obtain proper shelter in consequence of our teachings.

We know now from experience that many cases, which in former years would have been considered doomed, can be restored to health. We know, moreover, that all such institutions teach a lesson which is of incalculable advantage to future generations; namely, the laws of hygienic living. It is for this reason that I make the appeal for the Sharon Sanitarium which has constantly taught these lessons in our community. Even those patients who have not recovered have been taught the simple but important methods by which the spread of the disease can be checked. At the same time they have learned by their own experience in hygienic methods how others can be helped, and have preached this gospel when they have returned to their homes.

The price of board at the sanitarium is but five dollars (\$5.00) a week, which includes everything but washing. With the necessity for plenty of the best nourishing food it will be easily seen that the outlay far exceeds the income. The large and comparatively new State Sanitarium at Rutland has the wealth of the State behind it, but the Sharon Sanitarium must depend upon private effort to meet its wants.

From the foregoing it will be seen that it is virtually a charitable institution. It is intended solely for women of very limited means and not for the more well-to-do classes. Cases of far-advanced disease are not received and, so far as possible, only those who have slight symptoms are admitted. It would be a pleasure to the directors to receive visits from members of the profession and others at any time. The resident physician and the matron will gladly explain the workings of the sanitarium to all.

The medical profession can do much to aid the directors by calling the attention of wealthy patients to the pressing needs of the institution. I trust this appeal may not be made in vain.

Yours truly, VINCENT Y. BOWDITCH, M.D.

METEOROLOGICAL RECORD

For the week ending Sept. 14, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer		Relative humidity	Direction of wind		Velocity of wind		Weather		Rainfall in inches
		Daily mean	Maximum		Daily mean	Maximum	Daily mean	Maximum			
Sep. 8, 24.94	62	70	54	63	69	66	N	NW	15	10	C.
M. 9, 26.08	61	72	56	67	65	68	N	NW	12	10	C.
T. 10, 26.08	64	74	55	66	71	68	N	NW	7	7	F.
W. 11, 26.80	68	74	63	65	83	82	N	NW	7	8	R.
F. 12, 26.68	68	75	62	82	85	88	N	NW	15	15	O.
S. 13, 26.63	74	80	68	80	75	80	N	NW	7	7	O.
S. 14, 26.65	70	79	62	75	77	76	N	NW	7	7	C.
Mean	26.88	75	59	76							.70

* D., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPT. 14, 1901.

CITIES	Estimated population	Reported deaths in each	Deaths under five years	Percentage of deaths from					
				Infectious diseases	Acute lung diseases	Scarlet fever	Diarrhœal diseases	Diphtheria and croup	
New York	3,437,292	1,411	636	39.75	5.31	1.62	24.00	1.4	
Chicago	1,696,555	—	—	—	—	—	—	—	
Philadelphia	1,263,697	470	139	21.62	6.04	2.56	4.12	1.40	
St. Louis	575,238	—	—	—	—	—	—	—	
Baltimore	506,957	220	67	29.68	9.09	2.27	13.18	.96	
Cleveland	381,478	—	—	—	—	—	—	—	
Buffalo	352,387	—	—	—	—	—	—	—	
Cincinnati	335,902	—	—	—	—	—	—	—	
Pittsburg	321,016	37	41	33.00	6.19	4.12	6.19	7.23	
Washington	278,718	—	—	—	—	—	—	—	
Milwaukee	285,315	—	—	—	—	—	—	—	
Providence	175,597	77	39	44.29	5.20	1.30	37.79	—	
Boston	560,592	206	88	36.40	7.28	1.94	20.38	4.0	
Worcester	118,421	22	12	31.81	9.09	4.54	9.09	4.54	
Fall River	104,863	52	32	25.00	9.60	—	17.28	—	
Lowell	94,069	46	32	26.09	2.17	2.17	15.22	2.17	
Cambridge	91,886	12	5	16.67	8.33	—	8.33	8.33	
Lynn	68,743	—	—	—	—	—	—	—	
Lawrence	62,559	22	12	36.36	4.54	—	18.18	—	
New Bedford	62,442	14	4	16.66	—	—	—	—	
Springfield	62,659	16	7	15.75	6.25	—	12.50	6.25	
Somerville	61,443	17	7	29.40	—	—	11.76	—	
Holyoke	45,712	16	8	37.50	12.50	—	25.00	6.25	
Brockton	40,093	18	5	50.00	—	—	—	—	
Haverhill	37,175	5	2	20.00	—	—	—	—	
Salem	35,656	19	11	47.31	—	—	42.08	—	
Chelsea	34,072	5	2	20.00	—	—	—	—	
Malden	33,064	10	3	—	—	—	—	—	
Newton	33,587	9	3	33.33	—	—	11.11	11.11	
Hingham	32,631	7	2	—	—	—	—	—	
Taunton	31,636	15	7	26.66	—	—	19.28	—	
Gloucester	28,124	3	3	20.00	—	—	—	—	
Everett	24,236	5	3	20.00	—	—	10.00	—	
North Adams	24,290	—	—	—	—	—	—	—	
Quincy	23,959	7	3	28.60	14.30	—	20.00	—	
Waltham	23,484	9	3	55.55	—	—	11.11	44.44	
Pittsfield	21,756	3	1	—	—	—	—	—	
Brockline	19,935	5	2	—	—	—	—	—	
Chesapeake	19,167	7	4	42.86	—	—	28.60	—	
Medford	18,214	5	3	20.00	—	—	20.00	—	
Newburyport	14,478	10	2	20.00	10.00	10.00	10.00	—	
Melrose	12,962	3	—	33.33	—	—	—	—	

Deaths reported 2,862; under five years of age, 1,199; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrhœal diseases, whooping cough, erysipelas, fevers and consumption) 184; acute lung diseases 161; consumption 290; scarlet fever 14; erysipelas 1; typhoid fever 57; whooping cough 18; cerebrospinal meningitis 9; smallpox 7.

From whooping cough, New York 1, Philadelphia 1, Baltimore 3, Pittsburg 6, Providence 1, Boston 2, North Adams

1. From cerebrospinal meningitis, New York 2, Providence 1, Worcester 2, Gloucester 2, Marlboro and Southbridge 1 each. From scarlet fever, New York 8, Philadelphia 1, Pittsburg 5. From typhoid fever, New York 23, Philadelphia 11, Baltimore 5, Pittsburg 4, Providence 1, Boston 4, Worcester, Lowell, New Bedford, Springfield, Everett, Waltham, Newburyport, Revere and Southbridge 1 each. From erysipelas, New York 2, Philadelphia and Baltimore 1 each. From smallpox, New York 3, Philadelphia 4.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,028, for the week ending Aug. 31 the death-rate was 21.0. Deaths reported 4,613; acute diseases of the respiratory organs (London) 114, whooping cough 63, diphtheria 50, measles 89, fever 46, scarlet fever 32.

The death-rate ranged from 12.0 in Bristol to 50.2 in Newcastle-on-Tyne; Birkenhead 19.2, Birmingham 23.9, Blackburn 21.6, Bolton 23.8, Brighton 24.3, Cardiff 15.1, Croydon 24.0, Derby 23.1, Gateshead 32.1, Huddersfield 20.9, Hull 29.3, Leeds 17.7, Liverpool 22.0, London 18.6, Manchester 27.7, Norwich 23.3, Oldham 22.0, Plymouth 19.3, Portsmouth 20.9, Preston 24.9, Salford 23.5, Sheffield 22.8, Swansea 13.8, West Ham 28.5, Wolverhampton 17.7.

APPOINTMENT.

DR. THOMAS W. HUNTINGTON, Associate Professor of Clinical Surgery in the University of California, Medical Department, has been recently appointed, by the regents of the university, professor of clinical and operative surgery.

RECENT DEATHS.

GEORGE MASON MORSE, M.D., M.M.S.S., died in Clinton, Sept. 23, 1901, aged 80 years.

DR. THEODORE Z. SMITH of Westfield, N. J., died on Sept. 13, in the 51st year of his age. He was a graduate of the College of Physicians and Surgeons, New York, and had practised in Westfield for 25 years.

BOOKS AND PAMPHLETS RECEIVED.

Pneumonia and Its Treatment. By D. H. Keller, M.D., Louisville, Ky. Reprint. 1901.

Our Onomatology in regard to Greek Terms. By Achilles Rose, M.D., Instructor in Diseases of the Stomach, New York Post-Graduate Hospital. Reprint. 1901.

The Ready Reference Handbook of Diseases of the Skin. By George Thomas Jackson, M.D. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1901.

Diseases of the Stomach and Their Surgical Treatment. By A. W. Mayo Robson, F.R.C.S. and B. G. A. Moynihan, M.S. Lond., F.R.C.S. Illustrated. New York: Wm. Wood & Co.

Manual of the Diseases of the Eye for Students and General Practitioners. By Charles H. May, M.D. Illustrated. Second edition, revised. New York: Wm. Wood & Co. 1901.

Holden's Anatomy, a Manual of the Dissection of the Human Body. Edited by John Langton. Seventh edition revised. By A. Hewson, M.D., in two volumes. Vol. I and II. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Operative and Inoperative Tumors of the Urinary Bladder, a Clinical and Operative Study Based on Five Hundred Cases. By E. Harry Fenwick, F.R.C.S. Illustrated. London: J. & A. Churchill; Philadelphia: P. Blakiston's Son & Co. 1901.

Practical First Principles, Simplifying the Study of Normal and Abnormal Structure and Function, and Aiding Diagnosis. Designed for the use of Students and Practitioners of Medicine. By A. H. P. Leuf, M.D. Illustrated. Philadelphia: The Medical Council. 1901.

The Revival of Phenology. The Mental Functions of the Brain, an Investigation into their Localization and their Manifestation in Health and Disease. By Bernard Hollander, M.D. (Freiburg 1. B.) M.R.C.S., L.R.C.P. (London). Illustrated. New York: G. P. Putnam's Sons; London: The Knickerbocker Press. 1901.

The Microscope and its Revelations. By the late William B. Carpenter, C.B., M.D., F.R.S., F.R.S. The edition in which the first seven and the twenty-third chapters have been entirely rewritten, and the text throughout reconstructed, enlarged and revised by the Rev. W. H. Dallinger, D.Sc., D.C.L., LL.D., F.R.S., etc. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Original Articles.

A CASE OF MYELOMA OF THE SPINE. WITH COMPRESSION OF THE CORD.¹

BY JOHN JENES THOMAS, A.M., M.D., BOSTON.

This case is presented partly because of the interesting features of a case of spinal surgery, and partly because of the rarity of the form of new growth, this being the fourth case put on record in this country.

The patient, a man 39 years of age and married, was referred to me by Dr. Hunting of Quincy, to whom I am indebted for information and notes on the progress of the case. He was a lawyer by profession, and was born in New Hampshire. There was nothing in the man's antecedents which had any bearing on the case. He had been married about 1½ years, but had had no children. When 10 years of age he had diphtheria, and an ulcerated throat when 15. About 1½ years ago he had an attack of urticaria. He had never had syphilis, nor was there any history of rheumatism or trauma. On Aug. 15, 1900, he was attacked by a severe pain between the shoulders which confined him to the bed for four or five days. Since that time he had had more or less pain in the back but had been about. Since about Oct. 1 he had noticed a slight uncertainty in the use of his legs. Once on stooping to pick up something he fell upon the floor. This uncertainty was no more noticeable in the dark than in the light. The feet had felt numb, and there was a sensation as of something tight about the abdomen. For about this same length of time he had noticed that there had been some difficulty in retaining his urine after the desire to micturate had come on, and there was occasional difficulty in starting the stream. He had also noticed a slight lessening of the sexual desire but no loss of power. There had been no dizziness and no headache. There was pain in the back between the shoulders, which was aggravated on motion and diminished on remaining quiet. Examination on Oct. 18 showed that there was nothing abnormal in his gait, but there was swaying on standing with the eyes closed. There was no ataxia or inco-ordination in the movements of the hands or legs. The strength was good in the arms and fair in the legs, though the patient stated that it was diminished in the legs. All the reflexes in the arms were normal and equal, the knee jerks normal and reinforceable and not increased. There was no ankle clonus and no front-tap contraction. The plantar reflex was absent on both sides, as were the cremasteric, abdominal and epigastric reflexes. Sensation to touch and pain was diminished below the level of the spine of the eighth dorsal vertebra and the eighth rib. The pupils were normal to light, and on accommodating. There was no tenderness of the spine to pressure or percussion. There was a slight general kyphotic curve of the spine, more marked in the upper

dorsal region, and the movements of the spine were fairly free. No muscular spasm could be made out, and there was no pain in the back on pressure upon the head. A diagnosis was made of pressure upon the spinal cord, probably from tumor in the upper dorsal region, and a plaster-of-Paris jacket, massage and a vigorous treatment by antisyphilitic medicines were advised.

The patient was seen again on Nov. 16. At that time the gait had become slightly ataxic, Romberg's symptom was present, and there was slight inco-ordination in the movements of the legs, though this was not present in the arms. There was slight disturbance of the sense of position of the toes, but none of that of the arms and hands. There was a slight weakness of the legs, but no paralysis or even marked paresis either there or elsewhere, and there was no atrophy of any muscles or groups of muscles. The pupils reacted normally to light, and on accommodating. The reflexes in the arms were normal, the knee jerks were increased and equal, but there was no patellar clonus. There was an ankle clonus in both feet. The plantar reflex was absent. The cremasteric reflex was present on the left and absent on the right. The abdominal and epigastric reflexes were absent. Sensation of pain and temperature was much diminished, and that of touch somewhat diminished to the level of the fourth rib, and the fourth dorsal spine in the back. There was no knuckle in the back, and no tenderness of the spine to percussion or to pressure. Motion which before had been painful was then free and painless. The patient said that the uncertainty in the gait had increased, and the difficulty in controlling the bladder still continued, but the girdle sensation had gone.

On Dec. 17 he was seen again in consultation with Dr. P. C. Knapp. At this examination it was noted that the gait was slightly spastic-ataxic. Romberg's symptom was present; there was inco-ordination of the legs, slight disturbance of the sense of position, and marked general paresis of the legs, most marked in flexing the thigh on the trunk. The reaction of the muscles to the faradic current was normal. The knee jerks were increased and equal, and there was a slight patellar clonus. There was ankle clonus on both sides. The plantar reflex was absent, as were also the cremasteric, abdominal and epigastric reflexes. There was no tenderness of the spine, and the movements of it seemed free. The sense of pain and temperature was absent, and that of touch diminished to the level of the sixth rib. The pupils reacted rather sluggishly to light, and the left was slightly larger than the right. There was a slight swelling on the left fifth rib, which had been noticed before, but this was not tender to pressure. At this time an operation was advised. This was done on Dec. 20, by Dr. J. C. Munro. At the time of operation the urine, which had previously been normal, was found to give a heavy precipitate upon being heated, the precipitate partially disappearing on boiling the urine. That is, there was found to be albumin and some other albumi-

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noid substance in the urine. This was thought to be albumose, and this was confirmed later.

OPERATION BY DR. MUNRO.

Ether given by Dr. J. A. Gordon, Dr. N. S. Hunting assisting, Dr. Knaap and Dr. Thomas present. Prone position with the head over the end of the table. Median incision, and bleeding controlled by gauze packings. The first, second, third and fourth dorsal laminae were removed. The lamina of the fourth on the left side was thin and bluish with the cortex destroyed on the upper (posterior) surface over a small area. The medulla of the spinous process and of the lamina was full of soft reddish material, and on tracing to the left it was found extending anteriorly through the head of the rib, which was not eroded, to the left side of the vertebral body, where the bone was loose and rough, easily bleeding, and evidently infiltrated with the new growth. Probably some of the same growth lay anterior to the lamina, pressing on the dura, but without infiltrating it. The dura looked healthy and was not tense. The cord felt normal through the unopened dura. There was no evidence that the growth had extended anteriorly to the posterior mediastinum. As much growth as could be everted out was removed, the cavity in the body being packed with iodoform gauze to control bleeding. The wound was closed with deep silk-worm gut sutures, allowing for the gauze drain and a small rubber tissue drain. The patient stood the operation well, and the pulse was good at the close.

After the operation the patient developed a complete paraplegia with retention of the urine, but this gradually improved, and the wound healed well. He was seen again by me on Jan. 5. At that time all movements of the legs and feet were performed normally and with good strength. There was marked improvement in sensation. Heat, cold, pain and touch were perceived fairly well almost everywhere, though in various small areas the improvement was not as great as in general. The knee jerks were still increased, and there was ankle clonus on the left, but only a front-tap contraction on the right. He could generally control the bladder. An examination of the blood was made that day. It showed a hemoglobin percentage of 70, red corpuscles 5,576,000, white corpuscles 20,000. The red corpuscles showed no marked variations in either size or shape, the central depression was well marked, and there were no nucleated red corpuscles seen. The differential count of the white corpuscles gave: Polymorphonuclear leucocytes, 70.7%; lymphocytes, 19.5%; mononuclear and transitional forms, 7.9%; eosinophile cells, 1.9%.² The urine had a specific gravity of 1.017, neutral reaction, cloudy color, and the sediment contained fine granular and hyaline casts. The analysis of the proteins by Dr. Ogden showed albumin .73%, albumose .225%, globulin a very slight trace, peptones absent.

The microscopical examination of the portions of the tumor removed at the operation was as follows: The portions removed consisted of small irregular masses,

dark red in color, rather soft in consistency, containing smaller and larger pieces of bone. These were hardened in Zenker's fluid, decalcified in nitric acid, and embedded in celloidin and in paraffine. Sections were made and stained with hematoxylin and eosin; with eosin and methylene-blue; with Mallory's connective tissue stain; with hemalum and eosin, and with Ehrlich's acid hematoxylin. The tumor tissue is made up of masses of cells slightly larger than lymphocytes, closely packed together, showing practically no intercellular stroma between them. Blood vessels are not seen in the new growth proper. The masses of the new growth in some places show a definite transition into the surrounding tissues, the growing edge of the tumor lying immediately adjacent to marrow cells and bone tissue, but without any sign of a connective tissue capsule. In other places, however, the transition is a gradual one to fairly normal marrow. The tumor tissue is made up of masses of cells, slightly larger than lymphocytes, closely packed together, which are round or oval in form and in places slightly polygonal, evidently from being compressed by neighboring cells. They have relatively large oval nuclei. The nucleus shows considerable chromatin, chiefly at the periphery of the nucleus adjacent to the nuclear membrane, and in the centre a clear vacuole in the centre of which lies a rather large, definite, deeply-staining nucleolus. The chromatin masses of the nucleus take rather a dense stain, and often lie in rather a thick band at the periphery of the nucleus, not showing the irregular masses of chromatin seen in the nuclei of plasma cells. The protoplasm of the cells is slightly granular, and in the sections stained with methylene-blue and eosin takes a stain varying in tone from a faint pinkish tinge to a distinct bluish one, the latter greatly predominating. Throughout the tumor are seen fairly numerous cells, somewhat larger than those just described, which show the same characteristics of protoplasm and nucleus but contain from two to four nuclei. Rarely cells are seen in which there are mitotic figures in the nucleus, but no signs of direct cell division were anywhere seen. In places at the margin of the growth are small, round cells a little smaller than the tumor cells, with granular protoplasm taking a bluish tinge with the methylene-blue and eosin stain, but with densely staining nearly solid oval nuclei which are relatively large in size. In the sections stained with Mallory's connective tissue stain there can be made out a very fine, sparse reticulum of connective tissue fibres. There are fairly numerous blood vessels, some of them of considerable size, in the neighborhood of the tumor masses, and these are accompanied by a considerable amount of connective tissue. About these are many cells which are of the connective tissue type, elongated or spindle-shaped, arranged more or less in bands or bundles, with deeply-staining or vesicular oval nuclei containing no nucleolus. Immediately adjoining these cells can be seen the oval tumor cells with the nucleolated nuclei described above. Other small spaces in the bone tissue show practically normal marrow spaces with fat cells and blood vessels. The portions of bone tissue in the sections stain clearly and show the normal appearance of bone. The outlines of the trabeculae, however, are more irregular than normal, and in places osteoblasts with several or many nuclei are seen lying next the bone tissue. In general, however, the trabeculae show only the normal layer of osteoblasts.

It was decided to give the patient bone marrow and to make trial of injections of Coley's toxins. On Jan. 21 Dr. Hunting wrote: "J. is getting on finely, the sinns in the back is healing fast, and everything looks healthy. He has good sensation everywhere. Has good control of the sphincters but has to go quickly to urinate, and has occasionally some smarting possibly due to the catheter. He walks about freely, and can go up stairs without holding to the banister, although the right

² An examination of the blood made on July 21 by Dr. Ellsworth of Quincy showed the following condition: Hemoglobin 68%; red corpuscles, 4,256,000; white corpuscles, 7,200. Differential count of the white corpuscles gave: Polymorphonuclear leucocytes, 62%; large mononuclear forms, 30%; lymphocytes, 10%; eosinophile cells, 4%; and during the count there were seen 2 myelocytes and 2 nucleated red cells.

knee is a little weak. He eats and sleeps well, and wants to go to his office."

On March 14 Dr. Hunting writes: "His back healed very well, and he has been about attending to his business for some time. The lump on the rib on the left side a short time after he left the hospital became larger and then diminished in size. Occasionally it has been painful and tender. Today I examined it and got distinct crepitus, as if from a broken rib. The lump is quite small now. I have injected Coley's serum about every third day. At first four minims caused a sharp febrile reaction. Now eight minims produce only a slight increase in the pain in the tumor on the rib, and no fever. He has no pain in the legs, walks well, eats and sleeps well, and feels as well as ever in his life."

After this the patient was out and attended to his business. The latter part of April while pulling at a wagon, he suddenly felt a pain in the left lower chest, and had to be helped home because of the severity of the pain. After that he had much pain in both sides of the chest at the level of the eleventh rib, running around the body when he moved, but he had no pain when he remained quiet. He was seen again on May 18. There was then a well-marked swelling on the left seventh rib, which was not tender, though it had been so. On the left sixth rib at the junction of the cartilage and the bone there was a slight swelling and moderate tenderness. There was also a swelling, not tender, on the left eleventh rib. There was tenderness to percussion at the tenth dorsal spine, and pain there passing around the trunk on pressing upon the head. The spine was held rigid, and the patient moved with great difficulty, supporting himself till erect, when he was able to stand without support. The strength in the legs was good. There was no muscular spasm in the legs. There was no disturbance of sensation of touch or pain anywhere. All the reflexes were normal and equal. The plantar and the skin reflexes were normal.

It is extremely difficult to judge from the descriptions of the cases reported in the literature whether they are cases of myeloma or of other diseases of the bones. The first case on record is the noted one which was under the care of Dr. Watson, reported by McIntyre and Bence Jones. In this case the patient, a man of 45 years, complained of pains in the chest, back and elsewhere, and the chest was tender to pressure. He was anemic and emaciated, and died of exhaustion. The ribs, sternum and vertebrae were so soft that they could be cut with a knife. The marrow, on microscopical examination showed granular matter, fat globules, and small nucleated cells. In this case Bence Jones first demonstrated albumose in the urine, finding a substance of which the most marked characteristic was that it was precipitated by nitric acid and redissolved on heating, to reappear on cooling. With acetic acid and on adding ferro-cyanide of potassium there was an immediate white precipitate which was soluble in caustic potash. A solution in water

of this substance gave a precipitate with sulphate of copper which was soluble in caustic potash, "forming a splendid deep blue solution." He concluded it was an oxide of albumin. There was 6.7% in the urine. The kidneys were normal.

The next case is one reported by Weber in 1867 and occurred in a man of 40 years. The disease began with pain in the chest and tenderness. He became anemic, the chest became deformed, and difficulty of breathing appeared, and he died 3½ months after the onset. At the autopsy the sternum showed 2 fractures, and the osseous tissue was replaced by grayish-red substance showing a fibrous stroma and abundant small cells partly nucleated, some fatty cells and fat globules. Many of the ribs were soft, and several of the vertebrae showed the same changes. The long bones were free, but the cranium and pelvis were affected. This case is lacking in particulars which enable one to decide positively, but it is probably a case of myeloma, and this is rendered more probable by the fact that there were no metastases.

Von Rustizky in 1873 reported the next case. A man of 47 years first noticed a tumor in the right temporal region. Later there was pain in the extremities, the gait became unsteady and finally paraplegia developed, with loss of sensation, pains in the chest, incontinence of urine, and kyphosis at the sixth dorsal vertebra. Thickening of the ribs was also noted. No albumin was found in the urine. At the autopsy tumors were found in the skull, ribs and vertebrae,—one at the eighth dorsal vertebra compressing the cord. The tumors were composed of small cells the size of a red blood corpuscle, with homogeneous protoplasm and as a rule but a single nucleus. There was very little stroma. The cells closely resembled marrow cells, and no giant cells were seen.

Buch reported a case in 1873 which probably belongs among the myelomata. A man, a prisoner, complained for about a year of pains in the knees and shoulders. He became anemic and there was edema. There was albumin in the urine. There was found a sclerotic condition of the soft parts about the shoulders and the hip-joints, and multiple tumors of all the spongy bones. These tumors consisted of small, round cells. All other regions were normal except the kidneys which showed evidence of a chronic inflammatory process.

The next case was one of Stokvis, in which the albumose was carefully studied by Kühne. It occurred in a man of 40. Kyphosis was first noticed, then paresthesia in the legs, incontinence of the urine, and finally paresis of the legs. The duration of the disease was 9 months. The case was also reported by Ribbink, but I have been unable to find any careful description of the autopsy. However, there were no tumors in the bones of the extremities, and the case was one of myeloma without much doubt.

The next case, that of Kahler, reported in 1889, is remarkable because of the great duration, which was over 7 years. A physician, 46 years of age, began to have pains in the chest, which disap-

peared to return after a time in various places, — the arms, ribs and the spine. Two and a half years after the onset albumose was found in the urine, and Kahler was the first to suggest a probable relation to myeloma as the cause. Six and a half years after the onset there developed a curve of the spine, and the trunk became shortened, this increasing to an extreme degree. Six months later enlargement of the glands was noticed. There was progressive anemia and emaciation, until at last the patient found relief in death. The autopsy showed growths in the bones with all the characteristics of myelomata.

Krebs, in his textbook on Pathological Anatomy, published in 1889, describes briefly a case in a young woman where the ribs and spine were affected, and there was marked anemia. There is no mention of albumose, but the growths in the bones were typical.

In 1895 Zahn reported a case from the clinic of Professor d'Espine of Geneva, in a man of 62 years. This case also began with pains in the chest and ribs, which were tender to pressure. There was also anemia. Six months later there was distortion of the thorax. There was albumin in the urine, but there is no note of the presence of albumose. The patient died 18 months after the onset. There were growths with destruction of bone tissue in the sternum, ribs and vertebrae, and a small growth in the pelvis. The diaphysis of the femur was sclerotic, the upper epiphysis rarefied, and the marrow showed small nodules similar to those found elsewhere. The blood was normal. The tumors were composed of small, round cells with very little intercellular substance and few blood vessels. There was destruction of the bone, but no giant cells were seen. In one place the cells of the tumor had penetrated the periosteum and between muscle fibres, but there were no metastases.

Ewald, in 1897, published a case in a man of 62 years, who after an injury began to have pain in the right clavicle. This improved, but two weeks later a tumor was noticed at the seat of the injury. This was removed and was found to be very vascular, and the wound healed slowly. The blood was normal. There is no note of the presence of albumose. The patient died. The examination of the tumor showed it to be composed of small round cells with nuclei which contained nucleoli. Some of the cells had intensely staining nuclei without any nucleolus. There were some larger cells, and a few of these had two or three nuclei. There was a very fine reticulum.

Rosin published another case in 1897, and Senator later discussed some aspects of the case in a paper published in 1899. It occurred in a woman of 36 and began with headache, pain in the back, weakness and anemia. Later there was loss of flesh, and dysphagia and difficulty in talking, which Senator ascribed to an asthenic paralysis of the hypoglossal nerves, as the paralysis improved later. There was albumose in the urine. The patient died about 2 months after she was first seen. The blood examination showed simple

palleness of the corpuscles. The autopsy showed multiple tumors of the ribs, pleurisy, no inflammatory changes in the kidneys, but fatty changes in the epithelial cells of the tubules, and amyloid changes of the glomeruli. The tumors were myelomata. The brain and medulla were normal on microscopical examination, though by Marchi's method a few black fibres were seen in the hypoglossal nerve, yet its nucleus was normal.

Naunyn showed a case in 1898. There was 2% of albumose in the urine, but no casts. There were pains in the chest along the ribs for 6 months. The ribs were tender, and there was evidence of stiffness of the spinal column. There was no autopsy.

Bradshaw and Warrington reported a case in 1899 in a man of 70. The urine was found to contain albumose. Four months later he began to have pains in the ribs, sternum and back. Later there appeared curvature of the spine and spontaneous fractures of the ribs, and he died about one year after the onset from exhaustion after severe vomiting. The ribs and vertebrae were soft, the marrow red, resembling splenic pulp. Albumose was isolated from the tumor. The growth consisted of lymphoid cells with a few oval or spindle cells. There were no myeloid plaques or eosinophile cells. No nucleated red corpuscles were seen. There were several larger cells seen with several nuclei. There were no metastases. The authors say that the growths may be regarded as a round cell sarcoma, a lymphoma, or a granuloma, but the case is evidently one of myeloma.

Vladimir de Holstein refers very briefly to a case of Bouchatal and Chapechnikov, in which he states the diagnosis was made during life and established by autopsy, but I have been unable to find any fuller account.

Ellinger reports a case in a man of 45 years, in which the first symptoms were chills and anemia. Albumin was present in the urine, and 4 weeks later albumose appeared. The blood showed the hemoglobin to be 40-45%, the white corpuscles 8,850, the red corpuscles 1,588,000, slight poikilocytosis and a moderate number of normoblasts. There was effusion into the joints, edema of the extremities and dyspnea. The sternum was tender to percussion. Retinal hemorrhages were present. The patient died 2 months after admission to the hospital. At the autopsy there was found slight enlargement of the ribs in places, and fractures, and they showed a whitish substance on section. The same condition was found in the vertebrae. The sternum showed whitish nodules. The kidneys showed granular and fatty changes in the cells of the tubules. The tumor was composed of cells the size and shape of lymphoid cells, there was a slight reticulum, with but few blood vessels, and there was rarefaction of bone substance. This writer was the first to find albumose in the blood and in the ascitic fluid.

Winkler in 1900 described a case in a man 45 years of age, who injured his chest by a fall. Soon after he had pain in the right side, with

cough and expectoration, and 2 months later was confined to the bed. Soon paresthesia in the legs and abdomen appeared, but no paralysis was present, nor were the sphincters affected. Two weeks later paraplegia with loss of control of the sphincters developed, with absent reflexes, and analgesia to a point a little below the nipples, and to the eighth spinous process in the back. The temperature sense was diminished over the same area. There was some kyphosis at the eighth dorsal vertebra and below. There was fluid in the pleural cavity and difficulty in breathing. The patient died about 3 months after the onset. There was no albumin in the urine. At the autopsy tumor masses were found in the spine, one at the level of the seventh and eighth vertebrae compressing the cord. Other masses were present in the ribs and skull. The extremities and sternum were not affected. There were no metastases in the internal organs. The tumor on examination was found to be composed of small round cells with large nuclei and nucleoli, with slightly granular protoplasm, and with a very fine connective tissue stroma, and there was extensive destruction of bone tissue. The blood showed no change.

Wright published in 1900 the anatomical description of the case referred to by Dr. Fitz in his paper on albumosuria. The patient, a man of 54 years, noticed about a year before his entrance to the hospital, a tumor on one of the ribs, accompanied by pains in the chest. There was a sense of numbness in the legs, incontinence of urine, and uncertainty in the gait. Examination by the Röntgen rays showed tumors in the fifth, sixth, seventh, eighth, eleventh, and twelfth ribs on the left, and in the seventh and eighth ribs on the right side. The knee jerks were increased, and there was ankle clonus. Sensibility and power were good. The urine contained albumose. The blood examination showed hemoglobin 60%, red corpuscles 4,700,000, white corpuscles 5,000. There was gradual increase of the weakness, and the patient died in 4 months from the beginning of the trouble. At the autopsy tumors were found in the ribs which had destroyed their continuity, and in several vertebrae and in the skull. The tumors had a fine fibrillated stroma and were composed of small cells with relatively large nuclei containing nucleoli. Wright calls attention to their similarity to plasma cells and thinks that these tumors are produced by the growth of one variety of cell found in the normal marrow; that is, the plasma cell; so that if this be correct these tumors must be classed with the plasmomata, and so resemble in structure the infective granulomata.

Hamburger has recently published 2 cases of myeloma, the first in a woman of 49 years. There was pain over the eighth and ninth ribs, which were tender. There was albumose in the urine. The examination was otherwise negative. There had been no autopsy at the time the paper was written. The second case was in the clinic of Dr. Osler at the Johns Hopkins Hospital. It was that of a woman of fifty years, and a negro. She had had pains in the hip and arms, and there was

a soft mass over the occiput, nodules in each clavicle and in the left scapula, and a large tumor in the upper third of the right femur. There were no enlarged glands. The blood was practically normal except for diminution of the red corpuscles to 3,548,000. The white corpuscles were 4,500, and the hemoglobin 52%. There was albumose in the urine. The patient died later, and myelomata were found in the skull, the left scapula, both clavicles, sternum, right ilium and the neck of the right femur.

These cases comprise all that I have been able to find, though references to 2 other cases which were inaccessible were found, one mentioned by Sternberg and the other reported by Bozzolo. There are, however, a number of other cases, somewhat doubtful in character, which are included by some of the writers on this subject.

Wiendland reports 3 cases which Winkler includes, but Marekwald thinks were endotheliomata, and Hammer states that spindle cells were present in these cases as well as round cells.

Marekwald reports a case with a clinical history of pains in the back and chest, followed by the development of deformities and cachexia, where there were numerous tumors in the vertebrae, ribs, pelvis and skull, but no metastases. The description of the cells is very like that of the typical cases, but the author states that the cells resembled epithelial cells, and he classes his tumor among the intravascular endotheliomata. It seems more probable, however, that it was a case of myeloma. Marchand also reports a case in a man of 69 years, where there was kyphosis and destruction of ribs and sternum and vertebrae by new growths, which were composed of small, round marrow cells. He considered it a case of senile osteomalacia, but it should probably be included with the myelomata.

Runeberg reports a case of medullary pseudo-leukemia, which we ought probably to reject, as the tumor, though composed of small, round cells, contained giant cells also.

The 3 cases of Grawitz, also included by several writers on this subject, seemed to be more than doubtful. The first case had metastases in various organs and was probably a case of sarcoma, the second seems to be a case of leukemia, and the third probably sarcoma, as spindle cells are described in the tumor.

Seegelken reports a case from Stintzing's clinic, where Matthes reported the examination of the urine, in which albumose was found. The growths had affected the third cervical vertebra and compressed the cord at that level, and had also involved other vertebrae, the sternum and several ribs. The tumors were composed of small, round cells and bundles of spindle cells with islands of cartilage, and the author classes it, probably correctly, as a case of chondrosarcoma.

In Hammer's case where tumors were found in the skull and other bones, there was a secondary growth in the pleura, and round and spindle cells were both found in the tumors. The vertebrae

were very hard. This case seems most probably to be one of sarcoma.

The case reported by Nothnagel was probably one of pseudoleukemia, and although the new growths were composed of small round cells, these were described as lymphoid in character, with some large cells, and Charcot's crystals were found in the tissues. The urine contained no albumin or peptones in this case.

These tumors, as may be seen from the cases described, may produce various symptoms. The most constant, however, are pains in the chest, back and extremities, which are probably to be referred directly to the tumors, as well as deformities and a gradually increasing anemia, often accompanied by all the symptoms of a progressive pernicious anemia, or a pseudoleukemia, with death usually ensuing either from exhaustion or bronchopneumonia, or from the collection of fluid in the pleural cavities. Symptoms of pressure upon the cord from destruction of the vertebrae, or direct pressure of the new growth in the vertebrae, as in this case, is a not infrequent complication. The presence of albumose in the urine has been confirmed in 11 of the 19 cases which were undoubtedly myeloma. This is, however, by no means constant, as Winkler expressly states that no albumin was found in the urine in his case, and we can hardly assume that at this date the presence of albumose would have been overlooked, whatever may have been the case with earlier writers. It is, however, certainly present in more than traces in a majority of the cases, and its presence is always enough to direct our attention to the possibility of disease of the bones, and may lead to the correct diagnosis, as was brilliantly shown in Hamburger's first case. On the other hand, while albumose in small quantities may be found in a number of diseases, especially, like peptones, in cases where there is destruction and absorption of pus, its presence in large quantities does not invariably point to the presence of myeloma. It is probable, however, that it always points to disease of the bones. The first case of Fitz was one of myxedema, but no autopsy was obtained, and there was a dense, firm swelling in the back of the neck over the spine, and it is impossible to exclude the possibility in this case of the existence of disease of the bones. Askanazy, however, has quite recently published a case of leukemia in which the white corpuscles were increased to 136,000, and albumose was present in the urine to the extent of 1%. The ribs were fractured, and the marrow at the autopsy showed numerous small lymphocytes, but also other cells of the normal marrow. These changes were also seen in the long bones. He concludes that in albumosuria we have to do always with an affection of the bone marrow and generally with a multiple myeloma, but also exceptionally with other diffuse lymphoid alterations of the bone marrow, such as arise in lemphemia. Myeloma is a tumor formation in the marrow of the bones, affecting pre-eminently the spongy bones and usually sparing those of the extremities, produced by a multiplication

of one of the varieties of the cells of the marrow, possibly the plasma cells. Certainly the cells of the tumor resemble plasma cells very closely in their appearance and staining reactions except for the existence of nucleoli in these cells. These tumors are always multiple, the various nodules usually appearing about equally well developed, but showing no tendency to form metastases, though occasionally there has been some infiltration of the periosteum or of the neighboring muscles. An interesting feature of our case was the complete relief of the paraplegia by the operation, the presence also of the disassociation of disturbance of sensation of temperature, pain and touch, such as is seen in syringomyelia, in a case of pressure upon the cord from without, as well as the variability in the height of the disturbance of sensation as seen at the different examinations, and the apparent improvement of the condition in the bones under the use of bone marrow and Coley's toxin treatment.

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HYDROTHERAPY IN CHRONIC DISEASE.

BY SIMON BARUCH, M.D., NEW YORK.

CHRONIC diseases are proverbially *approbrium medicorum*. How few well-established cases are cured by medicinal means every physician knows but too well. The idea is gradually dawning upon the medical profession that just as in acute disease the application of those agencies which maintain a healthy condition of the organism may be utilized to advantage when the latter is attacked by disease, so may we in chronic maladies obtain better results from the systematic application of the so-called hygienic agencies. The idea, which originated with Jacob Bigelow and was supported by Oliver Wendell Holmes and Hooper of Boston, failed to make a lasting impression after these able men disappeared. But the dawn of a brighter day in therapeutics, due to increased education and knowledge among average medical men, has revealed the wisdom of their earnest teaching. Today the methodical application of air, rest, exercise, diet and the internal and external use of water form the chief agencies in the removal of chronic diseases. These agencies are all important; but if I may credit my own observations of many years, and a somewhat extensive familiarity with the observations and writings of the best clinicians of modern times, water is probably the most effective—at any rate the most indispensable.

Phthisis affords the most striking illustration of the hygienic treatment. The management now universally adopted in the best institutions combines the open air, dietetic and water treatment. Indeed, this is the method devised by Brehmer, the father of modern phthisis treatment. In all the institutions which I have visited in Germany hydrotherapy is daily administered, not quite as systematically as is done in the Montefiore Home, where I introduced it many years ago, and where it is still successfully applied every day.

I trace the favorable results to the irritant effect of cold water upon the sensory terminals in the skin which arouses the central nervous system to reflex effect upon the respiration, deepening it; upon the heart, improving the pulse, enhancing glandular action and excretion; upon the stomach, improving appetite, digestion and hematosis. After cold procedures the hemoglobin has been found increased, as well as the red and white cells, from 10 to 15%. This would show that the enhanced ven-

tricular contraction drives these cells from parts where they have been sluggishly circulating, and in this manner more blood cells are exposed to oxygenation in the air cells. This daily neurovascular training so improves the patient's resisting capacity that the disease is held in abeyance and under favorable environment removed.

I recall from numerous histories one striking illustration of the effect in a man of 26, who was condemned to exile by an eminent consultant, but who remained 6 months in New York under treatment during the summer of 1891, with the result of a gain of 16 lbs., which was 5 lbs. over his former weight in health, and the removal of all traces of bacilli. The patient is still in good health and residing in New York. The treatment pursued was a gradual acustoming of the patient to cold one-minute douches, beginning with 95° and reducing daily 1° and terminating with 64°. By correct application of hydrotherapy the latter may be successfully applied (not by douches, however) in any clean household.

Neurasthenia is a disease which has proved very amenable to hydropathic treatment. Although mild forms yield to change of environment, exercise or the rest cure, the addition of hydrotherapy produces a more rapid improvement. In obstinate cases this agent has succeeded when all others have failed. The prevalence of this disease of modern times is well recognized, and I deprecate the use of the popular tonics, nerve stimulants, regular and irregular. I also beg to emphasize the necessity of care in prescribing water, of avoiding surprising or shocking the patient. As evidence of the value of this treatment I would cite men who use it, like Eulenbergh, Erb, Krafft-Ebing in Europe, and Peterson and Putnam in this country. Home treatment should be begun by allowing the patient to stand in water at 100°, covering the ankles, and washing him rapidly with a large piece of gauze dripping with water at 80°. This is to be daily reduced 1°, until 60° are reached. Affusions from a basin containing water at 80°, and reduced daily until 60° are reached, may follow the first treatment. Then the drip sheet and wet pack may follow. These home procedures, administered by skilled nurses in accordance with the technique described in books on hydrotherapy, will bring relief and often entire recovery in a large proportion of cases. If a skilled nurse cannot be obtained, it is better not to use cold water at all, but send the patient to an institution where ambulant cases are treated. I am gratified to have learned that such an institution now exists in Boston.

I cite from my records the case of a lady of 45, who insisted that only the removal of her uterus could remove her incapacity to walk and attend to household duties, but who in 7 months was entirely restored, and has remained well under systematic cold douches.

Diabetes is a disease which, empirically treated by diet, is often relieved at the expense of great discomfort. By stimulating the myolemma to

¹ Read before the Clinical Section of the Suffolk District Medical Society, March 20, 1901.

utilize sugar, exercise may be made an important curative factor. The great lassitude of the average diabetic precludes resort to exercise, but by judicious neuro-vascular training with graduated cold douches the patient's lassitude is overcome, his energy and spirits revived, and he can be induced to walk sufficiently to utilize much of the sugar that would otherwise be wasted. In illustration of this treatment: A woman weighing 280 lbs., 60 years of age, unable to walk 2 blocks, and having 6% sugar, which the most exacting diet had reduced only $\frac{1}{2}\%$, was in 4 months entirely freed from sugar, and has remained free, with 2 very brief lapses, even though the diet has been somewhat relaxed. In this case hot air baths to produce perspiration, followed by graduated douches and resisting movements, reduced the patient's flesh and imparted energy and a desire to exercise, to which she had long been a stranger.

Cases of nervous dyspepsia are also fruitful for hydrotherapy, after they have run the gamut from hot water and Sausbury steak to lavage.

Hysteria is a disease which often strikes terror into the hearts of friends and physician. Charcot's immense success with cold douches has been repeated by his successors in Salpêtrière, Krafft-Ebing, Erb, Moebius and others.

Obstinate hemalgias, sciatica, neuritis, lumbago are greatly relieved and often removed by hot applications followed by cold douches.

A case of asthma in my own family, which had resisted the most skilful therapy of able colleagues, yielded to daily affusions at 50°, while the patient sat in water at 100°, followed by friction to excite reaction. In cardiac disease with lost compensation the value of the Nauheim treatment is well known. Here we have a full bath of 86° with the substitution of a chemical irritant for the mechanical (friction).

Angina Pectoris is more frequently false than real, and therefore often removable by hydrotherapy.

My observations are based upon 100,000 treatments in neurasthenia, hysteria, some of the psychoses, phthisis, gout, rheumatism, dyspepsia, cardiac disease, sciatica and other neuralgias, obesity and neuritis. The application of this method in so many varied diseases is rendered possible only by its flexible nature, which enables us to adopt it by modifications of temperature, pressure and duration and numerous technical details to the most varied pathological manifestations, provided the physician has mastered its details and not left them to bath nurse or masseur.

I trust the future may see a more careful study of the entire subject, greater precision in the therapeutic administration of water, and finally, that it may have consideration in the medical curriculum.

It is stated that the State entomologist of New Jersey will ask the legislature for an appropriation of \$10,000 for the purpose of conducting a study of the mosquito with a view to its extermination.—*Medical News*.

ASSOCIATION OF ANEMIA WITH CHRONIC ENLARGEMENT OF THE SPLEEN.*

BY ARTHUR H. WENTWORTH, M.D., BOSTON.

THIS paper is devoted to the consideration of anemia associated with chronic enlargement of the spleen. Any description of this condition would be incomplete if it were limited to the consideration of cases which occur at any one period of life. I have not included cases in infancy of moderate anemia with slight enlargement of the spleen because there is no difference of opinion with regard to these cases. Neither does the scope of this article include leukemia and pseudoleukemia, except in so far as they are to be differentiated from the class of cases which I shall describe. There occurs in infancy and early childhood a severe grade of anemia associated with marked enlargement of the spleen, the etiology of which has caused a great deal of discussion. In Italy it is called anemia splenica infettiva, and elsewhere it is known as anemia infantum pseudoleukemica. The prototype of this disease in the adult is commonly called anemia splenica or splenomegalia primitiva.

Anemia infantum pseudoleukemica was believed at one time to be a primary disease of the blood. Anemia splenica infettiva and anemia splenica are still believed by many people to be a primary disease of the spleen. I hope to be able to show that they are secondary conditions dependent upon a number of causes.

Each of these three titles has its own literature, and it is necessary for this reason to consider them separately. I shall do so in the order in which they were originally described; namely, anemia splenica of adults; anemia splenica infettiva of infants; and anemia infantum pseudoleukemica.

Anemia splenica (splenomegalia primitiva).

—The name "anemia splenica" is one of the many synonyms of pseudoleukemia. It was employed first by Griesinger to describe cases of severe anemia associated with chronic enlargement of the spleen. Griesinger believed these cases to be the splenic form of pseudoleukemia. His observations were clinical.

In 1886¹ Gretscl, who was an assistant in Griesinger's clinic, reported, under the title of "anemia splenica," the case of a child with severe anemia and a large spleen. An autopsy on this case made by Colmheim showed hyperplasia of the normal elements of the spleen; marked increase of young connective tissue in the periphery of the acini of the liver,—this connective tissue extended into the acini between the liver cells;—increase of interstitial tissue in the kidneys. The lesions did not correspond to those of pseudoleukemia.

In 1867² Müller reported 7 cases, which he believed to be cases of pseudoleukemia. He referred to the work which had already been done on pseudoleukemia and followed this with the

* Read before the Massachusetts Medical Society, June 11, 1901, as a part of the general topic, "The Diseases of Nutrition of Infants."

description of his cases. They are briefly as follows:

CASE I. Female. Twenty-six years old; tuberculosis not to be excluded, evidences in both apices that point to the disease; lymph-nodes in the neck enlarged and *painful*; spleen not very large; fever; anemia; leucocytes not increased in number; died about 2 years later. Duration of illness 3 years. No autopsy.

CASE II. Female; 56 years old; splenic enlargement for 2 years; weakness for 1 year; shortness of breath; pallor; edema of legs; fever at times. At the time of observation there was a large spleen; heart and lungs negative; no fever; no increase in number of leucocytes; a gland in the inguinal region the size of an egg; slightly tender; died 1 year later away from hospital.

CASE III. Male, 54 years old; enlarged glands and spleen for 6 years; anemia; weakness; marked loss of flesh; shortness of breath; edema of legs for 2 years. Examination showed enormous spleen; slight ascites; leucocytes not increased in number; no fever; died 2 months later at home.

CASE IV. Male, 18 years old; 9 months before there was jaundice which lasted several months; at time of entrance into hospital slight jaundice; lungs and heart normal; liver rather tender, the border of liver not palpable, liver dullness above at sixth rib mammillary line; spleen large and palpable; leucocytes not increased; 7 months later no loss of flesh; slight jaundice; good appetite; no ascites; no increase in number of leucocytes; spleen palpable about 2 inches below ribs; no fever; liver dullness 1 inch below ribs; no further report on the case.

CASE V. Male, 56 years old; 1 year before death enormous spleen; moderate enlargement of the liver; no known cause for either splenic or liver enlargement; attacks of peritonitis in region of spleen; loss of flesh and strength; no increase in number of leucocytes; patient died of general peritonitis from perforation of ulcer in lower part of jejunum. A report of the autopsy says the enormous spleen was rather firm and of normal structure and contained numerous hemorrhagic infarcts. No description was given of the other organs, and no microscopic examination reported. The nature of the ulcer was not stated. The condition of the liver and lymph-nodes not mentioned.

CASE VI. Male, 50 years old; became weak; easily tired; rapid emaciation and pallor; no local symptoms; at about same time noticed swelling of the spleen; *gradual swelling* of the cervical, submaxillary, axillary and inguinal lymph-nodes; 2 years later furunculosis; later obstinate and marked itching of body; brownish discoloration of skin; no fever; epistaxis. Seen at hospital in fourth year of the disease; lungs, heart and liver normal; spleen much enlarged, hard and movable; no increase in number of leucocytes. After 2 weeks went home, and died 5 months later.

CASE VII. Male, 56 years old; for 6 years pain at times in left side; splenic enlargement noticed for 8 months; slight icterus at times; recent attacks of chilliness, vomiting, constipation, abdominal pain spreading to left shoulder and left leg. At time of examination there was weakness; marked emaciation; pallor; no icterus; furuncles on face; large and hard spleen; liver somewhat enlarged; trace of albumin in urine; leucocytes not increased in number. Died the following month of carbuncle. Autopsy report: Enormous spleen with adhesions and thickened capsule; firm consistency; pale red-brown on section, trabeculae and follicles not recognizable; in from 5 to 6 places tissue dark red, wedge-shaped, situated at periphery of organ—infarcts. Liver enlarged, surface smooth, capsule thickened; pale red on section, acini distinct; very little blood in large veins. No enlargement of mesenteric and retroperitoneal lymph-nodes. Stomach, intestines, kidneys negative.

Müller examined the organs microscopically and reported as follows: Spleen, simple hyper-

plasia of the normal elements. The connective tissue was especially increased; reticulum thickened noticeably and in its meshes lymph cells, but not so numerous as normally; in many places the cells were diminished in number, and the connective tissue was correspondingly increased. No evidence of amyloid or of cancer.

It is evident from the above description that no single etiology explains these cases. In 2 cases tuberculosis cannot be excluded. Case VI corresponds to a case of pseudoleukemia. Some of the cases are incompletely reported. There were only 2 autopsies, both of which were reported incompletely.

These cases have been referred to by almost everyone who has written about anemia splenica, as if they were cases of that disease. As far as I can make out from Müller's article, he believed them to be cases of pseudoleukemia.

In 1871 Wood³ described a case that he believed to be a third or *splenic variety* of pseudoleukemia. The patient was a man 30 years old with anemia and enlarged spleen; later he became cachectic; there was irregular fever; no increase in the number of leucocytes; somewhat enlarged lymph-nodes in axilla, neck and groins. The lesions found at autopsy in the spleen were not those of chronic hyperplasia as described by Banti, but resembled more the lesions of pseudoleukemia. There was no report of the histological examination of the lymph-nodes. It was in all probability a case of pseudoleukemia in which the most marked lesions were in the spleen. The first systematic work was done by Banti⁴ and published in 1883. Since then a number of men who believe that anemia splenica is a primary disease of the spleen have written on the subject. Most of the articles are reports of cases. A few of them describe the disease. These descriptions are for the most part repetitions of Banti's work. It will suffice, therefore, if I give Banti's article more in detail and afterward allude briefly to the articles which have been published since. Banti claims that anemia splenica is a *primary disease of the spleen* and that it is the *splenic form of pseudoleukemia*. The characteristics of the disease are said to be a marked primary enlargement of the spleen without any change in the lymph-nodes; followed by severe and progressive anemia with marked diminution in the number of red corpuscles and in the hemoglobin, without any increase in the number of leucocytes. This is followed in a varying length of time by cachexia and death.

Banti's statements are based upon 3 cases that he observed previous to 1883. A brief description of these cases is as follows:

CASE I. Seventy-two years old; with a chronic progressive anemia and enlarged spleen. The patient died of pneumonia. The autopsy showed pneumonia; atheromatous changes in the arteries; degeneration of the myocardium; catarrh of the intestines; liver larger than normal; spleen enormously enlarged, capsule thickened, and consistency of the spleen increased. There was no evidence of "lymphomatous infiltration" in any of the organs examined. The lymph-nodes were not enlarged; there was a slight increase in the con-

nective tissue of the liver; no lymphoid tissue in the bones.

CASE II. Eighteen years old; no etiology given. Clinically the patient presented the symptoms of a large spleen and a progressive anemia. The patient died, and an autopsy was not made.

CASE III. Sixteen years old; no etiology given. The blood showed 3,900,000 red corpuscles and 7,000 leucocytes in a cubic millimetre; the hemoglobin was 68%. There was ascites; edema; a large liver (?), and a very large spleen. (The enlargement of the spleen was said to have preceded the other symptoms.) There was doubt as to the cause of the ascites, whether due to peritonitis or not, but finally splenectomy was performed for the treatment of the splenic anemia. The patient died soon after the operation. At the autopsy was found chronic peritonitis; liver small and granular (weight 1,050 gm.), tissue firm and resistant (cirrhosis of liver). The spleen was large; capsule and septa thickened and fibrous; the follicles nodular, larger than normal, and with sclerosis of the walls of the central arteries; the reticulum thickened and fibrous; the pulp contained fewer cells than normal.

Banti believed that the spleen in this case was affected first and later the liver. His reason for believing so was that he could find no etiology for the cirrhosis of the liver.

We have here 2 autopsies. In 1 there was chronic hyperplasia of the spleen occurring in an old man, with chronic changes in the vessels and in the heart's muscle. In the other a marked chronic hyperplasia of the spleen, together with chronic interstitial hepatitis of marked degree and a chronic peritonitis. In neither of the cases were there any evidences of "lymphomatous infiltration" in the organs, such as one finds in the leukemia and in pseudoleukemia; whereas some of the usual causes of chronic hyperplasia of the spleen were present in both of the cases.

These lesions of chronic hyperplasia of the spleen are the ones that Banti and others describe as characteristic of splenic anemia. It is important to remember that Banti bases the pathology of the disease splenic anemia on these 2 autopsies and at the end of his article he shows several drawings of the microscopic appearances of the spleens from these 2 cases. It certainly does not add to the conclusiveness of his argument that these 2 cases should have had in various organs and tissues lesions that frequently are associated with chronic hyperplasia of the spleen as a *secondary* condition.

With regard to the etiology, Banti says that rickets, syphilis and tuberculosis may be present in some cases, but he denies any causal relationship between splenic anemia and these diseases. He believes that the changes which take place in the splenic tissue cause disturbances in the splenic functions, the result of which is the production of a toxin that circulates throughout the body and produces the anemia and the cachexia. In connection with the pathology of the disease Banti admits that there have been very few post-mortem observations thus far. He says: "So far as my observations go, I am compelled to admit that the lesions in the spleen are not those of leukemia or of pseudoleukemia."

Banti repeatedly makes the statement, however, that anemia splenica is the splenic form of pseudo-

leukemia. The only explanation of this contradiction that occurs to me is that he thinks the splenic changes of increased fibrous tissue are similar to the changes that are found at times in the lymph-nodes in the so-called hard form of malignant lymphoma. The following description of the lesions in the liver and spleen is taken from Banti's article:

"The liver shows some increase in interlobular tissue, containing in its meshes a varying number of lymphoid cells. This change is not marked. The liver cells are normal or somewhat degenerated." He considers the liver changes of no particular importance. "The spleen is very large, the capsule is thickened in places and often adherent to neighboring tissues. The color is reddish-brown on section with whitish-gray streaks and specks more or less numerous. The gray areas are the enlarged follicles and thickened trabeculae and the septa which are thickened and fibrous. Microscopically the follicles are much altered. The central artery is thick and fibrous; the normal follicular tissue is replaced by an irregular thick fibrous network which contains very few lymphoid cells in its meshes. In places the follicles are completely sclerosed, the trabeculae are thick and fibrous, and the spaces between the fibres are so small as to contain only a few cells. In places the trabecular tissue is replaced by dense bands of fibrous tissue with only an occasional cell in the spaces, the veins are dilated, and their endothelial cells project into the lumen. There is no pigmentation." "The lesions are (1) atrophy and sclerosis of the follicles, (2) the normal pulp is replaced by a dense fibrous tissue with few cells." Banti admits that the histological changes in the spleen in anemia splenica are *not specific*; that is, not confined to this disease alone; but he sees an analogy in the lesions to those of pseudoleukemia and the hard form of malignant lymphoma. He says, "It cannot be denied that other morbid conditions are capable of producing similar lesions in the spleen, but one must not forget that it rarely is possible to make a diagnosis from the examination of a fragment of one organ. It is necessary to examine the other organs macro- and microscopically. Thus in malaria the same appearances may be found in the splenic tissue, but in addition there is pigmentation."

This is an unfortunate argument for him to employ, because in both of his cases the changes in the spleen might very well have been *secondary* to lesions in other organs.

Banti believes that the splenic enlargement *precedes* the anemia. He admits that this is difficult to prove, because the patients do not consult a physician as a rule until both conditions are well marked. He refers to the marked enlargement of the spleen at a time when the anemia is moderate and argues that it must have taken a long time for the spleen to attain such a size, and that it did not produce symptoms at first. He refers to Pean's and Franzolini's cases of splenectomy in support of this statement. I shall refer to splenectomy later and will say a few words about these cases

then. Banti divides the disease into 3 stages: (1) Stage of splenic enlargement; (2) stage of progressive anemia; (3) stage of cachexia. He says that there is nothing characteristic about the blood. It simply shows the changes of a secondary anemia. Fever, aside from possible complications, is generally observed only in the last months of the illness. It is irregular and intermittent in type; periods of apyrexia of several days' duration are not infrequent. Banti says that the same type of fever is seen in other severe anemias, such as leukemia, pseudoleukemia and pernicious anemia. The cause of the fever has not yet been discovered. These statements as to the fever do not agree with the statements of some other observers, notably those of Somma, Cardarelli and Fedé, who have described the infantile form of anemia splenica.

The liver enlargement is slight or moderate and is due to congestion and to a slight increase in its connective tissue. Banti says that these changes may be due to the toxin secreted by the spleen which produces the anemia and other symptoms. Banti's principal reasons for believing anemia splenica to be a primary disease of the spleen are, (1) The large size of the spleen at a time when the anemia is not very marked; (2) the enormous size of the spleen, which far exceeds the moderate enlargements that one frequently finds associated with secondary anemia; (3) the good results obtained by splenectomy. The disease terminates fatally in most cases in which the treatment is hygienic and tonic. Of 21 cases of splenectomy performed for various reasons, Banti regards 4 as cases of splenic anemia. These were the cases of Spencer Wells, Péan, Czerny and Franzolini. Three of the patients recovered, and these results confirm Banti in his belief that anemia splenica is a primary disease of the spleen, and that the removal of the spleen is indicated in the early period of the disease, before cachexia appears. I have looked up 3 of the 4 cases to which Banti refers. They do not convince me that anemia splenica is a primary disease.

CASE I. (Spencer Wells.⁵) Female, 33 years old; 1 brother and 2 sisters died of tuberculosis. Toward the end of the year 1864 the patient complained of weakness and malaise, but the abdominal enlargement did not show itself until April, 1865. (In this case the anemia and other symptoms appeared to have preceded the splenic enlargement.) In October, 1865, the spleen was enormous; no edema or ascites; slight leucocytosis. Splenectomy was performed and the patient died 6 days later. There was no report of the lesions found in the spleen and no autopsy report.

CASE II. (Péan.⁶) Female; 6 months before the operation evidences of severe anemia; hemoptysis; hematuria; bloody stools; hematemesis; icteric color, etc. Splenectomy was performed, and the spleen was found to be very large and friable. (There was no report of the histological appearance of the spleen.) Péan stated that the tissue was so friable that it required the utmost care to pull the spleen down to the abdominal incision. Three months later the patient was well except for slight pallor.

CASE III. (Czerny.⁷) The patient had had uterine trouble for several years, with menstrual disturbances. The catamenia lasted 8 days as a rule. At the time of operation she was anemic and had a swelling in the

left side of the abdomen that was thought to be an enlarged kidney. It was found to be an enlarged spleen and was removed. The weight, minus the blood which it contained, was only 365 gm. The spleen was examined by Professor Arnold, who reported simple hypertrophy. A blood examination was not made until 9 months later. At that time the red corpuscles numbered 3,016,000 and the leucocytes 8,900. Attacks of hysteria which had lasted for 5 years continued the same after the operation.

(I was not able to obtain the journal in which Franzolini's case was reported.) Banti and others claim that one of the strongest arguments in favor of the primary nature of splenic anemia is to be found in the good results which follow the operation of splenectomy. In this way the focus that produces the toxin is removed. If this be so, how shall we account for the good results which follow the removal of enlarged spleens in cases in which the enlargement is unquestionably a secondary condition?

An instructive example of this kind was reported by Coupland.⁸ This was the case of a woman who was anemic, and who had an enlarged spleen. The diagnosis was made of anemia splenica, and the spleen was removed. The spleen presented the appearances described as characteristic of splenic anemia; namely, fibrosis of the trabeculae and atrophy of the follicles. The woman improved greatly after the operation, and was stated by Coupland to have passed from an anemic to a plethoric condition. Two years later there was bleeding from dilated veins in the rectum; hematemesis; ascites and death. The autopsy showed a typical syphilitic liver.

The cases described by Banti are by no means conclusive. In Spencer Wells's case the anemia was said to have preceded the splenic enlargement. In Czerny's case there was a history of prolonged uterine trouble and long menstrual periods. The spleen was not very large. In Péan's case the spleen was described as so friable that it was removed with great difficulty. This does not suggest the fibrous condition described by Banti as characteristic, and the improvement in the patient's condition had only lasted 3 months when the case was reported.

With regard to the stage of the disease in which splenectomy should be performed Banti and others advise early operation before the symptoms of grave anemia have appeared. No doubt the operation should be performed at this time whether for cases of so-called splenic anemia or for any chronic enlargement of the spleen other than that of leukemia. The results herewith obtained in such cases ought not to be accepted as a proof that such cases are cases of splenic anemia, because chronic enlargement of the spleen not infrequently occurs without marked symptoms of any kind.

Pel's and Elbsteins' cases have been referred to by West and others as if they were cases of splenic anemia. There is nothing in the description of these cases to warrant such an assumption. Pel¹⁰ described 4 cases in 1885-1887, and included them under the title of pseudoleukemia, because they

had similar symptoms. He stated, however, that he did not believe them to be etiologically similar. He believed I to be a case of lymphosarcoma; I showed the characteristic lesions of pseudoleukemia in various organs; I was probably a case of syphilis with lesions in the liver and spleen and in the fourth case there was an old tuberculous process in the lung together with enlarged bronchial, retroperitoneal and mesenteric lymph-nodes. A microscopic examination was reported in but 1 of the cases. Ebsteins' ¹¹ case was probably pseudoleukemia. He admitted that the lesions in the lymph-nodes, spleen, etc., were typical of pseudoleukemia, but he believed notwithstanding that it was a chronic infectious disease, and he called it "chronic relapsing fever," from the character of the fever which was present. He also reported another case that was still under observation, in which the spleen became enlarged during the periods of fever and diminished in size in the intervals.

In 1887 Shore ¹² gave an incomplete description of a case of enlarged spleen. The autopsy report said that the spleen appeared to be normal; the liver was fatty; no blood examination was reported.

Potain in 1887 ¹³ described a case which he called "pseudo leucémie splénique." The diagnosis was based upon clinical observation. A man 58 years old with emphysema and an enlarged spleen. The disease was of 4 years' duration, and the patient was under observation at the time. A blood count showed 2,000,000 red corpuscles without augmentation in the number of leucocytes. The hemoglobin was diminished to one-third of the normal. Potain could find no cause for the splenic enlargement and therefore called it a case of splenic pseudoleukemia.

Strümpell in 1888-1889 ¹⁴ described a case which resembled pernicious anemia. He admitted this himself but preferred to use the term "anemia splénica," to distinguish it from cases of pseudoleukemia. The spleen during life was enlarged at times, but at the autopsy it was of normal size and showed nothing characteristic of any disease. The bone marrow was red; the liver cells contained fat, and there was fatty degeneration of the parenchymatous organs. This case is referred to by West and others as a case of splenic anemia.

Apropos of the diagnosis in Pels' and Ebsteins' cases, Askanazy in 1888 ¹⁵ described a case which he had observed for 3 weeks, in which there was multiple enlargement of the lymph-nodes associated with elevated temperature. The clinical diagnosis was tuberculosis, but at the autopsy a general enlargement of the lymph-nodes was found which presented the appearances of malignant lymphoma (pseudoleukemia). It was only on microscopic examination that lesions of tuberculosis were found. Askanazy emphasizes the necessity of microscopic examination in all cases.

In 1891 Bruhl ¹⁶ published a long article on splenic anemia and proposed the name of "splénomégalie primitive" in place of "anemia splénica." In the literature one finds Bruhl's name quoted

equally with that of Banti. This is certainly an injustice to Banti. Bruhl's work is merely a copy of Banti's. Aside from the name "splénomégalie primitive," there is nothing in it of importance that has not been said by Banti. Bruhl observed one case in which there was no autopsy. The description of the etiology, symptomatology and pathology are copied from Banti. He differs in one particular from Banti; he says "the anemia may precede the splenic enlargement (the usual form), or the splenic enlargement may occur early, associated with pain in the region." Banti insists that the disease is primary in the spleen and that the splenic changes occur first. If Bruhl considers it to be a primary disease of the spleen, as he says, then his statements appear to be contradictory.

Bruhl says "the lesions have been considered to be analogous to those of leukemia and pseudoleukemia, but Müller and Banti have shown that certain alterations are present that belong to this disease alone." This is an error on his part. Banti said distinctly "it cannot be denied that other morbid conditions are capable of producing similar lesions in the spleen," etc. (I have already quoted this statement of Banti's and need not repeat it at length.) As far as Müller's cases were concerned, there was nothing typical of the lesions described by Banti. In one of Müller's cases there was some increase of the connective tissue in the spleen but in a moderate degree.

(To be continued.)

INFANTILE SCURVY.

BY EDWARD L. PETERSON, M.D., SALEM.

In taking up infantile scurvy, or scorbutus, as one of the diseases of the nutrition of infants, I desire to present the subject to you simply in the light of a general practitioner seeing the case in his daily work, leaving the more doubtful points of pathology and etiology to be cleared up by the gentlemen discussing the subject.

There is no doubt that infantile scurvy is a distinct disease of childhood. There is no doubt that it is a fairly common disease and, unlike rachitis, it is common among the well-to-do families, where hygienic surroundings are good.

Two cases will serve to illustrate this disease.

CASE 1. Female child 13 months old. Child had been for some weeks under care of a physician, who was treating her for rheumatism, but she was constantly growing worse. She lay on her back in the crib with thighs flexed on body and knees flexed at right angles. The arms were kept flexed and close to body. Any attempt to move arms or legs caused the child intense pain, and in fact the child screamed in terror when anyone approached her. Her mother said she had been unable to change her diapers for 4 days.

¹ Read before the Massachusetts Medical Society, June 11, 1901, as a part of the general topic, "The Diseases of Nutrition of Infants."

She was anemic, poorly nourished, and weighed only 12 pounds at 13 months of age. The mother stated she had been going down for 3 or 4 months, and lately had been having nosebleeds. On examination the lower ends of the diaphysis of the long bones of legs and arms were enlarged, especially the lower end of the femur and tibia and both bones of the forearm. The swellings were symmetrical and very tender. Fever was absent. There was no rosary, and the fontanelles were as much closed as age of the child demanded.

There were only 4 teeth, and the gums were much swollen. There was, moreover, kyphosis and tenderness of spine. Under proper treatment there was marked improvement in 4 days, which was followed by complete recovery. This child had been fed exclusively on condensed milk.

CASE II. Male child, 10 months old, well nourished and fed on milk and barley in seemingly proper proportions. About 2 weeks before I saw him he slipped out of his chair and fell on the floor. About 2 or 3 days after, his mother noticed that he did not use one leg much, that it seemed to hurt him to move it. This condition gradually grew worse until they sent for me. On examination I found a tender swelling over the lower end of the diaphysis of the femur and made a diagnosis of scurvy. Under treatment the swelling and tenderness wholly disappeared in 6 days.

These 2 cases are fairly typical of this disease and will serve for illustrations.

The etiology of the disease is doubtful. The most that can be said is that it follows the prolonged use of some diet unsuitable to that individual child, and, in general, the less like the food is to nature's food for the child at that age, the more likely is scurvy to result.

The disease is met with usually in children under 2 years of age and generally from 6 to 15 months. Sex makes no difference, and most cases that I have seen have been in native-born Americans and in artificially-fed infants. Proprietary foods and absence of fresh milk seem predisposing causes, but I have seen cases in infants who were taking plenty of fresh uncooked milk. All that can be said is that either there is a lack of necessary elements, or else these elements are present in a nonassimilable form.

As far as the pathology, that which concerns us from a general practitioner's view, it is simply a hemorrhage that we have to deal with. The hemorrhage is the earliest symptom in the vast majority of cases, is usually subperiosteal and in the long bones of the legs, later in the arms, very rarely in any other bones.

The earliest and most common symptom is swelling of the lower end of the diaphysis of the femur—and this is an important point in the diagnosis from rickets or rheumatism. In scurvy we find an extremely tender swelling at the lower end of the diaphysis, but the swelling is neither hot nor red. In rheumatism the swelling is in the joint and is hot. In rickets the epi-

physis is enlarged and is not tender. If one bears these points in mind, he will see more cases of scurvy than he thought existed before.

The rest of the pathology of the disease consists of anemia, which is probably secondary and due to the hemorrhage and a stomatitis ulcerosa. The swelling of the gums in my experience is not usually an early symptom and will not appear at all if the case is early recognized and treated. Hemorrhage may occur from the bowels, nose or into the skin later in the disease, or into any of the internal organs.

The first symptom that we notice when called to see a child with scurvy is pain. The child is in terror of being touched. When perfectly quiet there is no pain, but any motion, especially of the legs, causes great distress. The legs and thighs are held flexed and rigid. The pain is first in the legs, then back and arms. The pain is early, constant, and increases in severity as the case goes on. Next the swellings appear, and later the gums become spongy and ulcerated. There is no fever as a rule, and the tender swellings are not hot. Anybody ought to be able to make a positive diagnosis without much difficulty; yet most cases that I have seen have been mistaken for something else, and it is for this reason that I desire to present the subject today. The most common error in my experience is to call the cases rheumatism, yet rheumatism, I should say, was extremely rare under 2 years, especially in the first 6 to 12 months of life, when these cases of scorbutus appear. In rheumatism the joint is affected, it is hot, and fever exists. In scurvy the lower end of the diaphysis is involved, it is not hot, and no fever is present. The next most common error is to lay the disability to some fall or injury which occurred at about the time the symptoms developed. I have seen quite a number of such instances, where I was willing to say that if they would try orange juice for one week and the baby did not get well, I would acknowledge that they were right, and my diagnosis of scurvy was wrong.

As regards the distinction between rickets and scorbutus, there ought not to be any doubt. In rickets the swelling is epiphyseal, is chronic, is painless; and by the time it is as large as the swelling of scorbutus, there will be a well-marked rosary, and the characteristic head deformities. Stomatitis and hemorrhages do not occur in rickets. The two diseases are at times found in the same child.

Pott's disease is rare under 2 years and has no swelling of the extremities. Acute anterior poliomyelitis has an acute and febrile onset with paralysis of later development. Purpura has no swellings of the extremities or stomatitis. Syphilis is more chronic, and the swellings are less tender, and therefore no one ought to fail to distinguish scorbutus from any of these 4 diseases. Practically, if you are called to a child lying with legs drawn up, dreading to be touched, with swelling over the lower end of the diaphysis of long bones, anemic, with swollen gums, there is no other diagnosis you can make except scorbutus,

and treatment for 6 or 7 days will usually prove you correct.

Treatment is as a rule simple. The babies are usually bottle-fed and proprietary foods, condensed milk or cooked milk are used. Modified uncooked milk with orange or lemon juice should be given, one-half to one lemon or orange being used daily, with fresh beef juice. These children in my experience are greedy for the juice of both orange and beef. I usually give iron, etc., for the debility and anemia. In severe cases the child must be kept quiet on a frame, but I have never had to resort to this as yet.

I am aware that in what I have said I have considered the subject from the somewhat superficial point of view of a general practitioner, but my object is to make it clear what a very easy disease scrobutus is, as a rule, to recognize, and also how many cases we all have probably overlooked in the past, and called something else.

RHACHITIS.¹

BY ARTHUR R. CHANDELL, M.D., TAUNTON, MASS.

RHACHITIS is a chronic disease of nutrition.

It is essentially a disease of infancy, the symptoms usually appearing between the ages of 6 months and 2 years.

No race is free from its attack, but it is much more common among nationalities transported from warm to more temperate climates, as exemplified by its frequent occurrence in Negroes and Italians in this country.

Infants reared in the city are more prone to the disease than are the country-bred.

Etiology.—Various theories have been advanced to account for the origin of rachitis, but they have been discarded, one by one, until it is now believed that this disease results from chronic malnutrition, often re-enforced by poor hygiene and unsanitary environment. In support of this view is adduced the fact that breast-fed infants almost never develop rachitis, unless lactation be unduly prolonged, or the breast milk be poor in quality. Artificially-fed infants, on the other hand, frequently show evidences of rachitis, especially when fed improperly. The diet in these cases is usually largely deficient in fats and proteids, with an excess of carbohydrates. This accounts for the common occurrence of rachitis in children fed on proprietary foods, most of which contain low percentages of fats and proteids, with carbohydrates in improper proportion and often in improper form, as starch and cane sugar.

The influence of poor hygiene and unsanitary surroundings is shown by the frequency of rachitis in city infants, compared with those of the country, especially in the city children living in crowded districts, where air and sunlight are insufficient and the mode of living unhealthful. How improper feeding and poor environment are

causative in the production of rachitis is a subject for further speculation and study.

Gross pathology.—While all the organs of the body suffer from the effects of rachitis, the essential lesions are in the bones. The grosser changes require a brief description.

The long bones ordinarily grow in length by the formation of bone in the cartilage between the epiphysis and the shaft; in thickness by the formation of bone beneath the periosteum; and at the same time the medullary canal grows in size by the absorption of the inner layers of the bone (Holt). In health the seat of greatest activity in growth is at the epiphyses; in rachitis the most marked changes are found in the same locality. Thus in a rachitic long bone the epiphyses are large and rounded, and the cartilage between the epiphysis and the shaft is wider and thicker than normal, while the process of ossification is delayed or may be entirely arrested. In the shaft of the bone the outer layers are thickened and soft, and the absorption of the medullary layers is more rapid than normal. The proportion of organic to inorganic matter is much increased, rendering the bones softer and more flexible. The long bones most affected are the ribs and the large bones of the extremities, most frequently those of the leg and forearm.

The flat bones are affected most markedly in the region of the centres of ossification, where a thickening occurs, giving rise to soft and spongy prominences, most often seen in the frontal and parietal region of the cranium.

As the disease subsides after some months, the epiphyses lessen in size, the prominences of the skull decrease, and there is a normal formation of bone. The parts affected often never regain their natural size, and are almost always harder than normal, owing to a process of condensation and contraction in the bony structure.

Early symptoms.—The pathognomonic symptom of rachitis is the development of the bone lesions, but premonitory signs occur which lead to a suspicion of its oncoming. Perhaps the earliest of these is profuse sweating of the head accompanied by irritability and restlessness, particularly at night.

Delayed dentition is present in a large proportion of the cases, is a very suggestive symptom, and should always put the practitioner upon the watch for other rachitic manifestations.

Enfeebled muscular action, again, is a suspicious condition; and delay in holding up the head, in sitting up or walking, is a frequent premonitory symptom. This apparent backwardness is often the most fruitful cause of anxiety to the parents, other signs remaining unnoticed, or thought to be of little importance.

A persistent disturbance of the bowels, either constipation or diarrhea, may also herald the approach of the disease.

LATER SYMPTOMS.

(1) **Ossæous system.**—Of the bone lesions, one is first and constant, according to Morse,

¹ Read before the Massachusetts Medical Society, June 11, 1901, as a part of the general topic, "The Diseases of Nutrition of Infants."

and that is the "rosary" or beading at the junction of the ribs with their cartilages. This is not present in normal children, and its occurrence justifies the diagnosis of rachitis. The beading is always greater on the inside than on the outside of the chest wall.

The anterior fontanel normally should be closed by the 18th or 20th month, but in rachitis usually remains widely open after that time; the posterior fontanel also occasionally remains open.

The formation of the frontal and parietal bosses previously mentioned gives the head a curiously square appearance and causes an actual increase in its circumference. The parietal eminences are more apt to be enlarged than are the frontal.

Craniotabes may occur. The other symptoms resulting from changes in the osseous system give rise to deformities more or less noticeable and permanent according to their severity.

The chest shows an increase in its anteroposterior diameter caused by the effect of atmospheric pressure upon the yielding ribs. This may be so marked as to form a distinct pigeon breast.

If the entrance of the air to the lungs be impeded by the presence of adenoids or enlarged tonsils, the sternal region may be depressed, causing the funnel chest.

There may be, and very often is, a lateral depression about the chest, corresponding to the insertion of the diaphragm. The contraction of this muscle pulls in the ribs at the point at which it is attached to them, and causes a furrow in the chest wall. This brings about a flaring of the lower costal region which is accentuated by the presence of the normally large liver of infancy.

An almost invariable symptom is the enlargement of the epiphyses of the long bones of the extremities, most marked at the wrists and ankles.

The diaphyses of the long bones also show changes, both bending and torsion, resulting from muscular pull and improper distribution of weight upon the softened bony structure. Bow legs are the commonest of these deformities, varying from the mild cases, where the condition is hardly more than an enlargement of the epiphyses at the ankle, up to the severer ones, where walking is almost impossible. Knock knee is frequent. Deformities of the forearm, especially an anterior bowing, are not uncommon. In fact all the long bones of the extremities may assume distortions of all grades of severity.

Other diseases involving changes in the bones of the extremities may here be differentiated.

In scurvy there is an apparent bony enlargement, but one really due to subperiosteal hemorrhage. Further, this occurs about the shaft and not in the epiphyses of the bone. The extreme tenderness accompanying scurvy, the subcutaneous hemorrhages, and the spongy and bleeding gums enable it to be differentiated. Immediate improvement on antiscorbutic diet clears up any doubt as to the diagnosis.

Syphilis is also frequently accompanied by bony changes in the extremities. Here again the

epiphysis is not affected, but the enlargement is at the junction of the epiphysis and diaphysis. It is a boggy infiltration over the bones and not an actual enlargement of the bone itself. It may be unilateral and may break down, conditions not found in rickets. The latter bone lesions of hereditary syphilis affect the shaft rather than the extremity of the bone.

In rachitis there may be occasionally slight tenderness over the enlarged epiphyses. In my experience this has been very uncommon. If sufficient to attract attention and suggest a diagnosis of rheumatism, the absence of local heat and tenderness, the normal temperature and the presence of other rachitic symptoms render the differential diagnosis simple.

(2) *Muscular system*.—Rachitic children are usually fat and may appear at first glance to be well developed. The muscles, however, suffer from malnutrition, as do the other organs of the body. They are weak and flabby, and their action is enfeebled. The delay in holding up the head, in sitting up, and in walking, has already been mentioned.

Another very noticeable characteristic is the enlarged abdomen or "pot belly." This is due to weakness of the abdominal muscles, the condition being accentuated by the flaring of the lower costal margin and the atony of the muscular coats of the intestine which results in distension of the bowels. Percussion usually shows marked tympany of the whole abdomen. The absence of fever and free fluid differentiates any abdominal inflammatory condition, such as tubercular peritonitis, which might be suggested.

Weakness of the back muscles may be made manifest by the appearance of a rounded kyphosis involving the lower dorsal and lumbar regions. This is generally accompanied by abnormal flexibility of the spine and usually disappears on recumbency. The reverse may be true, and the persistency and rigidity of the kyphos may suggest caries to such an extent that recumbent treatment for a while is necessary for differentiation. The presence of other rachitic symptoms is of considerable value in the diagnosis, and the absence of other symptoms of Pott's disease, such as increased patellar reflexes, psoas contraction and abdominal pain, makes the latter much less probable.

Weakness of the muscles of the extremities may be great enough to simulate paralysis, either cerebral spastic or anterior poliomyelitis. The former is ruled out by the absence of mental impairment, of increased reflexes and muscular spasm or contractures; the latter, by the normal surface temperature of rickets, the normal reflexes, the absence of atrophy of any particular region or extremity, and, in case of doubt, by the electrical reactions.

(3) *Ligaments*.—The ligaments show evidence of impaired nutrition in an undue laxity, especially in the lower extremities. Here there may be hyperextension of the knee-joints, but more characteristic are the weak ankles.

Flat foot due to muscular and ligamentous weakness is common, a deformity which is increased by the improper weight distribution resulting from bow legs and knock knees.

(4) *Respiratory organs.*—There are no constant changes in the respiratory system. If the thoracic deformities are marked, especially depressions in the chest wall, the underlying portion of the lungs may be collapsed, with emphysema of the region just anterior to the atelectatic area. The bronchial mucous membrane shows an increased susceptibility to disease, and the respiratory muscles are of diminished power as the result of poor nutrition. These conditions render bronchitis common, especially in the severer cases, and bronchopneumonia a frequent and dangerous complication.

(5) *Gastro-enteric tract.*—The intestinal mucous membrane, like the bronchial, is more vulnerable, and gastro-enteric disturbances are therefore common. These may be of all forms and of all grades of severity. There is nothing about them that is characteristic. The atony of the muscular walls of the intestine results in diminished peristalsis, often accompanied by putrefactive changes in the intestinal contents. Thus arises the distension of the bowels already referred to. Either constipation or diarrhea is usually present, and a normal regularity of the bowels is uncommon. These conditions are fostered by the improper diet of the rachitic infant. The liver is not very often increased in size, although its downward displacement by the contraction of the chest often causes it to appear abnormally large.

(6) *Spleen.*—The spleen is enlarged in a small proportion of cases, the enlargement being due to simple hyperplasia. There seems to be no relation between the size of the spleen and the severity of the particular case, or the condition of the blood. There is a return to normal size with subsidence of the disease.

(7) *Blood.*—The impaired nutrition in rachitis is accompanied by an anemia which has no special characteristics. The more marked the rachitis, the more severe the anemia is apt to be. The hemoglobin is usually relatively low. There may be a leucocytosis.

(8) *Nervous system.*—The nervous system of the normal infant is unstable. This condition is aggravated in rachitis through the defective nutrition of the nervous centres, rendering nervous manifestations early and common. Restlessness at night and irritability have already been noticed. Laryngismus stridulus and tetany frequently occur. Holt states that, as a predisposing cause of convulsions in infancy, rachitis takes the first place. These are due to the quick response of the unduly susceptible nerve centres to relatively slight stimuli.

(9) *Glandular system.*—General glandular enlargement is not infrequent, but is not especially characteristic. Enlargement of the tonsils and the occurrence of adenoids are not uncommon. Their operation in producing thoracic deformity has

been mentioned. Their presence gives an added susceptibility to pulmonary complications.

Diagnosis.—The premonitory signs of rachitis, as head-sweating, irritability, restlessness at night, prolonged gastro-enteric disturbances and delayed dentition have been mentioned. These symptoms should excite suspicion. The detection of the rosary and the enlarged epiphyses renders the diagnosis certain. The clinical picture is completed by the appearance of the prominent cranial bosses, the delayed closure of the anterior fontanelle, the various thoracic deformities, the pot belly, deficient muscular action, and, as the disease progresses, by the changes in contour of the extremities. The various diseases which might obscure the diagnosis have already been considered.

Prognosis.—The prognosis of uncomplicated rachitis is good. The disease untreated tends to a spontaneous recovery after a duration of several months. With the use of a more general diet after the first year or year and a half, and as the food elements are supplied in better proportion, there is a gradual improvement in condition. The affected organs slowly regain their normal state, unless the lesions have been severe, under which circumstances there may be a varying persistence of the several deformities, even to permanency.

Pulmonary, gastro-enteric and nervous complications are frequent, and render the prognosis grave. Any acute disease in a rachitic infant assumes a severe type and is increased in danger.

Treatment.—Cheadle says the occurrence of rachitis is in most cases a grave reflection upon those responsible for the child's diet. Prophylaxis is, therefore, the most efficient treatment. This comprehends painstaking and accurate feeding, careful hygiene and supervision of methods of living; if, however, prophylaxis has been neglected, then active treatment must be carried out.

Since rachitis is due largely to the deficiency of fats and proteids in the food, a proper percentage of each must be supplied, and improper elements in the diet must be eliminated. Regular feeding must be instituted, and the infant kept under observation, that changes in the food may be made when necessary.

Proper amounts of light and air must be secured. City living should be exchanged for life in the country, or better still, life at the seashore. If poverty prevents this, the child may be taken on daily trips to spots where light and air are more abundant. Bathing and massage favor bodily nutrition.

Drugs.—The drug treatment of rachitis is of minor importance. There is no specific for its cure, phosphorus, once recommended so highly, having been practically discarded. While milk and cream afford fat in the best form, it is sometimes expedient to administer it as cod-liver oil in assimilable doses. The anemia is to be treated by the use of iron.

Deformities.—Many deformities may be prevented if their possible occurrence is borne in mind. Creeping, walking and sitting up may cause

bending of the softened bones, and should be allowed guardedly until the bones begin to harden. Manipulation will do much to reduce the lesser deformities of the extremities while the bones are flexible. Deformities that are severe, and remain in spite of all measures undertaken, require orthopedic treatment. Something may be done for the thoracic changes by various exercises, while the distorted bones of the extremities may be corrected by osteotomy at the proper time. The use of apparatus in cases of bow legs and knock knees results commonly in annoying failure, and is an unnecessary infliction upon the patient. Osteotomy, when the bones have regained their normal hardness, but not before, is much to be preferred.

Medical Progress.

REPORT ON PATHOLOGY.

BY JAMES H. WRIGHT, M.D., BOSTON,

Director of the Clinico-Pathological Laboratory, Massachusetts General Hospital.

THE "JOURNAL OF MEDICAL RESEARCH."

It is a gratifying sign of the progress of pathology in North America that the *Journal of the Boston Society of Medical Sciences* has been enabled to expand into the new *Journal of Medical Research*.

The initial number contains the papers read at the first meeting of the Association of American Pathologists and Bacteriologists.

This collection of papers compares favorably with any volume of pathological transactions with which we are acquainted, and its appearance is a most gratifying indication of the increasing activity of American medical men in scientific medicine.

The new journal is very tastefully printed and is well provided with illustrations in the best form. It reflects great credit upon Dr. Harold C. Ernst, its able editor.

YELLOW FEVER AND MOSQUITOES.

The brilliant work on this subject by Drs. Walter Reed, James Carroll and A. Agramonte¹ in Cuba has been so thoroughly discussed in this and other journals that it is superfluous to report the results of their work here.

BOVINE AND HUMAN TUBERCULOSIS.

The important statement made by Professor Koch at the British Congress on Tuberculosis, that he does not believe that the bacillus of bovine tuberculosis is capable of producing tuberculosis in man, has been received with considerable astonishment by medical men.

This subject has recently been discussed thoroughly in the JOURNAL so that it is unnecessary to enter into it here. The position taken by the JOURNAL in its editorial of Aug. 1, 1901, probably

represents the best opinion among pathologists on this question.

THE SOURCE OF THE LEUCOCYTES IN LEUCOCYTOSIS.

The view, that polynuclear leucocytes are formed in the bone marrow, receives additional confirmation in two recent publications. Each of the observers has produced experimental leucocytosis in rabbits and studied the changes in the bone marrow.

Robert Muir² produced leucocytosis by means of inoculations with the staphylococcus pyogenes aureus.

H. Rabinstein³ used streptococcus cultures, turpentine and other substances which are capable of producing a marked leucocytosis.

Each of these observers found, associated with leucocytosis, increase in the number of certain cells in the bone marrow, which cells they regarded as the mother cells of the polynuclear leucocytes in the circulating blood. It is not apparent from their papers that they are in agreement with one another as to the characters of these cells, which they find increased in number, although probably each has observed an increase in the same kind of cells.

THE PROSTATE AND GENERAL INFECTION.

H. Ullmann⁴ reports 4 cases of crypto-genetic septicopyemia, in each of which it was found at the autopsy that the source of infection was a suppurative process in the prostate, presumably a more or less remote result of gonorrhea.

In the light of these observations the author points out the importance of examining the prostate in all cases of obscure septicopyemia, even if there are neither signs nor history of gonorrhea.

THE ELASTIC TISSUE OF THE LUNG IN CHRONIC PASSIVE CONGESTION.

R. M. Pearce⁵ has investigated the question of the increase of elastic tissue in the lung in chronic passive congestion, making use of Weigert's selective stain for elastic tissue. The result of his work he summarizes as follows:

"In chronic passive congestion the increase in density of the lungs is due, in large part, to the newly-formed elastic tissue. This tissue is found to be increased in the finer structures of the lung in all cases of the disease, and in marked cases an increase is also observed in the pleura, intrapulmonary septa, blood vessels and bronchi. The increase is progressive, depending on the age and degree of the congestion, and it apparently indicates an effort to strengthen the walls of the air passages, supporting the over-filled capillaries, and preventing the collapse of the air cells."

INTESTINAL PARASITES AND APPENDICITIS.

El. Metchnikoff⁶ believes that a large majority of the cases of appendicitis are due to intestinal

¹ The Journal of Pathology and Bacteriology, February, 1901.

² Zeit. f. Klin. Med., Bd. XLII, S. 161.

³ Deutsch. Arch. f. Klin. Med., Bd. LXXIX, S. 309.

⁴ University of Pennsylvania Medical Bulletin, vol. xiv, p.

⁵ Acad. de Méd., séance du 12 Mars, 1901; Semaine Médicale, March 13, 1901.

⁶ Transactions of the Association of American Physicians, 1901, vol. XVI.

parasites localized in the appendix. Of such parasites he mentions two nematodes. These act by producing a lesion in the mucous membrane and thus affording a starting point for the invasion of bacteria.

Metchnikoff seems to think that the great increase in the number of cases of appendicitis in recent years may be due to the less frequent administration of vermifuges.

Moty⁷ stated that in 3 out of 5 cases of appendicitis he had found oxyurus vermicularis present in the appendix and apparently the only cause of the condition.

HERPES ZOSTER.

Head and Campbell⁸ have investigated anatomically 21 cases of herpes zoster and confirm the teaching that this disease is due to a lesion in the spinal ganglia.

They found in the spinal ganglia evidence of inflammatory changes of varying intensity and duration. In the nerve roots, peripheral nerves and spinal cord degenerations were also observed.

In view of the fact that the disease is thus primarily in the spinal ganglia, it follows that the cutaneous lesions, which are so characteristic, afford an excellent means for studying the distribution of the nerve filaments of the posterior roots.

THE ETIOLOGY OF WHOOPING COUGH.

Georg Joemann and Paul Krause⁹ discuss the question of the bacteria found in this disease by other observers and report their own observations.

They found in the sputum in 18 cases, and at autopsy in bronchopneumonia in 3 cases, an influenza-like bacillus, which differs from other whooping cough bacilli previously described chiefly by the fact that it only grows upon culture media containing hemoglobin.

The authors think that at least 3 different kinds of bacilli have been described by other observers as being the cause of whooping cough.

THE FREQUENCY OF TRICHINOSIS.

Dr. Herbert U. Williams¹⁰ has examined samples of muscles obtained at 505 unselected autopsies on adult human subjects, and in 27 cases, or 5.3%, he has found trichinae.

The infection with trichina must in every case have occurred some time previously, to judge from the anatomical appearances.

None of the subjects died from trichinosis. The extent of the infection varied greatly, but was sometimes so slight that only one or two parasites were detected.

The birthplaces of the subjects included most of the places of North America and of Europe, but the important fact is that a large proportion of them were American born and bred.

An interesting fact brought out by this investigation was that a high percentage of the subjects having trichinosis had been insane. He seems

inclined to explain this on the ground that the insane, in the earlier stages of their derangement, and before they are put under restraint, are prone to be careless as to the preparation of their food.

THE ETIOLOGY OF ACUTE HEMORRHAGIC PANCREATITIS.

Eugene L. Opie, in a paper published last February,¹¹ emphasized the marked association of cholelithiasis with hemorrhagic and gangrenous pancreatitis, and pointed out that the pancreatitis in these cases might be very well explained as the result of an occlusion of the pancreatic duct by the pressure of a stone in the gall duct at the point where the pancreatic and gall ducts run close together. This occlusion of the pancreatic duct would lead to an accumulation of the pancreatic secretion, which might set in motion a series of changes resulting in pancreatitis.

In a more recent paper Opie brings forward a more satisfactory explanation of the cause of acute pancreatitis. This is, that it is due to the penetration of bile into the ducts of the pancreas.

In a case of acute hemorrhagic pancreatitis with disseminated abdominal fat necrosis he found a small gallstone impacted in the diverticulum of Vater in such a way as to occlude the duodenal orifice of the same and to permit the bile to penetrate into the pancreatic duct, which was bile stained.

This observation suggested that hemorrhagic pancreatitis might be due to penetration all along the pancreatic duct. That the penetration of bile into the pancreatic duct is capable of causing typical hemorrhagic pancreatitis with fat necrosis he showed by a number of experiments on dogs, in which he injected bile into the pancreatic duct.

THE TYPHOID BACILLUS IN THE SPUTUM.

Last year V. Stühlern¹² reported a case of typhoid fever with lobar pneumonia, in which he had found the typhoid bacillus in the sputum.

More recently P. Edel¹³ reports a case of typhoid fever in which the typhoid bacillus was found in the sputum. As in the case of V. Stühlern, a lobar pneumonia was present. Ten other cases of typhoid fever without lobar pneumonia failed to show the typhoid bacillus in the sputum.

THE PATHOLOGY OF THE BUBONIC PLAGUE.

S. Flexner¹⁴ gives a very readable account of the pathology of the bubonic plague based upon his personal observations, with material collected at Hong Kong and at San Francisco.

The paper also contains a good summary of the more important conclusions of the German and Austrian plague commissions.

PARASITES AND MALIGNANT TUMORS.

Dr. E. H. Nichols¹⁵ adds the following note to

⁷ Acad. de Med., séance du 2 Avril, 1901.

⁸ Brain, 1900, Autumn Part.

⁹ Zeitschr. f. Hyg. u. Infect. Krankh., 8, 193.

¹⁰ Journal of Medical Research, vol. vi, No. 1, July, 1901.

¹¹ Bulletin of the Johns Hopkins Hospital, vol. xii, p. 182.

¹² Centrbl. f. Bact., Bd. xxvii, Nos. 10 and 11.

¹³ Fortschr. d. Med., Bd. xix, S. 301.

¹⁴ University of Pennsylvania Medical Bulletin, vol. xiv, p. 205.

¹⁵ American Journal of Medical Sciences, September, 1901, p.

his review of some recent papers bearing upon the subject of parasites and malignant tumors:

"The three preceding articles are valuable additions to the literature that is accumulating, to show that at present there is not the slightest evidence to prove that the peculiar bodies seen in epithelial cells of carcinomata are "parasites" of any sort—bacterial, coccidial, or blastomycetic. We are no nearer a demonstration of the cause of epithelial malignant tumors than before, and if a parasitic cause ever is demonstrated, it will be along lines different from those pursued during the past 10 years."

Dr. Nichols, who is in charge of the Department of Cancer Investigation of the Harvard Medical School, is well qualified to form a judgment upon this subject, and his statement clearly expresses the prevailing view of it among professional pathologists.

THE OCCURRENCE OF TUBERCLE BACILLI IN BUTTER.

That virulent tubercle bacilli, as well as bacilli more or less resembling tubercle bacilli, are not of infrequent occurrence in butter has been claimed by a number of bacteriologists.

Maria Tobler¹⁶ has carefully examined 12 samples of butter purchased in the open market in Zürich with reference to the presence of true tubercle bacilli and organisms of the tubercle bacillus group. In 2 of the samples she found bacilli which were true tubercle bacilli as shown by the results of animal inoculation and of cultures. Besides these other bacteria, more or less resembling the tubercle bacillus, were also found.

GANGLION CELLS IN NEUROMATA.

The occurrence of cells more or less resembling ganglion cells in neuromata of the peripheral nerves has been noted by several observers in recent years. These cells form an essential part of the new growth and are not pre-existing cells.

In a recent paper R. Beneke¹⁷ exhaustively reports 2 cases of such tumors, which he had previously reported in 1898. In one of the cases the tumor was as large as a child's head and was situated in the pelvic cavity. In the other case the tumor was situated in the retroperitoneal region near the stomach and was as large as a man's head. A remarkable feature about this case was the occurrence of secondary tumors originating in some of the neighboring lymphatic glands.

The main tumor in each of these cases consisted chiefly of nerve fibres, some of which were medullated. Among the nerve fibres in varying numbers were cells, which the author regarded as derivatives of ganglion cells. The secondary tumors in the second case did not contain nerve fibres, but had more or less of the histological structure of carcinomata. The starting point of the first tumor was considered to be the ganglion cervicale, and that of the second tumor the ganglion semilunare.

The paper by Beneke is needlessly long and prolix, and it is a pleasure to turn from it to the short and succinct paper of A. Glockner,¹⁸ who likewise reports a case of neuroma containing ganglion cells.

Glockner's tumor was situated in the retroperitoneal region behind the mesentery of the small intestine, and was about 8 cm. in greatest dimension. It consisted chiefly of medullated and non-medullated nerve fibres, together with many cells more or less like ganglion cells. The starting point of the tumor is considered to be the sympathetic nerve, probably in the plexus mesentericus.

In gliomata of the central nervous system large cells more or less suggesting new formed nerve cells have also been observed. These cells are regarded by many observers as nothing more than very atypical glia cells. Another instance of the occurrence of such large cells in a glioma has also recently been reported by the late Dr. W. L. Worcester of the Danvers Insane Hospital¹⁹ in a paper read before the meeting of the Association of American Pathologists last April, a short time before his death.

THE EFFECT OF TYPHOID BLOOD SERUM ON THE TYPHOID BACILLUS.

Dr. M. W. Richardson²⁰ reports the results of a series of experiments upon the effects of blood serum, particularly the blood serum of typhoid fever patients, upon the typhoid bacillus. Lack of space prevents a description of the details of these experiments being given here, and we only give what appears to us to be the important results contained in this most interesting and suggestive paper.

He finds that the serum of normal individuals and of typhoid patients convalescing, or in the later stages of the disease, has a marked destructive action upon the typhoid bacillus, while the serum of typhoid patients in the early or middle stages of the disease has not this power. If, however, the serum of a normal individual and the serum of a typhoid patient in the middle or early stages of the disease are allowed to act together upon the typhoid bacilli, the typhoid bacilli are destroyed.

Following the hypotheses of Pfeiffer, of Bordet, and of Ehrlich concerning the nature of immunity, Richardson explains these phenomena on the assumption that in the later stages of, or convalescence from typhoid fever, the blood serum contains two elements, the combined action of which produces the destruction of the bacilli and the recovery of the patient. In the earlier stages of the disease one of these elements, which is present in the blood serum of a normal individual, is lacking.

Upon this hypothesis, and in the light of these observations, the rational treatment of typhoid fever would seem to be to supply to the blood of the patient serum containing the element lacking

¹⁶ Zeitschr. f. Hyg. u. infect. Krankh., S. 120.

¹⁷ Beitr. zur Pathog. Anat. und zur Allg. Pathologie, Bd. xxx, S. 1.

¹⁸ Archiv. f. Gyn., Bd. lxxiii, S. 200.

¹⁹ Journal of Medical Research, vol. vi, No. 1.

²⁰ Journal of Medical Research, vol. vi, No. 1, July, 1901.

for the destruction of the typhoid bacilli; that is, normal serum.

HEMOLYMPH GLANDS.

Hemolymph glands is the name given by Robertson in 1890 to certain structures resembling lymphatic glands found in the prevertebral retroperitoneal tissue. These were first described by Gibbs in 1884, who pointed out that they differ from lymphatic glands chiefly in possessing blood sinuses instead of lymph spaces.

A. S. Warthin²¹ has made a histological study of these structures in 80 human subjects dead of various diseases. He finds that two types of hemolymph glands may be distinguished. "One of these types resembles the spleen in structure, and to this type he gives the name of splenolymph gland. The other type approaches the red-bone marrow in structure, and to this he gives the name of marrowlymph gland. Between these two types transition forms occur "as well as between these glands and the spleen on the one hand and the ordinary lymph glands on the other."

He thinks that "under normal conditions the hemolymph glands are most probably concerned chiefly in hemolysis and leucocyte formation, and playing but little part, if any, in the formation of red blood cells. In diseases in which the blood shows marked changes, specific, conditions are found in these glands of such a nature as to place beyond doubt their blood-forming function."

THE DISTRIBUTION OF THE LEPROSY BACILLUS THROUGHOUT THE BODY.

Uhlenhuth and A. Westphal²² report the results of a microscopical examination of a case of tubercular-anesthetic leprosy, which came to autopsy in the Institute for Infectious Diseases in Berlin.

The bacilli were found in larger and smaller numbers in almost every organ and tissue of the body. There was marked interstitial and perineuritis, and in a number of ganglion cells pathological changes were found. Bacilli were present in large numbers in the affected nerves and were also observed in ganglion cells. A remarkable thing was the presence of bacilli in apparently normal nerve cells of the central nervous system.

The nasal mucous membrane was found to contain an immense number of bacilli. As has been pointed out by Koch and Sticker, it is probable that the nasal mucous membrane is the chief situation for the excretion of the bacilli. They regard the starting point for the disease in their case as having been in the nasal mucous membrane, because in that situation they found the oldest lesions. In cases of suspected leprosy they recommend that the nasal secretions be examined for the presence of leprosy bacilli, and if this examination is negative, then that a small piece of mucous membrane be excised, and the bacilli sought for in sections of it.

THE BACILLUS OF INFLUENZA.

The bacillus of influenza, under the usual conditions of animal inoculation, does not multiply in

the body of the experimental animal, nor does it invade the blood stream.

G. Jacobson²³ has made the interesting observation that if the bacilli are injected with streptococci into a mouse, they generalize themselves through the blood of the inoculated animal and cause its death by a mixed septicemia.

Furthermore, the influenza bacilli isolated from this case of mixed septicemia inoculated into a mouse along with some streptococci killed with heat likewise produce the death of the animal with an infection of the circulating blood.

Finally, the influenza bacilli obtained from this second animal are capable of producing by themselves a fatal septicemia in mice, having acquired, by their successive passages through the two preceding animals, a marked increase in virulence.

INFLUENZA BACILLI IN TONSILITIS.

Ludwig Kamen²⁴ reports finding influenza bacilli in the exude in 2 cases of tonsillitis. The identity of the bacilli was proven by cultures.

The author regards the infection of the tonsils in these 2 cases as primary and not secondary.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting, March 20, 1901.

DR. S. O. BARNES of New York read a paper entitled

HYDROTHERAPY IN CHRONIC DISEASES.¹

DR. PUTNAM: I will not take the time of the society with many words on this occasion. Most of the diseases to which Dr. Barnes refers do not come within my observation to any great extent. I have used it very largely in cases of neurasthenia and the various disorders of which that might pass as a convenient name. I will only say further, there is now in the city at the Colby's Gymnasium an admirable apparatus such as was devised by Dr. Barnes, and that physicians have an opportunity to send their patients there and to oversee the treatment. The applications are now under the immediate charge of Dr. Coggeshall and Dr. Grant.

DR. BARNES: I have divided neurasthenia, for hydrotherapeutic purposes, into two classes,—the erethic and the depressed. In the former, those cases which are excitable, easily disturbed and irritable, I would use no douches at all, because the douche is a powerful peripheral irritant, which would enhance the excitability. The douche is better adapted to the melancholic or depressed cases. But the whole matter in a nutshell is this: We must study the rationale of the action of water and learn that we depend entirely upon

²¹ Arch. de Med. Experi. et D'Anat. Pathol., T. xiii, 1901.

²² Centrbl. f. Bakt. Parasit. u. Infekt., vol. XXIX, S. 339.

²³ Journal of Medical Research, vol. VI, No. 1, July, 1901.

²⁴ Centrbl. f. Bakt. Parasit. u. Infekt., Bd. XXIX, S. 233.

¹ See page 373 of the Journal.

arousing reflex effects upon the important organs by producing a peripheral irritation, irritation of the sensory nerve terminal and vessels in the skin. Fortunately, water is so flexible by reason of the various hydropathic procedures, and by reason of its physical qualities, it absorbs heat more readily than anything else and gives it off more readily than anything else; it may be used under pressure or without pressure. By changing the temperature, pressure and duration of each procedure, we may educate or train the reactive capacity of the patient. The whole success of the treatment by water lies in understanding and watching how a patient reacts. Most of us are familiar with bathing in typhoid fever. If we find that the patient does not react under the Brand bath at 65° F. for 15 minutes, that he becomes cyanotic and his teeth chatter, we make it shorter,—5 minutes. It is not wise to make it warmer on that account. If that does not do, I give a bath of 80° or 75° for 5 minutes, and gradually train the patient's reaction up to what I can accomplish. Recently I was called to see a case of typhoid fever which had been condemned by three consultants, but the attending physician happily was a believer in hydrotherapy. The patient was delirious, had involuntary movements, had not slept for 3 days and nights, etc. The reaction was so poor that I suggested the addition of the Nauheim salts to improve the response of the vessels to the cold, and gave a bath of 80° for 10 minutes with the Nauheim salts. She reacted so well that we left her in the bath 15 minutes. The pulse went down to 120, and as soon as she was taken out she fell asleep, though she had had no sleep for 3 days and nights under hypnotics. I do not invariably depend on pure water alone. Friction is needed and, if reaction requires it, the addition of a chemical irritant. We must begin with some method which will produce reaction, and we have in mechanical irritation a means to secure this. In the case of an anemic neurasthenic, I would apply water at 90°. Take a basin of water; a bath cloth is dipped into the water and squeezed out, and the patient rubbed first on the back 2 or 3 times; that is dried and another part of the back washed. Thus the whole body is gone over except the extremities. You will find that reaction will be encouraged and trained, so that every day you may lower the temperature of the water 2°, 3°, or 4°.

In fact the treatment must be made somewhat agreeable to the patient and in that way the reaction is educated, trained until a patient will take 50° or 40° with impunity, who would have refused to take 75° in the beginning. It is impossible to go into all the details. Each case, as in other departments of therapeutics, is a problem in itself; but we have in hydrotherapy such a flexible agent, and so many different ways of applying it, that we can, by mechanical stimulation and reducing or increasing the temperature and the duration and pressure of the bath, accomplish very satisfactory results in educating and training the reaction. Whenever we get the patient's reaction trained up to a point so that he can bear very

cold water, we get beneficial results, and why? Because the human organism is a self-regulating machine which will meet the encroachment of temperatures or abstraction of heat by enhancing the functional activity of the whole organism for that purpose, and it is this stimulation of the functional activity of the whole organism which cannot be done by any medicinal agent, and which is beneficial in neurasthenia and other diseases in which metabolism or hematosis are involved.

DR. PUTNAM: May I ask Dr. Baruch one question simply, which I think would be a synonym of that which Dr. Prince asked and may put the matter before the society very briefly. Assuming that a patient is in condition to take douches, perhaps Dr. Baruch will be kind enough to explain what would be considered a very mild application with which one might safely commence, and then what would be considered a still stronger application.

DR. BARUCH: If it be a case of anemic and depressed neurasthenia I begin first to train the reactive capacity of the patient. I increase the cutaneous circulation by the use of the dry pack, which I referred to in this paper. That is simply wrapping a patient with one blanket snugly and covering with several other blankets, leaving him for an hour to dilate the cutaneous vessels. He will then react well when cold ablutions are given. This can be done at home, but the douche should never be given at home. At least in New York no private house has sufficient pressure; the shower would usually chill an anemic patient. In institutions there are hot boxes in which the temperature of the air is 150° to 190°, in which the patient remains without getting into a perspiration. Let the cutaneous circulation be increased in this way and then subject him to a jet douche of 85° or 90° and pressure of 20 lbs. or by a fan douche, which is the jet douche with the finger on the nozzle, brought slowly up and down on the back first and then in front of the body for never more than 10 seconds to begin with, to be increased daily a few seconds up to 1 minute. This is a mild application of the douche. Then increase the pressure 1 or 2 lbs. every day or every other day, according to the patient's reaction and according to his acceptance of it, and then decrease the temperature. The more pressure you give the lower you can reduce the temperature. The mechanical irritation of the pressure counteracts the local depressant effect of the cold, and in that way you reduce the temperature until patients may take 45° or 40° F. and a pressure of 35 lbs. I have termed this process neurovascular gymnastics. You may increase the muscular activity of the skin and the muscular tissues surrounding the cutaneous arterioles by this daily subjection to contraction and dilatation. It is the reaction you are really aiming to produce, and you must apply the temperature and the duration according to the result you obtain. The result will be different in every case, but not so difficult but that any one of ordinary intelligence could learn to observe and train it.

DR. GREENLEAF: Some 7 or 8 years ago I had the pleasure of visiting the establishment of Dr. Baruch in New York, and I was much impressed with the methods that he demonstrated. He was kind enough to show me some of his patients. I recall a case of chronic rheumatism: This man had a sluggish condition of the skin, etc., and I watched him through that individual treatment. One point was very striking—the stimulus to the nervous system in addition to the cutaneous reaction. Besides the glow on his skin he appeared distinctly stronger after than before his treatment. It seems to me that another point is one of such importance that it will bear frequent repetition; namely, that in giving a cold bath, as in cases of sunstroke, it is not sufficient to put the patient in a tub of cold water, but one should apply friction also in order to get the full effect desired on the nervous system. Personally I feel we are under a special debt of gratitude to Dr. Baruch for introducing us to this excellent remedial agent, and I think we may regard the beginnings we are having in Boston as largely the outcome of his work. I am sure we are all very glad to have him with us this evening.

DR. GRAHAM: There is one thing Dr. Baruch has entirely forgotten and that is the effect of his own personality, of which he is too modest to speak. He has made me so drowsy and so hungry I feel as if I had had one of his baths. I prescribe water externally for patients very often, but not having an establishment I direct a Scotch bath. Many years ago I discovered this by myself, and I have since seen it mentioned in French, German and other journals. I tell the patient to take a bath as warm as he can comfortably; stand still in that water and rub himself briskly with cold water. It is a bath that suits nine-tenths of the people and comes as near being what the doctor described as can be taken at home. The best time to take a swim is after we have warmed up our skin and perspired a little. If we never tried that, it is surprising to see how delightful the cold water seems, and how easy it is to swim. At Aix-La-Bains some years ago Dr. Forrester treated a number of elderly fat diabetics, and allowed them to eat sweets and starches and drink wines while having the douche-massage. The patients all improved, and the amount of sugar in the urine was much reduced, and they were able to continue their diet and exercise and did not have to go on a very restricted diet. I wish Dr. Smith were here to read his paper upon "Suggestion" because that means a good deal in connection with this and other forms of treatment. The personality of the doctor has a good deal to do about it, and the fact that the patient has a scientific man bossing the job impresses him in some cases fully as much as the bath and perhaps in other cases more.

It is stated in the *New York Medical Journal* that the widow of Theodore Stern, the banker, has given Frankfort-on-Main, Germany, 5,000,000 marks to promote the objects of medical science.

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INDUSTRIAL HYGIENE.

UNDER the general term, "the public health," a great improvement has taken place throughout the United States in the past half century, in consequence of the organization of general, local and voluntary sanitary bodies, and the consequent investigations of the conditions which are harmful to the people, and the application of measures for their prevention. This class of public work embraces mainly the prevention of the spread of infectious diseases, the purification of public water supplies, municipal hygiene, school hygiene, inspection of food and drink, and other topics of a similar character.

There is one branch of public hygiene, however, which, so far as the United States are concerned, is yet in its infancy when compared with the advances which have been made in other countries, and that is "industrial hygiene," and when it is considered that fully six millions of people are now employed in manufacturing, mining and mechanical industries in the United States, it is scarcely creditable that so little has ever been done either in the line of investigating the effect of these occupations on those who are thus employed, or in the prevention of harmful effects when once ascertained.

Comparatively speaking, the subject is one of little interest in the Western and especially in the Southern States, where the majority of the occupied population is engaged in agriculture, the most healthful of all pursuits; but in the three New England States of Massachusetts, Rhode Island and Connecticut, also in New Jersey, and in the mining States of Pennsylvania and Colorado, where from 36 to 57% of the entire occupied population is employed in manufacturing, mechanical and mining industries, it is surprising that but little systematic, intelligent investigation has yet been undertaken for the purpose of determining

first, the causes and then the method of alleviating the multitude of evils to which the workman engaged in harmful occupations is subjected. Laws have existed for centuries, having for their object the protection of neighborhoods from the injurious action of so-called offensive trades,¹ but the workman himself, who is exposed to harmful influences arising from the character of his occupation, has been left largely to shift for himself, so far as his health is concerned. It is true that certain laws have been enacted, termed "factory inspection acts;" but these relate chiefly to certain specified subjects, such as the employment of minors and of women, the hours of labor, and the sanitary conditions of workshops. But among the numerous industries, both new and old, now conducted in this country, scores of occupations might be named which are susceptible of improvement in their methods of operation. The one thing lacking is intelligent medical supervision, under proper legislation.

As an example of thorough systematic work in this direction, the recent annual report of the Inspector of Factories and Workshops of England² may be quoted. The principal topics treated in this volume of 662 pages are, the industries of earthenware and china, the bottling of aerated waters, the manufacture of wall paper, accidents in building construction, fencing of new machinery, tin-plate working, horse-hair manufacture, furriers, lead poisoning, and accidents due to locomotives, electric apparatus and grindstones.

The area embraced in this report includes all the British Islands. The number of factories subject to inspection in 1900 was 95,664 and of workshops 137,648. The number of reported accidents was 79,020, of which number 27,704 were reported to the certifying surgeons, an increase of 4,933 over those of 1899. Of these 1,045 were fatal.

Of lead poisoning there were 1,058 cases; of arsenic poisoning there were 22 cases, of which 3 were fatal. There were 9 cases of mercury poisoning and 3 of phosphorus (match industry). Among house painters and plumbers 199 cases of lead poisoning were reported, which did not come within the authority of the inspection acts.

With reference to the action of lead among workmen, the inspector says (p. 436):

The figures for 1900 seem to bear out what was tentatively suggested in the last annual report, that in the long run the slower and more insidious form of lead poisoning brought about by the absorption of metallic lead, and of the salts of lead in the form of paint, is more severe than that due to the salts of lead in the form of dust and from fumes. At any rate the proportion of severe cases among file cutters and those en-

gaged in coach-painting, in ship-building, and in other industries where paint is used, exceeds that of those engaged in industries where the danger is primarily from the dust of salts of lead. But the importance of the great diversity in the age distribution and duration of employment of the two classes of workers must not be lost sight of. Probably, also, the number of persons exposed to the risk of lead poisoning from metallic lead and from lead paints far exceeds that of those to whom there is risk from salts of lead in the form of dust.

The comparative slowness of the onset of symptoms in those handling metallic lead or paint probably makes the workers indifferent to the gradual undermining of the constitution, whereas sharp attacks of colic among white lead and pottery workers cause many of them to seek other employment, so that in the one case there is a constant influx of new hands which is absent in the other. This question of the age distribution and duration of employment is of moment when the question of administrative interference arises.

For the purpose of educating the working people relative to the dangers of lead poisoning, 10,000 copies of a leaflet or circular had been distributed by the district inspectors. This circular was entitled, "Lead Poisoning, How Caused and How Prevented." Seventeen cases were reported among printers, compositors, linotypers and others engaged in the processes requiring the handling of lead type. Another interesting part of the report is that which deals with the employment of married women in lead industries. One certifying surgeon presented the facts relative to 239 such women, the data obtained being the number of children born, the number who had died, and the number of miscarriages: (1) Previous to employment in lead industries, and (2) during or after such employment. The following are his figures:

PREVIOUS TO LEAD EMPLOYMENT.				
Number of Women.	Children.		Pregnancies.	
	Born.	Died.	Total.	Miscarriages.
239	453	183	487	34
	100	40.4	100	7
DURING OR AFTER LEAD EMPLOYMENT.				
Number of Women.	Children.		Pregnancies.	
	Born.	Died.	Total.	Miscarriages.
239	499	182	566	67
	100	36.5	100	11.8

The percentage of children who died to the total number born is greater, and the percentage of miscarriages to the total number of pregnancies is less, in the period before lead employment, than in the period of lead employment.

¹ For example, in Massachusetts since 1692.

² Annual Report of the Chief Inspector of Factories and Workshops for the year 1900. Presented to both Houses of Parliament by Command of His Majesty. London, 1901.

The portion of the report which relates to the subject of anthrax among hair-workers, and the experiments in its disinfection, call to mind some cases of this disease which occurred several years since in a similar industry conducted at Walpole and Hyde Park, Mass., as well as the ineffectual attempts to disinfect tightly-baled rags with steam by a patent process conducted at the Hoosac Tunnel Docks in Charlestown in 1887. The recent experiment as carried out by Mr. Webb at London with bales of China horse-hair (manes) weighing about 5 cwt. also resulted in failure. The first experiment was made with a tightly-packed bale, not cut open, but subjected to a temperature of 240° F. The bale remained in the steam chest for half an hour, and subsequent examination showed that anthrax germs were still present in large quantities in the middle of the bale. Another bale was penetrated by a hole extending to the centre, and after a half hour's exposure a thermometer showed that "the recorded temperature was at least 40° F. below that at which there would be any certainty of anthrax spores being destroyed." After many trials Mr. Webb says, "I must admit that at the present I can hardly urge upon my friends in the hair trade to go to the expense of steam disinfectors; whilst they undoubtedly minimize the risks, my own experience leads to the belief that they are not completely efficient." The extreme difficulty, therefore, of disinfecting material tightly packed in bales by means of steam, in such a manner as not to injure its commercial value, must be recognized.

The experiments of the Imperial German Health Board with similar material are quoted in full, and also their conclusions, which are, as follows:⁸

(1) Disinfection by the action for at least $\frac{1}{2}$ hour of current steam under a pressure of 2½ lbs.=218° F.; (2) by boiling for at least $\frac{1}{2}$ hour in a 2% solution of potassium permanganate, and subsequent bleaching in a $\frac{3}{4}$ % solution of sulphurous acid; (3) by boiling in water for at least two hours.

The foregoing alternate methods were adopted throughout the German Empire for the government of hair and brush factories.

Mr. Webb points out the fact that Dr. Kubler's experiments and his own were conducted under quite different conditions. In Mr. Webb's experiments the anthrax spores "were in their natural environment on the hair, dry and surrounded with dirt and grease, whereas in the German experiments they were laboratory specimens introduced mechanically into the bales, and thus steam would probably penetrate more readily to them."

The manufacture of ganister (a refractory siliceous rock) into fire-brick is attended with greatly increased risk of contracting phthisis. A list of deaths due to "ganister disease" is given, showing as the reporter says that the mortality from phthisis among these ganister miners in 1892, 1894 and 1897 was ten times as great as in the general male population at corresponding ages. A glance at this list shows how very short-lived these workers are. Out of 81 deaths detailed in this table, only 23 exceeded 40 years at the date of decease.

Dr. Andrew's report upon two of these cases is illustrated with colored plates of the diseased lung. This examination confirmed the previous observations of Dr. Greenhow, that the inhalation of heavy angular particles of grit produce in the lungs:

(1) Iron grey nodules, scattered through consolidated portions of lung; (2) deposition of black mineral matter around the bronchial tubes, arteries and veins; and (3) the development of phthisis is intimately associated with, although dependent of, the lesions produced by the dust.

The point which remains for inquiry is, how far is a fatal issue ever brought about directly from the lesions due to dust, apart from the added tubercular infection?

A chemical analysis of a portion of the lung in one of these cases gave the following result, after drying over a water bath for three hours:

(1) Grammes of dry lung	2.2675
Loss of weight in combustion	1.1300
Residue of ash	1.0775
Percentage of ash in dried lung	47.52
(2) Estimation of silica:	
Grammes of dried lung	1.505
Silica in same	.0100
Percentage of silica in dried lung	6.64

On the whole this report of the Chief Inspector, Dr. Whitelegge, is a model of excellent work. In many of the industries under supervision a lessened death-rate, as well as a diminished risk from accidents and the harmful operation of dangerous occupations, is clearly due to the systematic supervision which has been undertaken for their prevention.

WAIT FOR THE FACTS IN THE CASE.

Much to our regret, and—we think—to the regret of the profession at large, several medical journals of undoubted standing have undertaken to criticize the management of the case of the late President, in advance of the publication of the official report of the staff of attending physicians and surgeons. Such long-range criticism, in the absence of positive knowledge relative to the conditions governing this case, would appear to savor less of a scientific and discriminating discussion of the matter than of a tendency toward that sensa-

⁸ Kubler's Experiments as published in "Arbeiten aus dem Kaiserlichen Gesundheitsamte, vol. xv, pt. I.

tionalism which is such a marked characteristic of certain New York newspapers, from the lurid descriptions and reckless insinuations of which these medical writers would seem to have derived at least a part of their inspiration. The President's case from the outset was in the hands of medical men who have no superiors in the profession of the country. To cast reflections upon the professional skill and acumen of such men as Drs. McBurney, Janeway, Park and Mann—on theory alone and in the absence of any official statement from these physicians—is little short of presumptuous. From yellow journalism nothing is to be expected except that cheap sensationalism which seems to be desired by a certain class of the less intellectually developed, but to find the attitude of papers of this sort supported by any medical journal of repute is somewhat surprising.

Medical men of the country are naturally much interested in the President's case, not only because of the prominence of the unfortunate victim of the assassin's bullet, but also by reason of a natural professional interest in the unusual developments of the case, as they are understood to have been revealed at the autopsy. The unthinking public may be willing to accept theories, but the members of a scientific profession desire facts. The facts in the case, however, have not as yet been given out; until they are, let judgment and criticism be reserved.

That the findings at the autopsy are said not to have agreed with the diagnosis made during life does not prove the incompetence of the attending surgical staff. It illustrates the fact that our best methods of diagnosis, even when applied by experts, are not infallible. That the highly favorable prognosis given out did not coincide with the result of the case only shows that the best minds of the profession may be deceived. In spite of the marvelous advances made by it during the past two decades, surgery is unfortunately not as yet an exact science. The prominence of the case in question emphasizes the surgeon's limitations, but does not in any way reflect upon the efficiency of those in attendance. They did everything which in the present state of surgical knowledge could have been done, and we believe that the reputation of the profession could not have been reposed in safer hands.

With respect to the sensational stories printed in certain newspapers that the attending surgeons of the President had disagreed and had not hesitated, after the death of their illustrious patient, to make bitter personal attacks upon each other, we are in a position to state that such statements

are absolutely false, and have no basis in fact. The attending staff worked in perfect harmony from the beginning to the end of the case, and there was not a particle of truth in the allegations to the contrary made by a scandalmongering New York daily. Few of the attending staff permitted themselves at any time to be interviewed for publication, and after the death of the President a common agreement was entered into in this respect. A trifle of this sort, however, did not dismay the unscrupulous reportorial talent of the sensational press, who promptly proceeded to manufacture such stories as they thought would best suit the class of readers to whose taste they cater. Against such outrageous conduct there is, of course, no protection. We are glad to record the dignified attitude, which, as was to have been expected, has been maintained by the attending staff during the course of a most sad and trying case.

MEDICAL NOTES.

NICHOLAS SENN PRIZE MEDAL.—The committee on the Senn Medal call attention to the following conditions governing the competition for this medal for 1902: (1) A gold medal of suitable design is to be conferred upon the member of the American Medical Association who shall present the best essay upon some surgical subject. (2) This medal will be known as the Nicholas Senn Prize Medal. (3) The award will be made under the following conditions: (a) The name of the author of each competing essay shall be enclosed in a sealed envelope bearing a suitable motto or device, the essay itself bearing the same motto or device. The title of the successful essay and the motto or device is to be read at the meeting at which the award is made, and the corresponding envelope to be then and there opened and the name of the successful author announced; (b) all successful essays become the property of the association; (c) the medal shall be conferred, and honorable mention made of the two other essays considered worthy of this distinction, at a general meeting of the association; (d) the competition is to be confined to those who at the time of entering the competition, as well as at the time of conferring the medal, shall be members of the American Medical Association; (e) the competition for the medal will be closed three months before the next annual meeting of the American Medical Association, and no essays will be received after March 1, 1902. Communications may be addressed to any member of the committee, consisting of the following: Dr. Herbert L. Burrill, 22 Newbury Street, Boston, Mass.; Dr. Edward Martin, 415 S. 15th Street, Philadelphia, Pa.; Dr. Charles H. Mayo, Rochester, Minn.

ADJOURNMENT OF MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—The twenty-seventh annual meeting of the Mississippi Valley Medical Association adjourned at Put-in-Bay, after a successful session, on the morning of Sept. 14, out of respect to President McKinley. The following officers were elected for the ensuing year: President, S. P. Collings, M.D., Hot Springs, Ark.; Secretary, Henry E. Tulcey, M.D., Louisville, Ky.; Treasurer, Thos. H. Stucky, M.D., Louisville, Ky.

PROCEEDINGS OF THIRTEENTH INTERNATIONAL MEDICAL CONGRESS.—The general secretary of the congress announces that the volumes of proceedings of the congress and of the special sections have been forwarded to members. Those who do not receive the volumes to which they are interested are requested to communicate with the editors, 120 Boulevard Saint Germain, Paris. After Dec. 31 no complaints will be acknowledged.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Oct. 2, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 34, scarlatina 22, measles 13, typhoid fever 31, smallpox 6.

OPENING OF WELD HOUSE, BUTLER HOSPITAL.—The Weld House, an addition to the men's wards at the Butler Hospital for the Insane at Providence, R. I., was informally opened Thursday, Sept. 26. The building was given by Mrs. Wm. G. Weld of Boston, in memory of her husband, who was formerly one of the trustees of the institution. The house was erected with a view to the accommodation of 4 distinct classes of patients, the overflow from the main men's ward, an infirmary for bedridden patients, separate accommodations for noisy patients, and especially well-fitted suites for paying patients. The Weld House increases the capacity of the men's ward to about 200, giving an increase of 20%.

HEREDITARY SOMNAMBULISM?—In a trial for murder in a Boston court the defence is attempting to establish irresponsibility on the ground of hereditary somnambulism. A similar defence is reported to have been made by Rufus Choate, who won his case.

TYPHOID FEVER AT NAHANT, MASS.—A considerable number of cases of typhoid fever have appeared recently at Nahant, Mass. The source of infection is not clear, but milk sent from Lynn is suspected.

NEW YORK.

HOSPITAL OF FRENCH BENEVOLENT SOCIETY.—The French Benevolent Society is about to erect a very fine new hospital on 34th Street, a short

distance west of its present hospital building. It will be seven stories in height, and on the top floor will be a completely isolated ward for consumptives. Each ward is to have a sun parlor of its own in the rear of the building, thus enabling the patients of the various wards to have the benefit of the sunlight without coming together, and a large roof garden is also projected. The furniture in all the wards will be of glass and iron, and there will be elaborate arrangements for baths of various kinds. The plans for the building were selected by Prof. A. D. F. Hamlin of Columbia University, from a large number of designs submitted in competition. The French Government has contributed 100,000 francs, together with a magnificent piece of Gobelin tapestry, to the hospital fund. The tapestry, which is a copy of David's painting of Napoleon at Jaffa, is valued at \$50,000, and will be sold for the benefit of the society.

CEREBRAL INJECTION OF TETANUS ANTITOXIN.—A successful case of cerebral injection of tetanus antitoxin is reported from St. Catharine's Hospital, Borough of Brooklyn. The patient was a lad of 14, and the disease resulted from a rusty nail which penetrated the sole of the foot. When the operation was performed, on Sept. 25, it was fully developed, and death seemed inevitable. The injection of the antitoxin was followed by an immediate alleviation of the tetanic symptoms, and on Sept. 28 the patient was stated to be on the rapid road to recovery.

DISCONTINUANCE OF A MEDICAL DIRECTORY.—The medical directory of New York, New Jersey and Connecticut for the year 1901, just issued by the New York State Medical Association, contains the names of 12,644 physicians, of which 10,112 are in the State of New York, 1,472 in New Jersey, and 1,060 in Connecticut. Of the 10,112 names in New York 5,577 are in New York City, and of the latter number, 3,991 are in the boroughs of Manhattan and the Bronx (New York County.) It is said that after the present year the association will discontinue this publication.

BEQUESTS TO HOSPITALS.—Among the numerous charitable bequests made by the late Daniel T. Hoag of New York is the sum of \$3,000 to St. Luke's Hospital. By the will of Harriet Wilcox, widow of Stephen Wilcox of Brooklyn, N. Y., \$20,000 is left to the New York Skin and Cancer Hospital, and \$10,000 to the Home for Consumptives in Brooklyn. Both these institutions are also to have a share in the residuary estate of the deceased, which is estimated to be large.

SMALLPOX.—According to the reports of the Marine Hospital Service, just published at Wash-

ington, 521 cases of smallpox were reported in the State of New York between June 28 and Sept. 20. During the same period last year there were but 7 cases.

Correspondence.

REFLECTIONS ON A CASE OF SYPHILIS.

Boston, Sept. 27, 1901.

MR. EDITOR: Some few weeks ago a man was brought to me, who showed an oval, indolent, indurated ulcer to the right of the median line of the dorsum of the tongue, about one-half inch from the tip. He had a distinctly enlarged cervical gland just below the right angle of the jaw. He had first noticed the lingual ulcer about five weeks before the time of seeing me.

On inquiry I found that he was a married man with four small children, and a man of exceptionally good habits. He never associated with doubtful females, and did not drink; therefore he had no lapses of memory in this respect. He never used tobacco, and therefore had not exchanged pipe or cigar. His occupation was that of conductor on one of the street railways, and he had been in the habit of standing on the footboard when taking fares, and, when making change, of thrusting a bill into his mouth, in order to keep the hands free.

Although the diagnosis was practically certain, I requested him to call in another week, in the meantime giving him very particular instructions as to what he should do to prevent the infection of others. He presented himself the following week, and disclosed a slight but evident roseola and a fair number of mucous patches on the sides of the tongue. He was put under treatment, and is now doing well.

The interest here is not so much in the site of the initial lesion, nor in the method of its reception, since, unfortunately, innocently acquired chancres are but too common, and too little regarded in this and other communities; but in the fact that fairly effective measures might be, and should be, taken to prevent similar occurrences.

It is a matter of common experience that the bank bill passes more rapidly out of one's possession than any other known article. In this rapid transmission comes the opportunity of contact with infected persons, and of almost immediate association with those previously uncontaminated. Then, the warm trouser pocket of the man, or the equally warm stocking of the woman, gives an excellent chance for incubation. I have been long since assured by reliable police authorities that light-fingered girls, after robbing their male companions, frequently thrust a roll of bills high into the vagina, and then submit themselves to be searched by their victims. The practice of wetting the fingers in the mouth while counting bank bills is almost universal, and might be a source of infection either way. In these days when the proper, or improper, disposal of the salivary secretion is made a matter for legal interference, such a practice should at least be severely condemned. I can conceive of no way in which tuberculosis might be transmitted more easily than through the medium of bank bills.

Now, what is the remedy? It lies principally in government enactment. In England bank notes are issued only in large denominations, and all ordinary transactions are carried on by means of silver or gold coins. When one of these bills is deposited in any bank, it is immediately retired, and the Bank of England issues a new one in its place. The bills, too, are of inconvenient size for ordinary carrying, so that deposits are frequent. The result is that one rarely receives a bill not fresh from the printer's hand. When one thinks of the immense number of filthy bills deposited in our banks, and redistributed over

the counters, some idea may be formed of the danger of our system. So far as coins are concerned, they are not subjected to the same chances of contamination, as they are generally kept in small purses, they are not counted in the same way, their surfaces are smaller, and they are submitted to almost constant friction. Then, again, metal may be sterilized in a dozen different ways which are not practicable with paper. The banks and even large firms might be compelled to sterilize their coins by dry or moist heat, by baths of various kinds, or by any other means which might seem feasible.

It would seem to me that, in the general germ war which is now being waged, the question of the transmission of disease through the present United States bank note system might be properly a subject for discussion in the various health organizations of the country, and I am quite sure that the majority of our physicians would loyally and earnestly back any recommendations which might be made.

Yours very truly,

WM. G. MACDONALD, M.D.

WORK AT A STATE HOSPITAL FOR CONSUMPTIVES; A CORRECTION.

Boston, Sept. 30, 1901.

MR. EDITOR: My attention has just been called to one or two statements in the paper of Dr. S. G. Bonney of Denver in your issue of Sept. 12, 1901, and I feel that I must at once correct a misstatement which is made in a part of the paper relative to work "at a State hospital for consumptives in New England." As the Rutland Sanatorium is the only State hospital for consumptives in New England, and as the figures used are evidently taken from my own records, Dr. Bonney must refer to our State institution.

I have too much respect for Dr. Bonney, both as physician and man, to think it anything more than an unfortunate error which he will, without delay, correct.

He states that, out of 214 admissions in the year 1898-1899, 35 or 16% were discharged as arrested. If he will read the figures carefully, he will see that only 126 of these patients were discharged, the balance remaining at the hospital; that 11 of the 126 were not considered in the results, as they remained not more than 2 weeks. Of the 115 cases, therefore, that were considered, 1 proved to be a case of ordinary bronchitis and was not considered in the result. Of the remaining 114, 35 cases had the disease arrested, which gives 30.97%, rather than 16, as he claims.

In another paragraph he says that "the heralded satisfactory results are very largely due to the fact that only the most incipient cases are admitted." It is perfectly true that we endeavor to take only those cases in which the signs are just beginning, but as a matter of fact many cases even with cavity formation have been entered, and the average length of duration of disease in the patients previous to entrance has been 10 months, which would refute the statement that they are all incipient cases.

The term "arrested" in all of these results was used in the most conservative manner also, several of the cases having shown an absence of abnormal signs of any sort, and they could have easily been classed among those termed by others as "cured" or "apparently cured," a term which thus far I have never used until after a lapse of at least 2 years has occurred, during which the patient has shown no signs of the return of the disease.

Having given a paper myself in the issue of Sept. 19 upon this same subject, I will not encroach further upon your time in discussing Dr. Bonney's paper, but, in justice to our own State Sanatorium, I wish to ask you to publish this statement.

I would also add that in last year's report the percentage of arrested cases was 39%, an increase of over 9% over the result of the year before.

Yours very truly,

VINCENT Y. BOWDITCH, M.D.

METEOROLOGICAL RECORD

For the week ending Sept. 21, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches.
	Daily mean.	Daily maximum.	Daily minimum.	Daily maximum.	8.00 A.M.	5.00 P.M.	8.00 A.M.	5.00 P.M.	8.00 A.M.	5.00 P.M.	8.00 A.M.	5.00 P.M.	
Sept. 15	29.91	70	77	63	92	91	W	W	12	10	O.	O.	—
16	29.91	70	74	67	73	74	W	W	15	15	C.	C.	—
17	29.88	68	76	67	85	82	W	W	17	17	O.	O.	—
18	30.00	68	74	68	78	79	W	W	14	14	O.	O.	—
19	30.18	60	68	51	91	86	W	W	10	10	O.	O.	—
20	30.18	53	59	47	94	84	W	W	12	12	C.	C.	—
21	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
22	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
23	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
24	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
25	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
26	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
27	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
28	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
29	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
30	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
31	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
1	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
2	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
3	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
4	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
5	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
6	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
7	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
8	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
9	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
10	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
11	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
12	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
13	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
14	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
15	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
16	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
17	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
18	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
19	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
20	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
21	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
22	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
23	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
24	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
25	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
26	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
27	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
28	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
29	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
30	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—
31	30.17	56	58	45	83	61	W	W	12	12	C.	C.	—

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. *F*—Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPT. 21, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrhœal diseases.	Diphtheria and croup.	
New York	3,437,202	1,293	555	38.91	6.18	1.62	21.35	2.24	
Chicago	1,098,575	379	131	22.95	5.54	2.90	32.86	2.11	
Philadelphia	1,293,697	379	131	22.95	5.54	2.90	32.86	2.11	
St. Louis	575,238	—	—	—	—	—	—	—	
Baltimore	508,957	181	84	30.33	5.52	2.21	42.15	1.65	
Cleveland	384,750	—	—	—	—	—	—	—	
Buffalo	352,387	—	—	—	—	—	—	—	
Cincinnati	325,992	—	—	—	—	—	—	—	
Pittsburgh	321,616	110	56	36.36	5.45	8.18	42.72	4.51	
Washington	278,771	—	—	—	—	—	—	—	
Milwaukee	286,315	—	—	—	—	—	—	—	
Providence	175,597	65	33	32.50	3.97	1.53	33.67	1.53	
Boston	560,892	216	82	37.63	7.40	2.78	21.75	1.46	
Worcester	118,421	42	16	38.10	2.38	2.58	26.20	—	
Fall River	104,863	38	28	36.81	2.63	—	31.67	2.63	
Lowell	94,969	36	31	32.44	7.11	—	47.86	5.53	
Cambridge	91,886	28	19	32.15	—	—	74.14	—	
Lynn	68,513	15	5	46.92	—	—	43.33	—	
Lawrence	62,559	21	16	32.33	9.52	—	23.81	—	
New Bedford	62,442	21	7	33.04	4.76	—	49.01	—	
Springfield	62,059	12	3	19.45	—	—	82.53	—	
Somerville	61,643	10	1	16.00	10.00	—	70.00	—	
Holyoke	45,712	15	9	44.11	13.33	—	26.66	6.66	
Brookline	40,963	15	6	36.00	6.66	—	44.44	—	
Haverhill	37,475	9	5	44.44	—	—	33.33	—	
Salem	35,956	12	8	33.33	—	—	46.67	—	
Chelsea	34,672	9	1	—	—	—	—	—	
Malden	33,664	7	2	14.29	—	—	—	—	
Newton	33,556	7	5	15.23	13.33	—	6.67	—	
Fitchburg	31,531	10	5	10.00	—	—	—	—	
Taunton	31,036	20	1	10.00	10.00	5.00	30.00	—	
Gloucester	26,121	8	1	25.00	—	—	—	—	
Everett	24,336	14	5	21.42	—	—	—	7.14	
North Adams	24,290	5	1	20.00	—	—	—	—	
Quincy	23,809	2	1	10.00	—	—	50.00	—	
Waltham	23,181	11	5	41.80	—	—	63.63	—	
Pittsfield	21,566	3	—	—	—	—	—	—	
Brookline	19,955	3	—	—	—	—	—	—	
Chicopee	19,167	7	5	11.30	—	—	11.30	—	
Medford	18,211	6	3	33.33	—	—	33.33	—	
Newburyport	11,478	3	2	37.50	12.50	—	37.50	—	
Melrose	12,962	3	2	—	—	—	—	—	

Deaths reported 2589; under five years of age, 1,135; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrhœal diseases, whooping cough, erysipelas, fevers and consumption) 359; acute lung diseases 135; consumption 202; scarlet fever 7; erysipelas 1; typhoid fever 57; whooping cough 29; cerebrospinal meningitis 12; smallpox 5; measles 2; diarrhœal diseases 476.

From whooping cough, New York 9, Philadelphia 5, Baltimore 3, Pittsburg 3. From cerebrospinal meningitis, New York 3, Providence 1, Boston 1, Worcester 2, Lynn 2, Gloucester, Everett and Marlboro 1 each. From scarlet fever, New York 2, Philadelphia 1, Pittsburg 3, Boston 1. From typhoid fever, New York 21, Philadelphia 11, Baltimore 4, Pittsburg 9, Providence 1, Boston 6, Worcester, Springfield, Somerville, Taunton and Southbridge 1 each. From erysipelas, New York, Philadelphia, Boston and Quincy 1 each. From measles New York 1, Boston 1. From smallpox, New York 1, Philadelphia 3.

In the thirty-three greatest towns of England and Wales, with an estimated population of 11,463,023, for the week ending Sept. 7 the death-rate was 19.4. Deaths reported 1279; acute diseases of the respiratory organs (London) 124, whooping cough 47, diphtheria 45, measles 46, fever 52, scarlet fever 39.

The death-rate ranged from 9.5 in Bristol to 36.8 in Gateshead; Birkenhead 22.5, Birmingham 24.5, Bolton 21.6, Brighton 23.5, Burnley 23.1, Cardiff 13.6, Crookton 22.5, Derby 14.3, Halifax 15.9, Huddersfield 14.8, Hull 29.3, Leeds 21.8, Leicester 21.1, Liverpool 17.9, London 16.9, Manchester 23.1, Newcastle-on-Tyne 27.1, Norwich 17.2, Oldham 24.3, Plymouth 16.4, Portsmouth 29.3, Salford 22.6, Sheffield 23.9, Swansea 17.1, Wolverhampton 21.8.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING SEPT. 12, 1901.

CORE, J. O., passed assistant surgeon. Granted 5 days' extension of leave of absence from Sept. 13, 1901.

BLUE, RUPERT, passed assistant surgeon. Granted 5 days' extension of leave of absence. Sept. 5, 1901.

NYDEGER, J. A., passed assistant surgeon. Relieved from duty at Cape Charles Quarantine and directed to proceed to Cairo, Ill., and assume temporary command of service during absence of Passed Assistant Surgeon J. H. Oakley, on leave. Sept. 12, 1901. Granted 2 days' leave of absence from Sept. 10, 1901. Sept. 9, 1901.

ANDERSON, J. F., assistant surgeon. Directed to report to medical officer in command, Immigration Service, New York, N. Y., for duty. Sept. 9, 1901.

WILKE, C. W., assistant surgeon. Directed to assume command of service at Cape Charles Quarantine, relieving Passed Assistant Surgeon J. A. Nydeger. Sept. 12, 1901.

ALTIERE, G. H., acting assistant surgeon. Granted leave of absence for 14 days. Sept. 9, 1901.

BARNESBY, S. N., acting assistant surgeon. Granted leave of absence for 1 month from Sept. 1, 1901. Aug. 30, 1901.

FERROLE, R. E., acting assistant surgeon. Granted 3 days' extension of leave of absence from Sept. 9, 1901. Sept. 7, 1901.

STEVENS, J. W., acting assistant surgeon. Granted leave of absence for 16 days from Sept. 9, 1901. Sept. 11, 1901.

WALKLEY, W. S., acting assistant surgeon. Granted 3 days' leave of absence from Sept. 12, 1901. Sept. 10, 1901.

NIQUES, IRAN R., acting assistant surgeon. Granted leave of absence for 30 days from Sept. 1, 1901. Sept. 13, 1901.

PORTER, J. V., sanitary inspector. Directed to visit Key West, Miami, Jacksonville, Fernandina and Mayport as appraiser. Sept. 6, 1901.

RYDER, L. W., hospital steward. Directed to report to director of hygienic laboratory for temporary duty. Sept. 11, 1901.

RECENT DEATHS.

AARON CORNISH, M.D., M.M.S.S., died in New Bedford, Sept. 27, 1901, aged 68 years.

FRANCIS EDWARD HENRY, M.D., M.M.S.S., died in Salem, Sept. 30, 1901, aged 19 years.

BOOKS AND PAMPHLETS RECEIVED.

May a Hospital Steal Cases? By Dr. A. L. Benedict of Buffalo, N. Y. Reprint. 1901.

Metatarsal Fracture. By Carl Beck, M.D., of New York City. Illustrated. Reprint.

Ossesons (Cysts) of the Tibia. By Carl Beck, M.D., of New York City. Illustrated. Reprint. 1901.

Congenital Malformations of the Upper Extremity. By Carl Beck, M.D., New York. Illustrated. Reprint. 1901.

Original Articles.

A BRIEF RÉSUMÉ OF THE LIFE AND WORK OF AMBROISE PARÉ.

WITH BIOGRAPHICAL NOTES ON MEN OF HIS TIME.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

IN order to understand the works of Ambroise Paré his life and character should be known, and in order to appreciate his teachings and writings we should consider the epoch at which they appear. At this time French surgery did not truly exist. In the various occidental countries the preceding centuries had progressively seen a series of ephemeral triumphs in biological science as well as in the practice of the healing art, which fought painfully in the midst of scholastic subtleties between the Arabian doctrines, barbarous superstitions and misty souvenirs of a badly-known antiquity. It was, if not night, at least a thick haze which was only penetrated by a few rays of light of sleeping scientific thought.

Then the awakening came. The treasures of Grecian antiquity leaving Byzance were in the first place spread throughout Italy, and then over civilized Europe, just at the time when printing was invented. Letters and art made rapid progress, and the sciences were soon to enter into their glory. For the time being the writings of the ancient physicians, which were published and rendered generally accessible, gave a stimulus for new researches. From contact with the writings in which were transmitted the teachings of the Arabian physicians, which underwent unceasing modifications, and from the development of a spirit of observation, a medical Renaissance was about to come, certainly far less complete and brilliant than that of art and letters, but the importance of which it is impossible to undervalue. Ambroise Paré was one of the first workers.

No matter how incomplete the result of their efforts may have been, it would, however, be most unjust to pass over in silence the names of the illustrious men who preceded the advent of Paré. In the thirteenth century surgery was brilliantly practised at Plaisance by William of Salicet, and later by his pupil Lanfranc, who afterwards came to Paris, where he settled and lectured on surgery. Then at the commencement of the fourteenth century appeared Henri de Mondeville and his successors, Guy de Chauliac and Pierre Franco.

Guy de Chauliac, who was almost a contemporary of de Mondeville, made the school of Montpellier famous in the fourteenth century, and was the last eminent representative of the Arabian school. After him there is hardly any one to be mentioned other than two Italian surgeons; namely, Bertapaglia and Gateneria de Vercelli, the latter being the inventor of the syringe.

It was at the beginning of the fifteenth century that the Greek manuscripts commenced being introduced into Italy, and then it was that their translations were begun; fifty years later they were printed. The impulsion had been given,

and with the immediate predecessors of Ambroise Paré, both medicine and surgery advanced rapidly. Surgery was especially cultivated, particularly in Italy, by Antonio Benivieni of Florence (1440-1502), Jean de Vigo (1460-1520?) and his pupil Marianus Sanctus (1489-1510), then Berengarius de Carpi (1470-1550?), to whom the medical world owes particular gratitude for his work on fractures of the skull which, considering the time at which it was published, is a remarkable production.

At about the same time, from 1493 to 1541, there lived a man who excited the greatest irrational enthusiasm and the most violent anger. A man of genius for some, a badly-balanced brain, and a dangerous revolutionist according to others. Paracelsus was all this. He was born at Einsiedeln, a town not far from Zurich, and after his medical studies he traveled all over Europe, questioning everybody of the medical profession in order to ascertain on what basis the reigning medical doctrines of this time were supported. He interrogated physicians, surgeons, the clergy and alchemists, asking all, as he states in his "*Grande Chirurgie*," "*quels estoient les meilleurs et les plus excellents remèdes desquels ils usoyent et avoyent usé pour guérir les maladies.*"

After he had traveled for a long time and in all directions, he came to the conclusion that the profession of his time only knew theories and routine, and he rejected everything that they taught and everything that the ancients had written, being persuaded that it was not in their teachings that the source of truth was to be found. He announced, in quality of Professor of Medicine at the University of Bale, where he spoke in German to the great indignation of his colleagues whose lectures were delivered in Latin, that medicine should be founded on experience and reason, and not on authority. The observation of cases, pushed as far as possible, with the help of the laboratory — that is to say, chemistry — should be the only guide of the physician.

All these teachings were very fine, but unfortunately the work left us by Paracelsus does not in any way correspond to them. He was certainly ingenious, but with a too-absolute mind he was superficial in his conclusions, vain from his personal experience, and could not tolerate any criticism. He allowed himself to be misled by his pronounced taste for alchemy, and, although he has the great merit of inaugurating chemical medicine, he wrongly believed that the rudimentary notions of chemistry which were possessed in his day, were quite sufficient to explain all biological phenomena. He had come upon the scene at too early a day for his ideas to give a lasting result, for he did not have the necessary instruments nor the knowledge of the technique for finer work. It must not be forgotten, however, that Paracelsus introduced a number of new and useful drugs into the practice of medicine, among them we would especially mention antimony and mercury; and above all he gave the example of independence of doctrines and a passionate desire for the

truth. With a very different character, infinitely less antagonistic and better judgment, Ambroise Paré had similar qualities to those possessed by Paracelsus.

It is hardly possible to imagine the very low condition into which French surgery had fallen in the fifteenth century. In the first place there was no surgical teaching properly speaking. It is true that Lanfranc had formerly created a chair treating of this art in the Faculty of Medicine at Paris, but on account of the incessant quarrels between the members of the Faculty, the surgeons of Saint-Côme and the barbers, the chair of surgery had fallen into the most complete disrepute.

Some few courses on surgery were given, but they simply consisted in commentaries on Guy de Chauliac or Lanfranc. Personal ideas, experiments and operations there were none, and, what is most peculiar, the professor of surgery was a physician more preoccupied by the theory and practice of medicine, which at that time was in a most flourishing condition on account of the discovery of the ancient treatises, than of the science that he should teach.

The assistant to the chair of surgery was a simple barber, clothed in the pompous title of professor, and if, as sometimes happened, the text of the lecture necessitated a forced invasion in the domain of practice, the barber alone was allowed to do it. The least progress, as can be seen, could not be realized under these conditions.

If now we consider the true professionals, we shall assist at a truly surprising spectacle. Here and there, as if regretfully established, a few specialists were to be found whose work was limited to cutting for stone, the removal of cataracts, or the treatment of hernia. It would have been imprudent to ask them about any part of medicine outside their own specialty. We next have the surgeons of the College of Saint-Côme taught by no one knows who, or how; then we have the barbers who simply performed the very trifling operations of minor surgery, and lastly a large conglomeration of quacks and bone-setters, especially disseminated in the provinces, where they alone exercised the art of surgery.

It may be supposed that the title of Surgeon of the College of Saint-Côme implied that its possessor had received a certain amount of scientific instruction, but such was not the case. As far as knowledge went, they had more especially, and above all, that of their prerogatives and traditions, incessantly attempting to separate themselves from their rivals and inferiors, the barbers, and endeavoring to become part of the university from which they were excluded.

The first half of the sixteenth century was filled with efforts directed almost exclusively to realize this end, and consequently there arose a bitter series of quarrels which were carried before the courts, from which the confrères of Saint-Côme did not always withdraw unscathed. This condition of affairs later on became the cause of a tremendous surgical movement at the end of the sixteenth century and, as can be understood, was

not calculated to give a very high idea of the exercise of the surgical art.

If we now consider the surgical world in the sixteenth century, we will find that the professors of surgery, who were ignorant and jealous, did not wish to be considered as confrères of the surgeons of Saint-Côme. The latter body considered themselves the only possessors of surgical science, and tried with all their might to be admitted into the Faculty of Medicine, employing for this end their power of traditions and royal briefs, and always with the same idea, struggling with energy against the barbers, from whom they wished to be removed, looking upon them as their inferiors and simple executors of their prescriptions.

The barbers in their turn, more numerous, possessing, thanks to empiricism, to tradition and a more frequent practice, a certain amount of knowledge, desirous of elevating themselves to the degree of true surgeons, went out of their domain every time the occasion presented itself to visit the patients in the practice of authorized surgeons. From this there resulted incessant struggles, lawsuits and trials for the illegal practice of surgery, and as a consequence there arose a fearful exhibition of the deepest quackery, that competition, malice and persecution were forced to put in play.

An art as noble as surgery could not reasonably profit from this condition of things, and for this reason it fell into the most complete disrepute. The physicians, not wishing to step below their dignity in mixing themselves in the slightest by the most trifling intervention, called a barber surgeon, when the circumstances demanded it, to operate under their eyes and under their pretended direction, the client they were treating.

If the surgical world of Paris offered this spectacle, what can be said of that body in the provinces? As I have already said, the barbers alone did all the surgery outside of Paris. Possessing the knowledge that had been handed down from generation to generation, devoid of the slightest intellectual culture, they exercised a profession that had been taught them by a father or a patron without ever adding the smallest personal idea, and without suspecting that other methods could also be employed. I would only mention in this respect the very large number of bone-setters, apothecaries and apothecaresses (when the occasion demanded it): a sect always friends of the vulgar, which by no means have disappeared in our time in spite of the law, to gull the public which, for that matter, takes in a great deal and never fails to pay very largely for it, when they refuse a well-educated physician his modest fee.

If jealousy and the love of gain should be considered as the causes of such a deplorable condition, we should also recall two facts which prevented surgery from coming out of the shadows. In the first place there was no instruction given in surgery, on account of the difficulty of finding teachers, and also of the complete ignorance of anatomy, which was impossible to study at this time, because the dissection of dead bodies was not permitted; secondly, the knowledge of Latin, which was re-

served to a few, was totally wanting among the majority of barbers, and as all the works were written in this language, they were consequently barred from all scientific instruction. But as every battle must have a conqueror, so it happened here, and this conqueror came from the corps of barbers. He was the first to have the courage to protest against the reigning conditions by performing new operations and publishing the result of his experience. This was Ambroise Paré.

The exact date of the birth of Ambroise Paré has never been exactly known, but it is probable that he was born in 1509. This is the date given by the greater number of medical historians that I have consulted, although once or twice 1517 has been the year given. He was born in a small villa called Bourg-Ittersent, which was near Laval. His father was an honest box-maker. He had four children. Jehan, the oldest child, became a barber surgeon at Vitré in Brittany; the second, Paul, went to Paris to follow the business of his father; Anne became later the wife of Claude Viart, a surgeon at Paris; and lastly, Ambroise.

Although the oldest son became, as we shall see later on, the first master of young Ambroise, he was never known in science, although he was a very cool and skilful surgeon, according to the statement of his younger brother. If a person is born a poet or a musician, and willing to work for the development of his natural qualities, it is also quite just to say that a man is born a physician or a surgeon, and daily experience demonstrates this fact. This gift, this taste for surgery, this spirit of sacrifice and kindness, so necessary to every medical practitioner, appeared at a very early day in the life of the subject of this paper, and at the same time there developed in him the most happy disposition for everything that was spiritual.

His father noticed these qualities and resolved to cultivate them, so he confided Ambroise to an old professor of his villa, in order that he might learn the principles of reading and writing, and later those of grammar and mathematics. Ambroise made rapid progress, which, as he says himself in a private writing, "estonnaient fort ses maitres," and consequently he only remained here a short time, as it became a too incomplete centre of learning.

Before using a bistoury, a lancet, or even a syringe, it was necessary at this time to know Latin especially, so that Paré's father was obliged to find a Latin teacher at Laval for his son. This person was a good old priest by the name of d'Orsay.

It would be most interesting to have some details of the time passed in this city by the illustrious surgeon, but he did not take the trouble to leave any remarks of his life here. The only thing which gives us a clue as to the profoundness of his Latin studies was the haste of the good old priest to confide his mule to Ambroise in order that he might exercise it, as well as his shovel and rake to clean up the garden walks. The difficul-

ties that he must have often found in the study of Latin, and the hours that he passed later on to cover over the deficiencies of his early teaching which was a little bit too varied, probably never left a loving impression in his mind of this part of his life. It is probable that he remained some little time with the priest, because it was only in about 1523 that he commenced to study surgery.

His brother, Jehan, who was a barber surgeon at Vitré, shared with Vialot of Laval, also a barber, the responsibilities of being the first masters of the future father of French surgery. In both these towns Ambroise learned how to bleed, to place leeches, do dressings, and practice what we call "operations ministrantes," in comparison of which the minor surgery of our days would seem of considerable magnitude.

When he had time, Paré studied the old authors, especially Galen, whom he no doubt thought much of, because in his writings he quotes him frequently. He makes no mention of Vialot, probably because this surgeon was not particularly kind to him, but the name of his brother Jehan occurs often in his writings, and he considers him as a very able and cool surgeon possessed of great judgment. Twice Ambroise was present at operations where, on account of the sagacity of his brother, the latter cured his patient. The nature of these operations is unknown, and all that we learn is that Ambroise was very much impressed by their success.

After a time Paré left Laval and went to Angers to study under a barber surgeon of greater fame, but on account of the knowledge he had already acquired, and from his intelligence, the young apprentice soon found out that he could learn nothing here, and that it was necessary to go to Paris to find new thoughts and the illustrious representatives of the art of surgery. So in company with his second brother he left for Paris in the year 1530.

For every barber surgeon who desired later to practise his profession it was necessary to remain as an apprentice for some time with a master barber, and with this end in view Paré entered as a simple apprentice with one of these masters. The knowledge that a pupil could acquire under these circumstances was far from considerable. According to Malgaigne the apprentice learned to cut beards, to dress hair and manufacture lancets. He assisted his patron in the dressing of simple wounds and ulcers.

The life of these poor apprentices did not possess any particular charm, because hardly had the cock crowed when the apprentice was obliged to get up to open and sweep out the store, so that the earliest workman could have his hair and beard attended to. From this early morning rising until two o'clock in the afternoon he was obliged to go to about fifty private houses to comb the wigs, put hair up in papers, etc. Towards night, if the apprentice was a young man desirous of learning, he could study with his books, but usually he was so tired that sleep would come upon him.

The master surgeons exacted more respect from their apprentices than from their servants, and the food they gave them consisted principally of bread and water. Other than the one afternoon a week which was given them as a holiday, they could not go to the public lectures, and it is for this reason that physicians, out of charity, delivered lectures on surgery at four o'clock in the morning, so that these poor young men might attend.

It is consequently not surprising that Paré is absolutely silent on this part of his life at Paris. The names of his masters and that of the master barber under whom he worked are not mentioned.

In this modest situation, Ambroise Paré did not become discouraged. To the inferior masters that he could have, he substituted a solitary study of the ancient writers, such as Galen, Lanfranc, and Guy de Chauliac, and soon he added to his library the French translation of the surgical works of Jehan de Vigo. As an ardent and persevering student he carefully read their writings, taking them as his only guide and soon had mastered them completely. Guided by a strong mind for observation, and a surprising power of deduction, he could extract from these authors all that was good, and he soon discovered that a longer sojourn with the master barber would be without profit to him, so he left in order to enter the Hotel-Dieu of Paris, where he was appointed interne.

The appointment to such an honorary position, which was greatly sought after, is at least most surprising, and a few details are here necessary in order to understand this part of his life. The Hotel-Dieu was founded by a bishop by the name of Landry in 660, and was considerably increased under the patronage of Saint Louis in 1227, and after his time it was always the object of favor and generosity of the monarchs who succeeded to the French throne. The medical and surgical service of this hospital was confided to priests and sisters of charity who gave themselves up to the care of poor patients. The priests looked after the scientific part, but the sisters did not limit themselves to the simple function of nurses, but gave medical care to the patient as well. Under Charles le Bel in 1327, a royal ordinance ordered the visits to be made by the two surgeons of the Chatelet. As assistants, a certain number of apprentice barbers and surgeons were allotted to them, and who, according to their respective merits, fulfilled the functions of externes and internes. The latter were placed far above their comrades, because they were chosen from those who had distinguished themselves by their work, intelligence and scientific knowledge.

It is not known how Paré was able to acquire this title, when we consider the rules and regulations which were then in vogue. It may possibly be that his masters, being struck by the intelligence and love of work exhibited by the young man, may have suspected that he would be an able candidate for the position, and if this is the case they may be congratulated. But we shall

have to leave these speculations, for want of documents, to Paré himself. He talks considerably on his time spent at the Hotel-Dieu, and speaks with affection of all that took place there during the three years that he was interne. The work he accomplished there was probably not of the ordinary kind, because he tells us that during a severe winter he performed himself amputation of the nose of four patients who had this organ frozen. And better than any historian Paré tells us himself what he accomplished in this hospital, as follows: "Faut savoir que par l'espace de trois ans j'ay residé en l'Hostel-Dieu de Paris, ou j'ay eu le moyen de veoir et connoistre (eu esgard a la grande diversite de malades y gisans ordinairement) tout ce qui peut estre d'alteration et maladie au corps humain; et ensemble y apprendre sur une infinite de corps morts, tout ce qui se peut dire et considerer sur l'anatomic, ainsi que souvent j'en ai fait preuve tres suffisante et cela publiquement a Paris aux escoles de medecine." Few students could have boasted of having employed their time so well during their studies, and for this reason it is not astonishing that our hero speaks of this part of his life with some complaisance.

We would also mention another incident pertaining to the same part of his life. There came to Paris a physician from Milan who was greatly enchanted with the knowledge of the young man that he had met and spoke of it to many of his friends, and Paré replied, not without some feeling of pride, that "le bonhomme ne scevoit pas que j'avois demeure trois ans a l'Hostel-Dieu de Paris pour y traicter les malades."

After his term of service had expired, Paré left the hospital and received the diploma of "master barber surgeon," and from this time we come to that part of the life of this great man where he began to practice on his own account and was thus enabled to progress in science and in surgery. It is quite certain that the first years of his practice in his store did not see Paré with the razor often in his hand, because his books, notes and observations that he had been able to make occupied him far more, and the friendship he had formed with certain personages of position, whose names we unfortunately do not know was also a great help to him.

The war, which for an instant had been interrupted, was about to break out again with greater fury than ever before between Francois I and Charles V. At this time there was no military surgery, and the ambulance service was, to say the least, in an embryonal condition. The king and his officers of high rank started off to war with a carefully chosen surgeon attached to their suite. A few assistants usually accompanied the surgeon, and with the soldiers that could be employed in case of need, they formed the entire corps of military surgeons. On account of his friendly relations with one of his compatriots, Marechal de Monte-Jan, colonel-general of the French Infantry, Paré was rendered prominent and was appointed to the post of personal surgeon to the

marshal, who took him with him in 1536 to the war against Charles V.

It would be interesting to follow the new surgeon through his interesting developments and to write all the incidents occurring during his numerous campaigns, but this would carry us much too far, and we would only call attention to his first campaign, because it was marked by a most glorious reform in surgery and was the prelude to the successive reforms which took place in the healing art both in France and other countries. Although the position was a high one, if one considers the youth of Ambroise Paré, he nevertheless resolved to support it with vigor. Never having before been to battle, and only knowing the numerous forms of wounds from what he had read in the works of de Vigo, he decided from the beginning to follow the principle of examining and watching with great care the methods of the other army surgeons. The rapidity of his well-balanced judgment quickly led him to adopt all their methods of practice with great address in many cases of diseased or wounded soldiers. On the battlefields of Provence and of Italy he had the opportunity and the great merit of combating and ruining a universally admitted doctrine, which was upheld by the greatest surgeons of the time.

On the battlefield Paré soon became an expert surgeon, although still a very young man. There was one thing which troubled him greatly, especially when he was personally obliged to operate upon a wounded man, and that was the manner in which they treated bleeding wounds and amputation stumps. At this time there was a general belief among the surgeons that all the serious complications which were produced by gunshot wounds were due to a poison and to the combustion of powder, and this opinion was not only admitted by the surgeons of the French army but by those of other nations as well. Consequently, as soon as a soldier was wounded he was obliged to undergo the following cruel operation. Boiling oil was poured on the bleeding parts by means of an instrument made for this purpose, and after this the parts were simply covered by a piece of linen.

Paré, who had a broad mind and endowed with great intelligence, came to believe that the reigning theory and treatment of this class of cases was entirely wrong and, although still constrained to use boiling oil because there was no other remedy at that time, he reflected and studied his cases and had no peace of mind, until it finally occurred to him that another treatment was applicable.

It was after the battle of Pas-de-Suze, where a large number of wounded were brought to the care of Paré, that he found that he was unable to employ the oil on account of its scarcity. Much annoyed he had to content himself with simply washing the wounds and then applying a mixture composed of the yolk of eggs, turpentine and rose oil. When night came he was unable to sleep on account of his anxiety as to the result of this new treatment, but when morning came and he made

his visit, what was his joy to find that in all his patients there reigned the most perfect calm, and all the wounds so treated in the most excellent condition; the others, on the contrary, whose wounds had been treated with boiling oil, had a high fever, and were in intense agony, while the wounds showed a hideous black swelling around their borders (Note 1).

Paré was only nineteen years old at this time, but the rapidity and the certainty of his judgment had demonstrated to him a most grave error, which was upheld by the greatest surgical authorities of his time. What was the most dominating point in his character was his ever-present desire to learn, and nothing is more significant in this respect than the anecdote which he himself relates as follows: "Lors que nous entrâmes a Thurin, il se trouva un Chirurgen qui

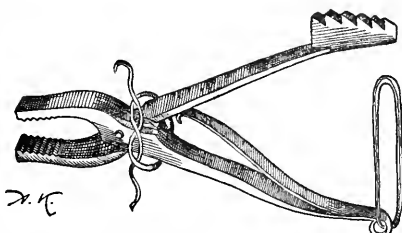


FIG. 1.—Paré's clamp artery forceps. Copied from "The Surgery of Fabricius von Hilden," published in 1652, in the possession of the writer.

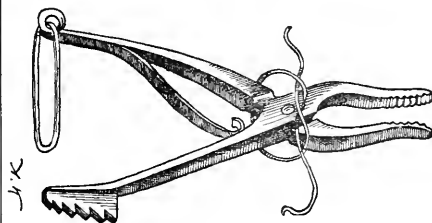


FIG. 2.—Paré's clamp artery forceps. Copied from "The Surgery of Fabricius von Hilden," published in 1652, in the possession of the writer.

avait le bruit par dessus tout de bien medicamenter les harquebusades: en la grace duquel trouvoy moyen m'insinuer, et luy fis la court pres de deus ans et demy, auparavant qu'il me voulast declarer son remede, qu'il appelloit son baume."

At Milan he was able to study genito-urinary surgery, and while at Turin he obtained from an old woman a sovereign remedy for burns. At this time he performed the operation of disarticulation of the elbow successfully.

Some time later Paré made his great discovery in the use of artery forceps and ligatures in amputation and other cases requiring the ligation of blood vessels. He advised including some of the surrounding tissues in the ligature rather than to tie the vessel by itself, because he says it will consolidate better under these circumstances.

But if the ligature should drop off or fail to occlude the vessel, he then recommends ligating it with a needle and thread. The needle he employed for this purpose was straight, and for this reason he was obliged to pass it through the skin in the part of the stump nearest to the vessel to be secured; but what is most remarkable he recommends the use of a curved needle for sewing up deep wounds (Figs. 1 and 2).

His invention of ligating with the needle he imputes to the favor of Providence, for he says that he never saw it practised by others nor had ever heard of it, except that in a passage from Galen he had read that there was no speedier manner for arresting hemorrhage in fresh wounds than to tie up the vessels at their roots, which doctrine he considered applicable to vessels severed in amputation.

(To be continued.)

CRETINISM.¹

BY CHARLES S. MILLET, M.D., BROOKTON, MASS.

OSLER defines cretinism as a "chronic disease of nutrition due to loss or impairment of function of the thyroid gland. It causes a retardation of development of the central nervous system, leading to a retention of an infantile state, and to an extraordinary disproportion between the different parts of the body."

In its endemic form this disease has been known to exist since the Christian Era began; Strabo, Pliny the Elder and Juvenal all speak of goitre—the handmaid of cretinism—as being prevalent among the inhabitants of the Alps. But it is only about 25 years since sporadic cretinism was so carefully described by Sir William Gull, that his name is sometimes attached to the adult form of the disease. Following him, Ord, Kocher and the Reverdin did much; but the physiologists—particularly Schiff, Horsley and Von Eiselsberg—made possible the successful treatment of myxedema and cretinism by their scientific work in vivisection.

The extent to which this disease is endemic in certain parts of Europe is astonishing, and it has attracted so much attention that diligent and persevering inquiry has been made by distinguished scientific and medical men; the subject has also been studied by commissioners appointed by the governments of Sardinia, France, Austria and Switzerland.

In the eastern part of France there are as many as 32 cretins per thousand, and 111 cases of goitre per thousand. In the whole of France over 125,000 cretins and idiots are believed to exist. On the other side of the Alps—in Switzerland and in Austria—the number is fully as great. Contrast this statement with the fact that less than 100 cases of the sporadic disease are all that have been reported in North America!

The knowledge which we possess of the function of the thyroid gland is of comparatively recent date. That it had any important work to perform was considered very unlikely; some thought that it was simply a pad to protect the trachea and fill out the contour of the neck; and others thought that it acted as a kind of safety-valve to the vessels feeding the brain. The importance of the organ to life and death was first clearly demonstrated by Schiff in 1884, when he found that the removal of the thyroid gland in dogs was almost invariably followed by profound illness and death.

Further experiments on other animals brought to light the fact that the accessory bodies, which sometimes number as many as 4, differ both in structure and function from the gland itself. The physiological difference is yet to be determined, but it has been settled beyond dispute that the removal of the thyroid gland, without the extirpation of the parathyroids,—while it produces cretinoid symptoms,—does not cause death, more or less suddenly, as is the case when the latter are also taken out.

The endemic form generally occurs in mountainous regions and in the valleys between the mountains. The idea has long existed that the drinking water in these places alone contained the organic poison, but at the present time it is believed to be also air-borne.

So-called "goitre springs" are not uncommon in Germany, and Klebs found in one of them an infusoria which he thought caused goitre and endemic cretinism; but other observers have not been able to substantiate his experiments. All agree, however, that the disease in question must have a bacterial origin.

The only essential point wherein the endemic differs from the sporadic type, is that a goitre is much more apt to be present in the former.

Myxedema—as is well known—is the name given to the same disease in adults, and exophthalmic goitre is their antonym. Several cases are on record where the symptoms of the latter disease have been followed by, or have changed into, those of the cretinoid state; and when the thyroid gland has been removed in an attempt to cure Graves' disease, myxedema has occasionally been the result.

The disease may vary much in intensity, but even in the slight or early form diagnosis is never difficult if all the symptoms of abnormal development are carefully considered. Cretinism is quite unusual in that the physical signs are far more noticeable than the symptoms. It may occur in utero, but generally the first signs of trouble are not visible until the child is 5 or 6 months of age, and more often he is 3 or 4 years old before it manifests itself.

When the symptoms first become prominent, it is noticed that the child does not grow so rapidly as it should, that it is not so bright mentally, and that its tongue is too large for its mouth and lolls out between the teeth; the skin over the whole body begins to appear thick, swollen, dry and

¹ Read before the Massachusetts Medical Society, June 11, 1901, as a part of the general topic, "The Diseases of Nutrition of Infants."

scaly, instead of soft and pink; but it does not pit on pressure, or have the glossy, lardaceous appearance that is seen in Bright's disease. Virchow expressed it quite tersely when he said the skin was too big for the body; it certainly appears so, for it is prone to hang in folds, and even the forehead is sometimes pendulous, and the chin dewlapped. The hair is thin and coarse, and in older children it frequently is not present in the axillæ or over the pubes. The child's face has a decidedly aged appearance, and the eyelids are often swollen so that only a narrow slit shows where the eyes are located. The nose is depressed between the eyes, and the *alæ nasi* are thick; thus making it seem still more flat from the great width of the nostrils exteriorly. The ears are also thickened and stand out from the head. The teeth are irregular, ragged and decayed; they are very late in coming, and the second set often never comes, or if present, the teeth are abnormally large and deformed. The abdomen protrudes, and there is generally an umbilical hernia. The back is arched, and curvature of the spine is also frequently a result.

The growth of the child is stunted on account of the limbs being abnormally short, and the hands and feet are undeveloped; the fingers and toes are immobile, and stand apart as a result of the morbid condition of the skin. The nails are short, brittle and striated, and dull in color. The child is distinctly pale, because anemia is always present, although the cheeks may be slightly reddened. The fontanelles commonly do not close for a long time. The muscles are weak; the head droops—sometimes so much that the chin rests on the chest.

Goitre, which is so common in the endemic disease, is only occasionally present in the sporadic, and as a rule the thyroid body cannot be palpated. Above the collar bones irregular masses of fat may frequently be felt; also upon the arches of the feet, the backs of the hands, and in the abdominal walls.

The mental aptitude is even more feeble than the physical condition. The child sits about, not at all interested in his surroundings, and frequently does not even recognize his parents; if he walks, it is only slowly, with what the Germans call a "bear gait," and this is caused by the lack of co-ordination from paresis, producing stiffness of the knees. There is, however, no paralysis, and the reflexes are present. The innocent victim exhibits no desires, unless perhaps for food, for which there may be a voracious appetite. Constipation is usually present. Young children must be fed almost wholly upon semisolids, for the mucous membrane in all these cases is generally in the same swollen condition as the skin.

Memory is very deficient, and speech is slow, thick and hoarse, and sometimes wanting. The child is evidently idiotic, but the aspect is entirely different from idiocy produced by other causes—such as cerebellar sclerosis or epilepsy. The cretin is not quick-tempered and does not cry easily; on the contrary, he laughs and smiles readily. The

child never sweats, nor do the sebaceous glands secrete anything; but drooling is constant and profuse, and there is a secretion of tears.

A very striking objective symptom is the temperature, which is invariably below normal; most frequently it is 97°, or even lower.

In boys the testicles are small and atrophied, and often only one descends. The heart, lungs, liver, spleen and other internal organs are not usually affected.

To sum up—the organs which are affected by this peculiar disease are the brain, skin, mucous membrane, bones, generative organs and blood; and all of them to about the same degree, although in many cases the body is apparently more diseased than the brain; yet when treated the nervous system shows the least improvement. The severity of the symptoms is of course somewhat dependent upon the length of time the disease has lasted when seen, and upon the age when it began, but mainly upon the degree of impairment of the function of the thyroid gland.

Cretinism may be confounded with fetal rickets, idiocy and infantilism. The children that suffer from congenital rickets are dwarfs, but they do not show changes in the skin, nor are they degenerates mentally. Although the fontanelles remain open for a long time in both diseases, yet in rachitis that began in utero there is apt to be no ossification of the sutures for a long period, wide spaces of soft tissue occurring instead. Of course the cardinal symptoms of rickets are also present to guide us. Idiotic children, not cretins, do not suffer from retardation of growth; their heads are often very small, and the fontanelles close prematurely. Again, the skin and facial aspect are enough to make a differential diagnosis, except in the Mongolian type of idiocy, which resembles cretinism to a marked degree, so much so that if I had such a case, I should be inclined to try the effect of the thyroid treatment. But mentally the Mongolian idiots are vivacious and mischievous—never apathetic.

Cases of infantilism that are fat, and especially if they have adenoids, might easily be called cretins, but here again the condition of the skin renders a faulty diagnosis very unusual.

Early and slight forms of the sporadic cretinism are often overlooked; the mental apathy, muscular weakness, stoppage of growth, dryness of skin, together with subnormal temperature, if grouped together, no matter to how slight a degree the individual symptoms are present, are enough to justify an experimental course of treatment with the sheep's thyroid.

In the disease under consideration, when autopsies have been made, the gland has sometimes been found wanting; sometimes atrophied with marked increase of the connective tissue, and degenerative changes in the cells and their nuclei; and sometimes a goitrous condition is present, and this is probably in the nature of a compensatory hypertrophy.

The morbid changes in the skin and mucous membranes are due to the infiltration of a gela-

tinuous substance which penetrates the connective tissue; this produces great compression upon the hair follicles, sweat and sebaceous glands,— which accounts for loss of hair and absence of sweating.

The cranial bones are thick; the brain small, with coarse convolutions; the long bones are shortened, and on account of a peculiar crook, their extremities are apparently—although not really—enlarged. There are no visceral lesions peculiar to the disease.

Previous to the experiments of Murray and McKenzie, two English physicians, little or nothing had been done to alleviate this horrible disease. After the Germans and some of his English confrères had failed to produce more than temporary beneficial effects by implantation of the thyroid gland of sheep, Dr. Murray, in 1892, showed that hypodermatic injections of an extract of the gland caused a diminution of all the symptoms; and later Dr. McKenzie fed his patients the same thing by the mouth, and proved it to be equally efficacious when given that way.

The thyroid gland is best given in a powder, since it dissolves rapidly upon the tongue, and none is lost, even if the patient is unruly. It is best to begin with half a grain, three times a day, and gradually increase it. Whenever the temperature goes above 100°, or the child becomes very nervous and does not sleep, the remedy must be diminished or stopped for a while. Later, when the nutritive changes are fully re-established, a very moderate dose once or twice a week may be sufficient.

I take great pleasure in presenting 2 cases for observation. This boy is a typical cretin; he is now 9½ years of age, and this photograph was taken when he was 18 months old (and he had to be pinned to the chair, not being able at that time to sit alone). His mother first noticed, when he was less than a year old, that he could not sit up as her other children had done at that age; also that he was listless; his teeth did not appear till he was nearly 4 years old, and as yet he has but 2 of his permanent set. I saw him first 4 years ago; at that time he could not walk, but could stand up by things.

With the exception of the supraclavicular deposits of fat, he had all the symptoms. He measured 30 inches in height. Under the constant daily use of Armour's desiccated thyroids, he has grown 15 inches in 4 years. He does not yet put words together, and memory is strangely lacking; his mother says that in going from one room to another, he will forget where he had left any article that he was carrying for her. Although he has made marvellous advances, he still presents most of the signs of the disease.

The other patient is myxedematous. She is 32 years of age, and had none of this trouble until 10 years ago. Four years ago she took the powder for some time with decided improvement; but it was neglected, and she now presents all the symptoms necessary for a diagnosis. You will undoubtedly notice the Mongolian aspect, with the bloated face. Let me call your attention also

to the teeth, the neck, the hands and the lower limbs. On one leg she has an ulcer and varicose veins. She menstruates only semi-occasionally. Her sister tells me that she had 2 attacks, during the past winter, of acute swelling of the vocal cords—a condition to which she is probably prone on account of the edematous mucous membrane.

ASSOCIATION OF ANEMIA WITH CHRONIC ENLARGEMENT OF THE SPLEEN.*

BY ARTHUR H. WESTWORTH, M.D., BOSTON.

(Continued from No. 14, p. 378.)

In 1892 Debove and Bruhl¹⁷ published an article on "splénomégalie primitive" and reported clinical observations on a case. They repeat Bruhl's statements in regard to the splenic changes and the occurrence of anemia, and add that there is no correlation between the size of the spleen and the degree of anemia. They refer to a case of Rendu's in which there was an *increased* number of red corpuscles in the blood. They are not justified in considering this to be a case of "splénomégalie primitive" in the absence of all symptoms except that of the enlarged spleen. In Bruhl's article it is stated to be the splenic form of pseudoleukemia, but is denied in Debove and Bruhl's article.

Gaucher^{17a} claimed that he had described a case of splenomegalia before Debove and Bruhl. At the autopsy was found chronic hyperplasia of the connective tissue in the spleen and atrophy of the follicles. He showed a cast and microscopic sections of the spleen.

Degle in 1891¹⁸ published a case which he called splenic pseudoleukemia; a very incomplete clinical observation of a patient with an enlarged spleen. His argument appeared to be that it was not a case of leukemia and was therefore pseudoleukemia.

In 1892 Rendu¹⁹ described a case of "splénomégalie" in a man 37 years old. The symptoms had lasted for 6 years. The spleen had been enlarged for 4 years. The man was born in a malarial district, but he never had had malaria. There was no anemia; on the contrary a blood examination showed 6,200,000 red corpuscles and 6,000 leucocytes. This case is referred to by Debove and Bruhl, West and others as a case of anemia splenica, yet the only symptom which could suggest the disease is the enlarged spleen. After 6 years' duration it was certainly time to expect some symptoms of anemia, if it were a case of splenic anemia.

A somewhat similar case was reported by Peter in 1893,²⁰ under the title of "splénomégalie primitive." There was a history of 5 years' duration of the splenic enlargement. The patient was in good health. The blood examination showed 5,363,000 red corpuscles and 11,780 leucocytes. Such cases call for little comment.

Williamson in 1893²¹ published a description of 2 cases of splenic anemia; one in a boy of 9

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years and the other in a man of 21 years. The boy remained under observation for 4 months and finally died. The autopsy showed the lesion in the spleen described by Banti; namely, marked fibrous changes in trabeculae and follicles and great diminution of cells. There were a certain number of large phagocytic cells containing red corpuscles. The bone marrow was red and showed a lymphoid condition. There was a small amount of pigment in the liver which contained iron. Lymph-nodes not enlarged. The spleen weighed 2 lbs., 7 oz. The liver weighed 2 lbs., 12½ oz. The blood examination showed a diminution of leucocytes which varied from 2,000 to 7,500. The red corpuscles varied from 2,510,000 to 3,540,000. There was an irregular type of fever most of the time for 4 months. Sometimes a variation of 4° between the morning and evening temperature. No history of syphilis, malaria or rickets. The boy was said to have been pale for 2 years. The autopsy showed an old and a recent endocarditis of the mitral valve without enlargement of the heart. There were also small ulcers in the ileum said not to be typhoid or tubercular. Perforation occurred with peritonitis following.

In the other case there was no autopsy. There was practically no fever,—99°. He was under observation for 8 weeks. Blood examination showed no increase in leucocytes and no marked diminution of red corpuscles. The number was over 3,000,000. The spleen was enlarged.

These cases do not resemble each other very much clinically.

In 1894 Sciola and Carta²² published the results of a bacteriological examination made in 2 cases of "splénomégalie primitive" cultures and inoculation experiments gave negative results.

To avoid repetition it may suffice to say that in a number of cases, in which bacteriological examinations have been made, the results have been negative so far as any casual relation between the organisms found and the production of the disease was concerned. In some cases the colon bacillus, staphylococcus aureus and streptococcus pyogenes have been found, but these organisms certainly stand in no causal relation to the disease.

In 1896 West,²³ under the title of splenic anemia, described the case of a man 36 years old who for a year had had attacks of epistaxis and had had also a hemorrhage which followed the extraction of a tooth. He had lost flesh and strength during this period. The temperature was elevated. The spleen was much enlarged, and there was marked anemia. Several blood counts were made, the number of red corpuscles varied between 1,900,000 and 2,226,000. The leucocytes varied between 50,000 and 75,000. Hemoglobin between 25% and 35%. A blood examination made 6 days before death showed no leucocytosis and the leucocytes chiefly lymphocytes. There was an irregular remitting type of fever. Death followed the operation of tracheotomy performed for acute edema of the larynx. West said that the spleen showed a slight increase in the trabecular tissue. The follicles were much diminished size and

badly developed. The cellular elements were almost entirely lymphocytes with an occasional large cell, containing several nuclei. Iron reaction was negative. There was some increase of the intercellular tissue in the liver; numerous capillary hemorrhages and some round cell infiltration; iron reaction negative. Some of the organs were sent to Professor Kanthack for examination. The liver weighed 93 oz., the spleen weighed 76 oz. Kanthack made the report that the spleen was *very soft* and contained one infarct. The examination was made 24 hours after death. There was some incompetence of the aortic valve with a vegetation on the valve the size of a pea. West added a description of the disease together with the lesions in the spleen which Banti stated to be characteristic; namely, marked fibrous changes. He appeared to think that the lesions in his case were similar.

In connection with this case Kanthack,²⁴ who was present at the meeting before which the paper was read, said that he wished to make some corrections in the report on the blood and spleen with which his name was connected. He stated that the spleen showed some fibrous change and some of the normal splenic giant cells. He said that the blood should be examined in all cases by differential stains, and that this was not done in West's case. It appeared evident from his remarks that he had some doubt of the correctness of the diagnosis in West's case. The marked leucocytosis and the description of a very soft spleen do not agree with the lesions described by Banti as characteristic of the disease.

In 1896 Taylor²⁵ described a case without autopsy, which he believed to be a case of splenic anemia. The case was that of a girl 13 years old, who for 4 years had had more or less pain in the left side. A swelling was noticed about the same time, which increased in size. She had been pale for 3 years. There was a moderate elevation of temperature. The spleen was much enlarged. There was an enlarged gland in the right axilla, and one tonsil was enlarged to the median line. Later a small gland was found enlarged in the right side of the neck. It was movable and situated over the anterior border of the mastoid muscle. A soft systolic murmur was present. The heart was not enlarged. The blood at first showed 2,700,000 red corpuscles; no increase in leucocytes; hemoglobin 35%. Later the red corpuscles numbered about 1,160,000 and the leucocytes 46,400. She died 3 months later. The description of this case is much more like that of pseudo-leukemia than of splenic anemia.

In 1895 Hawthorne²⁶ described a case of idiopathic enlargement of the spleen with recurrent attacks of purpura in a child of 11 years. The child did not die.

Stanley in 1895²⁷ described 2 cases of splenic anemia together with the post-mortem findings. In 1 case there had been for years a marked diminution in the number of red corpuscles and leucocytes. The spleen was enlarged, the capsule thickened; consistency firm; on section

there was considerable increase of fibrous tissue and nothing which resembled the lesions of Hodgkins' disease. The liver showed some cirrhosis of recent date; the pancreas was indurated; the bone marrow was red and gelatinous; the suprarenal capsules showed marked fatty degeneration. In the other case the lesions were the same, except that the suprarenal capsules were atrophied.

In 1896 Koster²⁴ described a clinical case of enlarged spleen that recovered under arsenic and oxygen treatment.

In 1896 under the title of "splenomegalia primitiva" Terrile²⁵ described the case of a man 23 years old who 4 years previously had had an enlarged spleen. In 1895 he returned in poor general condition, with weakness and fever. The liver was slightly enlarged; the spleen was palpable low down in the abdomen. The thorax was negative; the superficial lymph-nodes were not enlarged. There was no evidence in the blood of leukemia or of pseudoleukemia (?). His condition was too poor at first to warrant splenectomy. Later he developed signs of peritonitis, and pus was removed from the abdominal cavity by aspiration. Laparotomy was performed, and an abscess cavity was found which contained *fetid pus*. His general condition improved, and he left the hospital promising to return for splenectomy. No explanation was given of the cause of the abscess. There seems little to warrant the diagnosis of splenic anemia in this case.

In 1896 Pinzani²⁶ reported a case 22 years old with a very large liver and spleen and ascites. He appeared to regard it as a case of *infantile hypertrophy* of the liver and spleen.

King in 1897³¹ reported a case of enlarged spleen, in which the enlargement diminished after a time.

Stein in 1897³² reported a case in which the spleen was very large; the lymph-nodes were not enlarged; the blood was normal — 4,500,000 red corpuscles; 13,500 leucocytes.

Goepel³³ (Schmidt's Jahrbuch 1898) exhibited before a medical society a boy of 11 years, from whom he had removed the spleen 14 months before for pseudoleukemia. At the time of the operation the superficial lymph-nodes were not enlarged, and the blood was normal. No histological report was made of the spleen. There were no especial changes in the blood after the operation.

In 1898 Marty³⁴ reported a case of anemia with enlargement of the spleen, which he called "splenomégalie primitive." The blood was examined by estimating the relative proportion of red and white corpuscles. The report of the case was very incomplete, and in no way justified the diagnosis which was made.

In 1898 Banti³⁵ published an article entitled "splenomégalie primitive con anemia," in which he repeated his views on the nature of the disease — that it is a primary disease of the spleen and the splenic form of pseudoleukemia. He complained that Bruhl had copied his work without giving him as much credit as he deserved. He

referred to his article entitled "Splenomégalie con cirrosi Epatica"³⁶ and said that he considered this disease to be a primary disease of the spleen similar to "anemia splenica." He said that he had observed cases with enlarged spleens and anemia that after a number of years developed atrophic cirrhosis of the liver, and that the patients died of the cirrhosis. These cases were not like any that he had heard of. He said that the same lesions were found in the spleen that are found in anemia splenica. He was not certain whether these were cases of splenic anemia or not. In 1 case splenectomy arrested an incipient cirrhosis of the liver. During the operation the surface of the liver was examined and found to be "granular." He stated that the patient recovered. Looking over the record of the case I find that the report of recovery was made 19 months after the operation. This is not conclusive, because Banti states that the disease may last 10 years before a fatal termination occurs, and he cannot be certain that the cirrhosis was arrested in this case. It seems probable that Banti has described cases of cirrhosis of the liver associated with enlargement of the spleen. It is stated in textbooks on pathology that not infrequently marked enlargement of the spleen occurs in cases of cirrhosis of the liver at an early stage of the cirrhosis. The enlargement in such cases is due to chronic hyperplasia without evidences of chronic passive congestion. The reason for the splenic enlargement in these cases is not clearly understood.

In 1898 Maragliano³⁷ described a case of splenic anemia in a man 20 years old. There was a history of weakness; fever; sensation of weight in the left hypochondrium which had lasted for 4 months. The spleen was very much enlarged; the liver slightly enlarged; lymph-nodes slightly enlarged; the blood examination showed 3,800,000 red corpuscles; no increase in the number of leucocytes; evidences of degeneration in the red corpuscles. He agrees with Banti that it is a primary disease of the spleen which later produces the changes in the blood and the cachexia. He believes that the spleen produces a toxin, and sees the proof of this in the good results which follow splenectomy. He finds that the serum of the blood in these cases has a marked globulicidal action on the red corpuscles. The lesions which he describes in the spleen are those of chronic hyperplasia. As for the action of the blood serum on the corpuscles, he furnishes no evidence that the spleen produces the toxic material.

In 1899 Sippy³⁸ published an article on "splenic anemia" with references to the literature. He said that the clinical and pathological appearances establish the affection as a "distinct morbid entity which is in reality a splenic form of pseudoleukemia." He believes the appropriate name to be "splenic pseudoleukemia." The lesions which he refers to, however, are *not* those of pseudoleukemia. He says "the histological changes constitute a true hyperplasia and present nothing which differentiates it from other forms of splenic hypertrophy that are not accompanied by progres-

sive anemia." He refers to the good results of splenectomy as evidence of the splenic origin of the disease. He refers to 7 cases of splenectomy, 4 of which I have referred to in connection with Banti's work. He described a case with autopsy in a man 45 years old.

In 1900 Osler³⁰ reported 15 cases, which he considered to be cases of "primary splenomegaly." This is a great many more cases than anyone else has ever reported. Aside from these the total number of reported cases is said to be under 30. The description of the cases, of which I shall give a brief summary, is not at all convincing that the symptoms were due to a primary disease of the spleen. In 4 of the cases there was a history of malaria and in 2 of the cases a history of syphilis. Only 1 case was autopsied. It is quite evident that no single etiology will account for these cases.

CASE I. Male; 36 years old; malaria in India some years previously; no syphilis; recurring attacks of hemorrhage from the stomach; enlarged spleen; progressive anemia; edema of legs; ascites; death from hematemesis. Red corpuscles 2,000,000; no leukemia; superficial lymph-nodes not enlarged.

CASE II. Eleven years old; female; severe hematemesis in ninth year; again in eleventh year; anemia; swelling of feet; enlarged spleen; 1 month before observation severe hemorrhage from stomach (mother said that she lost 3 quarts of blood in 36 hours). Red corpuscles 2,250,000; leucocytes 7,120. Termination not recorded.

CASE III. Male; 35 years; recurring attacks of hematemesis and melena between 1885 and 1897 (twelve years); excellent health in the intervals; no enlargement of lymph-nodes; report of blood examination lost; no leucocytosis; when first seen was only slightly anemic; death occurred during a hemorrhage; anatomical summary; chronic hyperplasia of the spleen; only fatty changes in the liver; (no further report made).

CASE IV. Male; 33 years; no history of malaria or of syphilis; nearly 7 years ago first attack of hematemesis; since then at intervals of about a year, very severe attacks, in which he vomited blood and passed blood in the stools; enlarged spleen; exploratory laparotomy; stomach and duodenum normal; liver smooth, not cirrhotic; removal of spleen; recovery. Four months after last hemorrhage, red corpuscles 3,000,000; leucocytes 2,800; hemoglobin 25%; lymph-nodes not enlarged. Patient reported as well 1 year after splenectomy. (It would be interesting to know whether he continued to be well.)

CASE V. Male; 38 years; hemorrhages for nearly 12 years; persistently pale for years; no malaria; no syphilis; great enlargement of the spleen; chlorotic type of anemia; red corpuscles 4,000,000; leucocytes 6,000; hemoglobin 30%. No further observation reported.

CASE VI. Male; 20 years old; lived in malarial district; doubtful attacks previously; hematemesis and melena in April and in October, 1899; admitted to hospital in 1890. Brown pigmentation of skin; greatly enlarged spleen; liver not enlarged; superficial lymph-nodes not enlarged; red corpuscles 2,187,000, leucocytes 12,497 at entrance. Given Fowler's solution and improved; slight fever. No subsequent history.

CASE VII. Male; 40 years old; lived in malarial district; had malaria when a boy; no syphilis; 2 years loss of weight and pallor; pigmentation of skin; progressive enlargement of spleen; mucous membranes not anemic; red corpuscles 4,816,000; leucocytes 5,000; hemoglobin 55%; liver not much enlarged.

CASE VIII. Female; 56 years old; recurring attacks of diarrhea for 3 years; dates her trouble from this time; noticed swelling in left side at time of first at-

tack of diarrhea; no blood or mucus in stools; tumor in left side had increased; hemoglobin 60%; red corpuscles 3,605,000; leucocytes 3,000; no evidence in stools of parasites or eggs; remained in hospital 6 days and discharged improved; red corpuscles 4,300,000; leucocytes 6,000; hemoglobin 60%; no fever while under observation.

CASE IX. Male; 58 years old; chills and fever when a child; febrile attacks 6 years before his death, in which enlargement of the spleen was noted; anemia 3 years later; spleen enlarged, and ascites occurred; spleen remained enlarged, and 2 more attacks of ascites occurred that required tapping. Three years before death red corpuscles 4,400,000; leucocytes 5,100. Four months before death red corpuscles 4,788,000; leucocytes 5,200; hemoglobin 60%. Toward the last the ascites was so extreme as to require tapping. No autopsy reported. Said not to have had cirrhosis of the liver.

CASE X. Male; 39 years old; lived in a malarial district; occasional attacks of chills and fever; chancre, no symptoms; moderate drinker; epilepsy for 18 years; increasing weakness for past 6 or 8 months; superficial lymph-nodes slightly enlarged in places; spleen greatly enlarged; liver slightly enlarged; red corpuscles 4,128,000; leucocytes 2,800; hemoglobin 45%. Improved under treatment during 2 weeks. No further report made. (Patient did not know spleen was enlarged.)

CASE XI. Male; 57 years old; alcohol in moderation; obscure abdominal attack 7 years before death, thought to be peritonitis at the time; color not good afterwards; 7 years later noticed enlarged spleen; red corpuscles 2,500,000; leucocytes normal; hemoglobin 37%; slight swelling of feet; pallor; dyspepsia; loss of flesh; very large spleen; liver not enlarged; superficial lymph-nodes not enlarged; slight fever for several months; some improvement in blood later; red corpuscles 3,328,000; leucocytes 4,000; hemoglobin 50%. Death followed the operation of lithotomy.

CASE XII. Male; 40 years old; dyspepsia for 8 years; no history of syphilis or malaria; temperate man; in 1899 had 3 profuse hemorrhages from stomach at intervals of few days; no pain associated with them; the abdomen gradually swelled and about 2 months later was tapped and 6 quarts of fluid withdrawn; spleen was found to be enlarged at this time; liver not enlarged; ankles not swollen; red corpuscles 4,208,000; leucocytes 4,000; hemoglobin 45%. No further report made on case.

CASE XIII. Female; 44 years old; 3 months failing health; loss of appetite; weakness; for 6 weeks vomiting and diarrhea; extremely anemic; enlarged spleen; enlarged liver; lymph-nodes not enlarged. At time of entrance into hospital the number of red corpuscles 1,540,000; leucocytes 3,300; hemoglobin 23%. Under observation for 5 weeks, showed great improvement, gained weight and strength; red corpuscles 3,680,000; leucocytes 4,300; hemoglobin 54%.

CASE XIV. Male; 35 years old; syphilis at 18 years, thoroughly treated; married, with 3 healthy children; 5 years' illness; recurrent attacks of diarrhea lasting several weeks or months; stools watery, mucus and a little fresh blood; parasites not found in stool; lost 40 lbs. in few months. Between attacks of diarrhea gained strength; 3 attacks of hematuria few months previously; no evidence of malaria; pigmentation of skin; greatly enlarged spleen; liver slightly enlarged; superficial lymph-nodes not enlarged; no fever while under observation; remained in hospital 3 weeks; improved greatly; spleen appeared to decrease in size somewhat. At first red corpuscles 3,856,000; leucocytes 4,500; hemoglobin 55%. Two weeks later, red corpuscles 3,692,000; leucocytes 3,500; hemoglobin 60%.

CASE 15. Male; 43 years old; malaria in 1885; no syphilis; not alcoholic; in 1891 vomited large quantity of blood; a few days later a second severe hemorrhage from stomach; noticed lump in abdomen; in 1895 examined and found to have large spleen; in 1899 has remained in good condition; no more hemorrhages; robust and well nourished; slightly pale; large spleen; liver appeared to be slightly reduced in

size; red corpuscles 4,270,000; leucocytes 2,500; hemoglobin 45%.

At the end of his article Osler says, "Doubt has been expressed as to the existence of a separate and distinct disease, to which the term splenic anemia should be given. We do not know whether the anemia is the result of the enlarged spleen, or whether, as seems more probable, both are secondary to some cause as yet unknown. Provisionally, until we have fuller knowledge, it is useful to group together, as I have done here, cases of idiopathic enlargement of the spleen with anemia and without lymphatic involvement, and to label the condition splenic anemia."

(To be continued.)

Clinical Department.

HERNIA REDUCED "EN BLOC"; OPERATION AND RELIEF OF INTERNAL STRANGULATION.

BY C. A. PORTER, M.D., BOSTON.

This case entered the Massachusetts General Hospital Jan. 18, 1901, in the service of Dr. C. B. Porter; operation by Dr. C. A. Porter.

Daniel T., age 42, had worn for 5 years a truss for double inguinal hernia of medium size. On Jan. 17, while drawing on his trousers in a hurry, the hernia slipped out by the truss and could not be reduced. In a short time he had sufficient pain to cause him to send for his physician who, under ether, reduced the hernia so that the inguinal canal was empty.

Upon recovery from ether, however, the pain recurred with increased severity, and he was wisely sent to the hospital for observation. On entrance, Jan. 18, at 2 p.m., the temperature was 100.6°, pulse 100, respiration 24. Both rings were large, the right tender on insertion of the finger; both were entirely empty; the muscles of the right lower quadrant were somewhat rigid; the pain through the lower abdomen was moderate in amount and less than in the early morning.

In spite of ice bags the patient passed a restless night, with nausea and finally vomiting in the early morning. No movement in spite of calomel and salts by mouth and two rectal enemata. The pain increased in severity towards noon, with vomiting and increased rigidity of the lower abdominal muscles, the temperature remained the same, but the pulse rose to 120; white count, 17,500.

In view of the evident intestinal obstruction with nothing to be felt in the inguinal canal, a diagnosis of reduction *en bloc* was thought probable, and under ether an incision was made through the right rectus muscle. On walling back the intestines the cause of the obstruction was at once evident; distended ileum could be seen to enter a peritoneal opening opposite the internal ring, and

collapsed and pale intestine emerged from the same aperture. Upon slight traction a short knuckle of intestine popped out, showing well a distinct sulcus where constriction had occurred. Gas immediately filled the previously collapsed portion, and the dark purple color rapidly changed to normal pink.

On more careful examination of the now empty sac it was found to lie in the subperitoneal tissue, entirely within the muscles, and in no relation to the internal ring or inguinal canal. The case was then one of inguinal hernia which, as there were no, or only slight, adhesions between the sac and surrounding tissues, had been converted by manipulation into the so-called "properitoneal or interstitial variety."

On the left side the sac was found to be inverted, projecting into the general cavity like the finger of a glove. To its tip a coil of intestine was firmly adherent, and the cord could be felt running along the outer surface of the sac. Both sacs were tied off, and the abdomen closed. The patient's condition did not warrant any operation for radical cure.

Recovery was uneventful, except for slight infection of the wound. The bowels moved freely on the following day. In a month Dr. Seudder operated upon both hernial openings.

After apparently successful reduction of strangulated hernia by taxis, the symptoms may recur under the following conditions:

(1) Incomplete reduction, especially in fat persons, when the hernia and sac are pushed up beyond reach into the inguinal canal.

(2) Reduction into another pre-existing sac, connected by a common neck with the one in which the gut was first found.

(3) Reduction *en bloc*, where the sac, with contents, is pushed entirely beyond the inguinal canal into the submuscular space.

(4) Reduction through a rent in the sac. The neck has even been completely torn away and found free in the general cavity, encircling the intestines like a ring.

(5) Complete reduction from the sac, yet with adhesions of the intestines sufficient to form a kink.

(6) Finally, obstruction developing as a result of changes in the intestinal wall itself, varying in severity from transient traumatic paralysis to gangrene and perforation.

Whenever severe symptoms recur after taxis, or even after the ordinary operation for strangulated hernia, it would seem conservative to perform laparotomy at once, and examine the intestine. Should its condition be doubtful it may be surrounded with gauze and watched for 24 hours. Leaving questionable intestine near the open inguinal canal in ordinary strangulated hernia, in view of the possible subsequent complications, seems to me inferior to making a rapid abdominal section.

In the not uncommon cases where a certain amount of intestinal paralysis follows reduction, it is often a nice question of judgment whether

¹ Read before the Suffolk District Medical Society, Surgical Section, May 1, 1901.

these will pass away under catharsis and enemata, or whether operation is indicated.

The duration of strangulation, the severity of the symptoms, the condition of the gut — if it has been seen — are the only guides, with a distinct bias in favor of operation if the symptoms persist more than 24 hours.

A CASE OF INTUSSUSCEPTION: RESECTION OF FIFTY-SIX INCHES OF SMALL INTESTINE; RECOVERY.¹

BY F. G. BALCH, M.D., BOSTON.

THE following history is given by Dr. Boland: He first saw Maud H., 16 years of age, on Jan. 25, 1901. At noon she had eaten a hearty boiled dinner with turnovers, etc., included. In the afternoon she ate apples, raw cucumbers, candy, etc. At 5 p.m. pain and vomiting set in and continued. At 11 p.m. Dr. Boland saw her. She was still in great pain and vomiting. Her general condition was good. A mass was easily felt in the abdomen, the shape of a Vienna crescent roll, convexity down, and the ends parallel with the spine. It was movable from side to side at least two inches. The belly was so empty and thin and soft that it could be felt as easily as a bread roll in an overcoat pocket. She was given a subcutaneous injection of a sixth of a grain of morphine and a hundredth of a grain of atropine. The conditions next morning were the same, and the subcutaneous injection was repeated. The condition at 7 p.m. was very much worse. General abdominal distention masked the mass. She was then sent to the Carney Hospital with a diagnosis of intestinal obstruction. When Dr. Boland first saw her, the temperature was 99.6° and the pulse 90. The hospital records say that she had no movement of the bowels after the morning of the day she was taken sick. Her morphine did not stop the nausea, and she continued vomiting a dark green fluid through the night. Her mother said that she had passed some gas but no feces during the night. Applications were continued, and a low suds enema was given. She slept several hours after this. There was but little tenderness in the lower abdomen. In the evening before she was sent to the hospital she complained of considerable pain, and was vomiting. There was some distension of the abdomen and slight tenderness. She was brought to the hospital at 9 p.m. Physical examination then showed a symmetrical abdomen, lax but somewhat more prominent than normal in the region of the umbilicus. No visible peristalsis. On palpitation the abdomen was somewhat tender, and a mass could be felt in the region of the umbilicus extending outward and downward and somewhat rounded in outline. The region was dull on percussion. Leucocyte count was 20,000. When I saw the patient a little later the distension had increased so that it was hard to make out anything

of the shape of the tumor. She seemed to me very slightly more tender in the appendix region, so I first made an incision in the right linea semilunaris about on a level with the umbilicus. It was at once evident that the mass had no connection with the appendix, and also that it would be impossible to remove it by that incision. I then opened in the median line and came upon the crescent-shaped tumor exactly as Dr. Boland had described it. With some difficulty I got the mass outside of the abdominal cavity and found that it was a large intussusception — *jejunum into ileum*. There was considerable free purulent fluid in the abdomen, and the whole mass looked so badly that I decided to resect the intestine. This was accordingly done, and the ends brought together by end to end anastomosis. The edges of the incision in the mesentery were sewed over and over separately, as being the quickest way to stop bleeding, and then brought together with a continuous stitch. The ends of the bowels were united by a double layer of continuous sutures, the first approximating the edges of the gut and the second being a Lembert stitch through the peritoneal coat. After the suture was completed, the omentum was carefully wrapped about the point of union and both incisions closed except for a small gauze drain in the median line down to the anastomosis. The abdominal cavity was not washed out but was sponged out with dry sponges. There was considerable shock to the operation, and quite vigorous stimulation was needed.

The patient rallied fairly well from the operation but was quite weak the next day. During the next 24 hours the bowels moved 3 times, and considerable gas was expelled after a high enema. She was slightly delirious and got out of bed once during the night, and insisted that she felt all right, and that we were starving her. During Jan. 26 she had $\frac{1}{40}$ of a grain of strychnia every 4 hours, and 6 nutrient enemata during the day.

On Jan. 27 she was somewhat restless, but in the afternoon her bowels began moving very freely, and she felt better. She had $\frac{1}{30}$ of a grain of strychnia every 3 hours and 3 nutrient enemata during the day. On the 28th she was very comfortable. She slept 8 hours during the night. She was given milk and lime water by mouth and one nutrient enema. Leucocyte count was 16,000. On the 29th the wick was removed under chloroform and a small strip of gauze put in in its place. She was comfortable. She was given $\frac{1}{10}$ of a grain of calomel every $\frac{1}{2}$ hour for 6 doses. Feb. 3 the last wick and all the stitches were removed. Her convalescence from now on was uneventful. She was kept on liquids for 3 weeks, but when she left the hospital about the middle of February was eating regular diet and getting fat. Her bowels moved regularly, and she did not seem to miss the 56 inches of small intestine at all. The leucocyte count had come down to 11,000 on Feb. 1, and a few days later went up again to 14,000, where it stayed for several days. It then came down to 9,000.

¹ Read before the Surgical Section of the Suffolk District Medical Society, May 1, 1901.

I have not seen her for some time now, but she comes in to the hospital every little while, and Dr. Boland says she is gaining weight and doing very well.

Examination of the resected gut showed a polypus almost completely filling the lumen of the bowel. This was undoubtedly the cause of the intussusception.

TWO CASES OF INTESTINAL OBSTRUCTION DUE TO CONSTRICTING BANDS.¹

BY JOHN WHEELOCK ELLIOT, M.D., BOSTON,
Surgeon to Massachusetts General Hospital.

CASE I. CONSTRICTION AT THE ILEUM BY MECKEL'S DIVERTICULUM.

The patient, a young girl of 17 years, was operated on for chronic appendicitis on July 22, 1898. Three months later, Oct. 20, she was taken with dull pain in the left hypogastric region. The patient had failed to menstruate as was expected, and this attack was at first supposed to be due to suppression of the flow.

When I first saw her, on Oct. 24, in consultation with Dr. Maurice Clarke of Haverhill and Dr. Bancroft of Wellesley, the bowels had not moved for two days, in spite of frequent administration of cathartics and enemata. The abdomen was distended, tender and tympanitic. No gas had passed that day. The patient had vomited several times. Cathartics were discontinued, and opiates given. In spite of this change of treatment, vomiting and distension continued. No gas passed. The operation was done on Oct. 25. On opening the abdomen bloody fluid escaped. The ileum was found to be tightly constricted by an adherent Meckel's diverticulum about four inches from the ileocecal valve. The intestine just above the constricting band was much dilated, deeply injected, of a dark purple color. The obstruction was quickly relieved by dividing the band. The abdominal wound was closed with drainage on account of the doubtful condition of the dilated intestine. The operation was finished with the patient in a critical condition. Recovery was rapid and uneventful. It was noticeable that the seat of the pain was remote from the actual lesion, — the latter was to the right of the median line, the former in the left hypogastric region.

CASE II. CONSTRICTION AT THE SIGMOID FLEXURE BY A BAND.

The patient was a married woman 35 years old, and was brought to the accident room of the Massachusetts General Hospital on March 1, 1901. She had always been constipated and had been obliged to use cathartics for the past year to secure movements of the bowels. Five days before coming to the hospital she had been seized with pain in the left lower abdomen and vomited several times. Since that day she had been unable to retain any food. On the first day of the

attack her doctor, by means of cathartics and enemata, had succeeded in inducing three large watery movements of the bowels; since that time nothing but gas had passed. The pain had subsided, and when the patient made no attempt to take food she was comparatively comfortable, except for the weakness due to lack of food. The patient thought she had lost weight during the past year. She had never noticed blood or mucus in the stools. The abdomen was everywhere soft, somewhat distended and tympanitic. There was some tenderness on deep pressure over the sigmoid region.

The operation was done on March 2. On opening the abdomen the bowels were found enormously distended. With great difficulty the distended large intestine was traced down to the pelvis, where it was found to be constricted. The patient was placed in the Trendelenburg position, and a transverse incision made part way across the left rectus muscle to give a better view of the pelvis. The descending colon was punctured with trochar, and the neighboring distension relieved by the escape of gas, the points of puncture being closed with intestinal sutures. When a good view of the constricted part was finally obtained, a small hard band was found to be wound completely round the intestine and adherent to a venous plexus on the side of the pelvis. One of the convolutions of the intestine, adherent to this band, had been drawn out toward the pelvis in such a way as to make it look like a true diverticulum. The band, however, was probably due to old adhesions, as more adhesions were found deeper down in the pelvis behind the uterus. When the band was cut the collapsed intestine below immediately filled, and the obstruction was relieved. The patient made a good recovery. The bowels moved well after a small enema on the first day after the operation. There was no pain, and the distension was quickly relieved. The wound healed by first intention, and the crosscut of the rectus muscle gave no trouble.

Medical Progress.

REPORT ON PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANISLAW, M.D., AND WM. DUDLEY HALL, M.D., BOSTON.

THE SIGNIFICANCE AND PATHOLOGY OF THE ARGYLL-ROBERTSON PUPIL.

WILFRED HARRIS¹ states that this sign is met with most commonly in tabes and general paresis, — diseases which are due largely, if not entirely, to syphilis. He believes the loss of pupil contracting to be an almost certain sign of congenital or acquired syphilis. He has met this pupil also in juvenile locomotor ataxia and general paralysis with history of acquired syphilis, progressive muscular atrophy, lead poisoning, aortic aneurysm, hemiplegia, syphilitic meningitis, ataxic paraplegia.

¹ Read before the Surgical Section, Suffolk District Medical Society, May 1, 1901.

¹ British Medical Journal, Sept. 29, 1900.

gia, choroiditis, and in patients who present themselves with all manner of symptoms, showing no signs of ataxy or anesthesia, with brisk knee jerk, but in almost every case with a clear history of syphilis. These pupils may be large or small or unequal, and when large their power of contraction or convergence is lost or very slight. The very small pupils cannot be considered as simply paralytic myosis, since they are smaller than in sympathetic paralysis, nor due to a continual irritative process affecting the sphincter centre in the third nucleus. He believes the small pupil to be due in part to a contracture of the sphincter muscle, as they dilate only partly under atropine. In 20 cases he has noticed unilateral loss of light reflex and usually has found it unequally impaired, probably due to different stages of the process. When unilateral reflex iridoplegia is present, it is important to test the consensual reactions to light, and it will be found that the sound pupil, if shaded, will contract if light is focused on the affected pupil from any direction; this proves that the afferent part of the reflex in the optic nerve is intact, and disproves the possibility of a nuclear lesion in Argyll-Robertson pupil, if the usually accepted diagram of the course of light fibres be correct. The morbid anatomy of the Argyll-Robertson pupil, though never demonstrated, has been variously surmised to depend on a nuclear lesion, on sclerosis of Meynert's fibres between the anterior corpora quadrigemina and the third nucleus or even on a lesion of the ciliary ganglion. The third nucleus, or its anterior portion, is certainly included in the reflex arc, and it is not surprising, therefore, to find reflex iridoplegia present in nuclear lesion. As most cases of Argyll-Robertson pupil are not accompanied with other signs of nuclear lesion, there is not sufficient cause for placing the usual site of the lesion in the nucleus. Analogy would suggest sclerosis of certain fibres, in view of its frequent association with posterior sclerosis, in which lesion of nerve cells is a rare exception. In birds and animals with and without binocular vision the two third nuclei are not tied together for light reflex, since only the pupil exposed to light contracts; in birds and the lower mammals there is complete decussation of the optic nerves at the chiasm, therefore there must be a posterior decussation of the fibres subserving the light reflex between the optic lobes and the third nuclei.

It is probable that in man and in other animals with binocular vision in whom there is a semidecussation of the optic nerves at the chiasm, that a similar arrangement holds good between the anterior corpora quadrigemina and the third nuclei; namely, a semidecussation of the fibres subserving the light reflex between these two parts. Boyce has shown that Meynert's fibres are not a complete decussation, some remaining uncrossed in or close to the posterior longitudinal bundle of the same side, and it seems not improbable that these fibres have the above function. It is not necessary to conceive the two third nuclei being tied together

to explain the consensual reaction to light, as light thrown on either pupil will cause afferent stimuli to reach both third nuclei independently. The Argyll-Robertson pupil is probably due to a sclerosis of these fibres on one or both sides, according as the loss of light reaction is unilateral or bilateral, rather than to any nuclear degeneration.

THE TREATMENT OF GONORRHEAL OPHTHALMIA.

Dr. Wolfberg² says that if seen early instill a few drops of either a 2% solution of silver nitrate or a 20% solution of protargol. Place a piece of clean ice in 100 gm. of water, to which 2 drops of formalin have been added. After dipping a small piece of linen or cotton pad in the solution it can be laid upon the ice and then transferred to the eyelids. An ice bag is contraindicated on account of its weight. If there is no membrane it is better to commence with the nitrate at once, changing to the protargol if positive improvement is not immediately noticed. In order to remove the pus from the eye he uses a solution of formalin so weak that it does not cause pain. He frequently uses a 6% solution of borax to which a little salt has been added, combined with the formalin solution for irrigation every 15 minutes. Avoid injuring the epithelium of the cornea. As a means of protecting the good eye he favors an occlusive bandage arranged as follows: The edges of a piece of borated lint are smeared with glycerin gelatin, laid over the eye and made adherent with collodion. Keep the bowels open and give iodide of potash internally.

Greeff³ emphasizes the importance of a bacteriological examination by the "Gram method," to eliminate pseudogonococci. The gonococci can penetrate intact corneal epithelium, if in contact long enough, and this form of inflammation must be discriminated from the metastatic form, which is not at all uncommon, and is characterized by edema, oftentimes iritis, but without an especially profuse discharge. Gonococci are not apt to be found in the secretion, and the iritis is generally plastic. Metastasis in various parts of the body, usually in children, is mentioned. He thinks that the 2% solution of silver used according to Crede is too strong, may set up a suppurative and cause opacities of the cornea. A 1:4,000 solution destroys the gonococcus with certainty, and as weaker solutions penetrate corneal tissue more deeply by not causing coagulation he would suggest instillations of one-fourth or one-tenth of 1% for prophylaxis. Painting the lids may be dispensed with, as the cornea may be irrigated by the mother or nurse, the weak solution being simply poured from the bottle, every hour, for a few days. The treatment of the disease in adults is less promising.

Zweifel⁴ criticises the general use of Crede's method by midwives. He considers blenorria neonatorum a specific disease caused by the gonococcus, always by contact, and that there is no

² Woch. f. Therap. u. Hyg. des Auges, uni, 1900.

³ Berlin. Klin. Woch., 1901, No. 6.

⁴ Centrbl. f. Gynec., 1900, p. 51.

more reliable prophylactic against it than the method of Crede. The occasionally noticed irritation after its use should prevent an obligatory introduction. In acetate of silver he thinks he has found a safe and nonirritative drug which is a specific against the gonococcus, and which in solution keeps well in a dark bottle. For the 5 years previous to 1901 this drug has replaced the nitrate of silver in his clinic and with gratifying results. In connection with the "silver catarrh" it is interesting to note that after washing one eye of 816 children with distilled water before applying the "Crede method," in order to remove the chloride of sodium of the tears, a catarrh always developed, but did not in the other eye, which was treated with the silver without washing and afterwards irrigated with a dilute salt solution. It will be remembered that in the newborn child there is no discharge of tears containing .6 to 1% of chloride of sodium. Therefore a catarrh easily occurs in a newborn but never in the adult, after 2% silver. Then follows a discussion regarding the relations between the midwives (who in Germany conduct 95% of the confinements), the oculist and health officer.

Engleman⁵ reports another series of 1,000 cases, in which he substituted protargol for "Crede." In 80% there was no secretion, in 20% some, but never as much as after silver. The bad results reported previously by Zweifel after the use of protargol in blennorrhoea neonatorum Engleman believes to be due to an inferior quality or to a disintegration of the protargol which takes place when the solution is prepared warm or boiled, or exposed to light or to contact with metals. It is always, therefore, well to add to the prescription, "Frigide paratum."

METHYL ALCOHOL BLINDNESS.⁶

Among the toxic substances having a selective affinity for the visual apparatus, methyl alcohol should receive recognition both from a toxicological and prophylactic standpoint. Dr. Gifford⁷ reports a case of blindness resulting from drinking methyl alcohol under the supposition that it was cologne spirits. This is an indication that all packages containing it should be marked "Poison." The subject is not a novelty in ophthalmic literature, and should suggest to the medical profession the necessity of considering this substance as a cause of blindness occurring in localities where alcoholic beverages are difficult to obtain and the substitution of trade preparations common.

Dr. De Schweinitz⁸ reports methyl alcohol amaurosis, the pathway of entrance being through the lungs and cutaneous surface. He attributes the priority of describing this agent as a cause of amblyopia to Viger in 1877, and mentions the names of others who have contributed to the literature of this subject. It is taken variously diluted, and is hard to determine the minimum amount sufficient to cause blindness, or the length of ex-

posure requisite. Usually just preceding the blindness there is noticed a weakness of heart and muscles generally, nausea, profuse perspiring, headache, giddiness, coma or delirium. Frequently, after an unusual indulgence accompanied by the preceding symptoms, obscuration of vision is present, going on to complete blindness quite rapidly. Temporary improvement in vision may be expected from treatment, but the final result is apt to be far from favorable. The fundus shows optic neuritis, exudate in retina, and atrophy. The field is contracted, there is an absolute central scotoma and a color defect. The pain in the orbit, the blindness improving temporarily, the optic neuritis and the scotoma would suggest some primary affection of the optic nerve, possibly a retrobulbar neuritis, as the cause, but Holden from his experiments on dogs, considers the cause to be dependent upon nutritive changes in the ganglion cells in the retina. This view has been confirmed by Birch-Hirschfeld⁹ who uniformly found degeneration of the ganglion cells with breaking down of the chromatin bodies, development of vacuoles, shrinking of the cell and nucleus, and finally destruction of the cell body. Hotz thinks, if the retinal elements are destroyed, it would be difficult to account for the temporary return of sight, and suggests that the violent inflammation of the connective tissue of the optic nerve, temporarily, prevents the conduction of visual impressions, to be transmitted as the inflammation subsides, and again blocked when atrophy comes on. It is probable that many of the substances credited with the power of producing toxic amblyopia—as ginger, peppermint, etc.—owe their activity to the methyl alcohol with which they are mixed.

HYSTERICAL OCULAR SYNDROMES.

Kenig¹⁰ claims that hysteria may simulate almost any disease of the visual apparatus, which makes the matter of diagnosis both important and sometimes of great difficulty. Both the motor and sensory functions are involved. There is usually a concentric contraction of both fields in hysterical amblyopia. Hysterical amaurosis resembles very much the true disease, and in both the onset may be very sudden. The amaurosis resulting from disease of the two occipital lobes frequently commences with symmetrical scotomata, which may be in the form of hemiopia, or horizontal or vertical hemianopsia. In hysteria there may be tonic or clonic spasms of the eyelids. The patient suffers but little inconvenience in hysterical amaurosis. The amaurotic eye is blind only when monocular vision is attempted, and it may be demonstrated by prisms that with both eyes unobstructed the vision of the supposed amaurotic eye is good. The contraction of the field is usually bilateral. A reversal of the field for colors is frequently noticed. Hysterical ptosis is always caused by spasm of the orbicular muscle, the skin not being wrinkled, the frontalis being con-

⁵ *Centrif. f. Gynec.*, 1900.

⁶ *Philadelphia Medical Journal*, August, 1901.

⁷ *Ophthalmic Record* of July, 1901.

⁸ *Ophthalmic Record* of June, 1901.

⁹ *Klin. Monatsbl. f. Augenheilk.*, October, 1900.

¹⁰ *Revue d. Ophthalmologie*, July, 1900.

tracted and the upper eyelid hanging over the lower. When raised it rapidly falls again. Thus in false ptosis the eyebrow is drawn down during the spasm, while in the true form the brow is elevated. False ptosis may be accompanied by paralysis of the opposite side of the body. Up to the present time no cases of hysterical paralysis of the ocular muscles have been reported, the disease being in the form of spasm or contracture. In hysteria of the extrinsic muscles the external rectus is always affected. These may be the only ones affected, or involvement of one may be associated with trouble with the internal rectus of the other eye. The external rectus muscles may be in a state of associated spasm with the orbicularis. Hysterical nystagmus may be distinguished by rapid irregular oscillations separated by short intervals of repose. The oscillations, like other motor disturbances, increase when the patient's notice is called to them, or when he attempts to fix his gaze. They may be made to disappear by suggestion. Mydriasis and myosis have been noticed. Finally the diagnosis must rest largely upon the presence or absence of associated symptoms.

(To be continued.)

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. G. BALCH, M.D., SECRETARY.

REGULAR meeting May 1, 1901, DR. F. B. HARRINGTON in the chair.

DR. C. L. SCUDDER read a paper entitled

TORSION OF THE SPERMATIC CORD; A REVIEW OF ALL CASES HITHERTO REPORTED; THE DETAILS OF A RECENT CASE TREATED.

The résumé of all the cases resulted in the formulating of the symptoms and treatment of cases of torsion of the cord. The etiology of the affection is still undetermined, but the factor common to all the cases which have been observed is the long mesorchium. This allows the rotation of the testicle upon its long axis. The treatment best adapted to these cases is orchidectomy. Strangulated hernia and acute orchitis are the common affections for which strangulation of the testicle is mistaken. The prognosis as to life is in all cases good. The prognosis as to the testicle is in almost all cases bad. Its removal is necessary.

DR. HARRINGTON: I should like to ask whether in an injury to the testicle of a good deal of severity the inflammatory process could in itself produce this condition in any way. Many of these cases, like Dr. Scudder's, have immediately followed injury.

I saw no reason to suppose that the injury in any of these cases was any more than an exciting cause. Why the twist occurred I could not learn from any of these cases. In many of them there was no injury whatever; in fact, in many simply a strain. One man was blowing very hard on some

wind instrument and suddenly felt pain in his testicle, acute symptoms came on, and a few days later the orchidectomy was done. I could not in my own mind associate the slight injuries or the severe blows with the production of the twist. I think we must keep in mind the only real fact in connection with etiology that we have; namely, that the testicle does lie pretty free in the tunica vaginalis and can be twisted, but the exciting cause I could not learn from the histories.

DR. STOKER: In reference to the direction of the twist it would be interesting to hear if there is any inherent tendency of the right testicle to twist outwards to the right and the left one out to the left in the way ovarian tumors are apt to do. In accordance with Küstner's law of axial rotation the twist of ovarian tumors in a very large number of cases is upwards, forwards and then outwards, which in turn is a corollary of Fischer's law of Spirillity, according to which in all bilateral organs there is this inherent tendency to axial rotation Dr. Scudder spoke of. In looking up the question of torsion some years ago in connection with ovarian tumors I came across several cases of torsion of the testicle in which the law was complied with. It would be interesting to know whether Dr. Scudder's wider experience shows this tendency to be a constant one.

DR. SCUDDER: I looked carefully over the cases with that point in view, and I could not demonstrate it absolutely in any case. The number was rather limited in which it was mentioned. There were perhaps 5 or 6 cases of the right testicle twisting the same way, and then several cases twisting the other way.

DR. LUND: In what proportion of these cases was a normal testicle affected?

DR. SCUDDER: There were about 40, nearly half not mentioned as being undescended. I think 47% were mentioned as being undescended testicles.

DR. LUND: I think it is hard to understand what would prevent a normal testicle from untwisting itself if once twisted. An undescended testicle you can understand being caught in a fold of the sac or ring or canal, but it is hard to understand how a normal testicle lying free in the scrotum can be prevented from untwisting itself.

DR. STOKER: Why is that more difficult to understand than why an ovarian tumor that becomes twisted should remain so? We know that an adhesive peritonitis is very apt to follow strangulation of an ovarian tumor.

DR. LUND: There are more or less rigid walls and organs about the ovarian tumor, to which it may become adherent, but here is a testicle perfectly loose, and the scrotum itself I should think would move enough to let it untwist, whereas the abdominal walls or walls of the pelvis could not.

DR. ELLIOT: I think the twisted ovarian pedicles are almost always adherent. I never saw any loosely twisted one. I also do not see how the testicle could stay twisted, unless there is some inflammatory process.

DR. J. W. ELLIOT reported

TWO CASES OF INTESTINAL OBSTRUCTION DUE TO
CONSTRICTING BANDS.¹

DR. LUND: I would like to ask Dr. Elliot about the mechanism of this obstruction by Meckel's diverticulum.

DR. ELLIOT: In the second case the band was attached to a fixed point outside the intestine. In the first case the band came from the intestine and was attached to the same piece of intestine not far away; it had gone straight round. It was very strange and very difficult to understand. It was simply a diverticulum coming off and in some way getting round back again; it did not go anywhere else. I do not know how the diverticula cause strangulation. It seems as if it must have started in an inflammatory process in the diverticulum itself. I once found a diverticulum acutely inflamed like an appendicitis and took it out. My own theory of the first case is that this was mistaken for appendicitis, as I believe they did not find much in the appendix to account for the attacks.

DR. LUND: I had an interesting experience with a case of obstruction this winter,—the case of a man whom I had operated on a year and nine months before for perforating ulcer of the stomach, from which he recovered. He had general peritonitis, and a small incision was made to drain the pelvis. He was hard at work on a cold February day and overcome by gas in the bottom of a man-hole, and when they fished him out and he came to he vomited. That evening he was attacked with fearful abdominal pain, for which he was given large doses of morphia by his physician. The next day he was better, and nothing was done. Two days after the attack he was given an enema in the morning, which moved his bowels, and was sent to the hospital. I saw him; he was perfectly comfortable, his bowels had just moved, and I wisely let him alone, and the next day also because he had another movement. The next day he began to hiccup, but he felt so well he would not consider operation, but I finally persuaded him to be operated on.

I operated and found obstruction from a band which ran from this small incision to the free border of the loop of intestine, being apparently twisted bowel. There were two bands, both attached to the bowel, but the lower band only appeared to be concerned in the obstruction.

Dividing the first band had no effect on the obstruction. Above the second band the bowel was enormously dilated and below collapsed so as to indicate that that was the seat of obstruction, which seemed to be due to a twist. When the obstruction was relieved the intestine above it was black and distended and did not seem to empty itself into the collapsed portion. It seemed, therefore, wisest to open one of the dilated coils, which was done with the escape of a great amount of feces. As soon as these coils above collapsed by the pouring out of the feces, a great deal more began to pour out of his mouth. Before the op-

eration he had not vomited at all. He vomited quarts after the relief of the obstruction. It was very difficult to sew him up because of the struggling and vomiting. It seemed to me the only way to explain the sudden beginning of the vomiting at that time was that the coils were tremendously distended by the obstruction and became kinked above, so that the fecal stream could not go into the stomach, and when this kink was relieved the feces went into the stomach, and he threw them up. Before the relief of the kink he could not vomit,—he could only hiccup. His recovery, I think, was very fortunate, because he ought to have been operated on at least 2 days before it was done.

DR. COXMAN: I have operated on 3 cases of intestinal obstruction from bands. Two were from appendicitis. One was in a doctor who had had several attacks of appendicitis, one with abscess which was opened and drained, and the wound closed again. The appendix healed with a sinus into the intestine on the inside, no sinus opening outside, leaving a large concretion at the base of the appendix and communicating by this little fistula with the intestine. The appendix itself had cicatrized and lay across the brim of the pelvis so as to shut off the small intestine, causing a chronic obstruction. Finally an acute attack caused the obstruction for which I operated. At the time I operated the patient's condition was nearly hopeless, and though the cause of the trouble was removed, he died of shock. I found the appendix lying across and binding down the small intestine near the ileocecal valve.

The second case was the same sort of constriction at the same place, probably following appendicitis, but was merely a band of fibrous tissue lying across the ileum at that point. That was a hospital case last summer; the patient also died.

The third case was caused some 6 months before by the introduction of a hard rubber pen handle for the purpose of obtaining abortion in a woman of about 40. The pen handle was introduced and did not reappear, nor did abortion follow. She flowed a little after it, but did not have anything that could have been called an abortion. Search was made for the pen handle, and the doctors who operated could not find it through the uterus. She got about on her feet, but continued to have pain in the abdomen whenever she was at work at all. About 1 month after that she came to me for an x-ray to see whether the pen handle was in there. It showed in the x-ray lying to the left of the lumbar vertebrae. I operated for that and found a perfectly normal peritoneum, except for a hard band extending upwards from the fundus of the uterus and attached at its upper extremity to the little knuckle where the duodenum begins to come out and forms the small intestine. The pen handle lay in a capsule of fibrous tissue, firmly embedded in this structure, and apparently in the mesentery of a rather free sigmoid, so that you could put your finger down on both sides of it and feel the pen handle distinctly between. I determined to do as little as possible, except to

¹ See page 408 of the Journal.

remove the pen handle, and, opening the tract at the upper end, came down on the pen handle and took it out. There was a little bloody fluid, which followed, but no pus, and I thought it safe to close it and put in a stitch at the opening where the pen handle came out, and looking the case over once more closed it up. In the course of the tract between the upper end of where the pen handle lay and the knuckle of the duodenum there was a sort of a bridge of firm tissue, so firm that after the pen handle was removed it still felt as if the pen handle was in there. I thought at the time of operation of cutting that band, but I decided that I might cut the mesentery and do more harm than good, so I left it. She had an uneventful convalescence until the day she was to go home, when she had an attack of vomiting with abdominal pain.

Dr. Harrington was good enough to see the case with me then, with the question of its being some form of intestinal obstruction or sepsis. We decided to let it go for some hours more, and I think 16 hours from the time symptoms set in I operated, and, on opening the abdomen every coil of bowel I could see was perfectly black. The condition was that the small intestine had crept under this little bridge of fibrous tissue that had been so strong that the pressure could not break it, and I think fully $\frac{1}{10}$ of the small intestine was constricted under that band, one coil after another having worked its way through, until as far as I could see at the operation, the whole small intestine was practically strangulated. I feel that unless it had been such a large amount of intestine that the shock after 16 hours would not have been so severe, and it still would have been time to operate. The instructive parts to me were the fact that a foreign body as large as an ordinary pen handle could be introduced in that way and with no aseptic precautions, simply encyst, without causing any except local peritonitis, that when that was removed a fibrous band strong enough to withstand immense pressure should remain behind and that with the obstruction of a large amount of intestine the symptoms were very much more severe than they usually are with a small amount as in strangulated hernia. The symptoms were in the first 6 hours very mild, so much so that the patient fell asleep with an eighth of morphia and slept 4 hours and presented no abnormality of temperature or pulse except in quality; the pulse was poor, but normal in rate; no rise whatever.

Dr. MUNRO: I recall 2 cases, where I operated for appendicitis, and in both found obstruction due to bands from old attacks of appendicitis, the appendix at the time of operation being quiet. In another case of band, where the constriction was similar to that which Dr. Elliot has described, an epiploical appendage was drawn out into a fine string. It came from the sigmoid, the small intestine being strangulated. Another case I supposed was caused by a Meckel's diverticulum; there I could not explain how the gut was strangulated, except that it was. I recall still a fifth

case of strangulation of the rectum, due probably to a band following an old pelvic peritonitis; the band stretched across the sacral curve, completely shutting off the rectum. That patient died.

Dr. ELLIOT: In one of the cases I report tonight, the operation was done before the obstruction was complete. Not only in these cases, but in other cases of intestinal obstruction, that has come to be my rule. I think we have got to operate on these cases before the intestines are wholly obstructed, otherwise they won't live. In these acute cases, like Dr. Codman's and perhaps the case of the young girl, the operation ought to be done, not because the bowels do not move, but for the acute symptoms due to the strangulation, just as if it were appendicitis,—the acute peritoneal symptoms. Of course, in any of these cases if you wait to make sure that the bowels cannot be moved, it will be too late for a successful operation. I think the same is true of the more chronic cases, the typical case of cancer in the patient 50 to 60, whose bowels are very difficult to move, and where the coils are beginning to be distended, it seems to me it is not worth while to try cathartics or wait long. I operated this year on a case of cancer of the large intestine low down, before obstruction was complete, and the whole large intestine was as large as a man's leg, and although no ulceration had occurred and no degeneration of the bowel, hypertrophy was so great that the difficulties were enormous of putting that large intestine into such a position that when its tension was gone it would not shrink out of its place, and I lost the patient by trying to drain the large intestine, hoping that after it had drained and shrunk I could do something more with it. A tube, which I fastened in, leaked, because the hypertrophy gradually subsided as the tension was removed, and pulled away. Death from peritonitis. So that I think even the chronic cases have got to be done before the obstruction is complete, if you are going to be successful.

Dr. F. G. BALCH reported

A CASE OF INTUSSUSCEPTION; RESECTION OF FIFTY-SIX INCHES OF SMALL INTESTINE; RECOVERY.²

Dr. BOLAND: I have nothing to add, except to mention the monumental blunder I made in mistaking this for a horse-shoe kidney. I had the misfortune years ago to see at autopsy a horse-shoe kidney, and I think it has been in my mind ever since. I saw this girl vomiting, with bowels obstructed and intense pain, but in spite of that there was a horse-shoe kidney and nothing else in my mind, and I gave morphia subcutaneously. Next forenoon she was no better, and I repeated the morphia with temporary relief to the pain. The crescentic-shaped mass was still easily felt, but I ignored it. By 7 p.m. of the second day she was much worse; I had to conclude it had something to do with her symptoms and got her into the Carney Hospital. Dr. Balch very promptly responded and told the rest. The situation of the tumor was exactly in the region of a horse-shoe

² See page 407 of the Journal.

kidney and was contrary to anything I had heard of as intussusception of the bowel, which I was taught gave a sausage-shaped mass. I mention this simply to show my blunder which was fortunately saved from fatality by the doctor's promptness.

Dr. MUNRO: I think this is the sixth or seventh reported case of resection of an intussusception high up in the bowel that has recovered in the adult, taking 16 years as the limit. I would like to ask why Dr. Balch cut out the V in the mesentery. The books all recommend that a V be cut out of the mesentery, but for what reason I am unable to see.

Dr. BALCH: I don't think it was at all necessary.

Dr. SCUDDER: What was the length of time from the first symptoms until you resected?

Dr. BALCH: Twenty-eight hours.

Dr. BOLAND: It was certainly 23 hours that we know of, and I have reason to believe it had existed from five o'clock the previous day, making in that case 29 hours.

Dr. C. A. PORTER reported a case of

HERNIA REDUCED "EN BLOC"; OPERATION AND RELIEF OF INTERNAL STRANGULATION.³

Dr. CUSHING: I think it is a fair question whether the subject of taxis is as yet presented to the average physician as it is looked on by surgeons, whether there is not a great deal too much taxis still done in trying to reduce hernias that are strangulated, and, even where perhaps they are reduced, whether it would not have been safer to do an operation. I think any one who has seen much of taxis done in the old times, and contrasts it with the simplicity and safety of a proper operation, must realize that there are enormous chances taken in trying to reduce hernia by taxis, especially if it has existed several hours.

Dr. SCUDDER: A case came into the South Service the other day at the Massachusetts General Hospital, a man about 30 who had had a hernia 3 years and had been accustomed to reducing it himself, and if he could not reduce it easily he got into a bath of hot water. Three days before he had put it back with a great deal of difficulty; having tried the hot bath unsuccessfully, he lay on the bed and forced it back. Immediately he coughed and vomited and did that continuously for 3 days. He came to the hospital, and Dr. Cabot operated and found an inguinal hernia which had been reduced as Dr. Porter has described. It was still within the internal ring, and Dr. Cabot reduced it. The bowel was dark in color. It was still shiny. It recovered nearly its normal color and was returned, and the median incision was closed. The symptoms, however, continued. Nothing passed his bowels. He remained distended, vomited occasionally, perhaps in the morning and middle of the afternoon and late at night. His temperature rose to 103° F. He was a Jew, and

yet did not complain of any pain. He could be touched all over the abdomen, and he complained of no pain, no extreme sensitiveness. He went from bad to worse, and fearing there was something the matter with the bowel which had been in the hernia, I opened the median incision as an emergency 48 hours after the operation and found the bowel with slight adhesions about it, but no constriction and in good color. It was slightly dark but apparently all right, no constriction above it and no collapse below it, and the rest of the abdominal contents seemed all right. No free fluid. Culture taken at that time proved to be sterile. The man lived about 24 hours more and died, the temperature remaining high. At the autopsy, which was an examination through the abdominal wound, there was no free fluid, and the culture taken at the time was sterile. There was no culture taken at the time of the drawing of the bowel out of the hernial sac, which did contain dark fluid. Whether this hernial sac fluid might not have been septic, and the man have been infected through that, is a question. Dr. Winslow, in making the autopsy, said when he opened the wound he found the knuckle of strangulated bowel to be a little dark in color, and his finger went through that bowel much more readily than normal bowel, and yet there was no obstruction above it, and he could pass gas through it by stroking the gut.

It seems to me that a very important step in the technique of the operation for the relief of a strangulated hernia is the thorough disinfection of the sac and bowel, and the wiping the abdominal cavity free from all fluid which may escape from the hernial sac. One possible source of infection will then be eliminated.

Recent Literature.

A Handbook of Materia Medica, Pharmacy and Therapeutics. Including the Physiological Action of Drugs, the Special Therapeutics of Disease, Official and Practical Pharmacy and Minute Directions for Prescription Writing. By SAMUEL O. L. POTTER, A.M., M.D., M.R.C.P., London. Eighth edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co. 1901.

We cannot commend this book to our readers, because it contains too many statements like the following:

Page 673, under Diphtheria: "Belladonna, an excellent remedy; if given early will abort the exudation . . ."

Page 669, under Diabetes: "Peanuts are an excellent article of food for diabetics . . ." (Peanuts contain on an average 24.4% carbohydrates.—Reviewer.)

"Milk cure, by skimmed milk, very successful, 6 to 10 pints daily, give no other food for 6 weeks, then give animal food . . ."

³ See page 406 of the Journal.

A Treatise on Orthopaedic Surgery. By ROYAL WHITMAN, M.D. Illustrated with 457 engravings. Philadelphia and New York: Lea Brothers & Co. 1901.

It is a pleasure to review a book so well written and so clearly illustrated as this, presenting the last and best word on this active special branch. The writer has succeeded in giving to the surgical public a work representing his own views, the result of a long and careful experience, and also the researches of a student who has found the time to consider the ideas and results of others.

The chapters on Flat Foot, Coxavara and on Congenital Dislocation will be found to be of especial value. The text is clear and the views expressed are well presented, making the work the best that has yet been offered in this important branch.

The writer gives sound views in regard to the treatment of caries of the spine and shows a sensible catholicity of judgment in mentioning the different methods of gymnastic treatment in lateral curvature. While some topics are not treated as fully or adequately as others, as is inevitably the case in a specialty which is itself extending almost to the point of special specialization, the whole work is characterized by thoughtful and studious work based on a careful consideration of the subject.

In the treatment of hip disease Dr. Whitman presents the vexed question of the various methods of treatment clearly, giving his preference in ambulatory treatment for an apparatus which is intended to combine fixation and traction. Dr. Whitman states that his experience is largely based on hospital out-patient clinics. In these practicability is the chief factor, as the nursing is by ignorant mothers, as a rule, and at home without supervision. Where the maximum of care can be given as well as thoroughness of nursing, Dr. Whitman would perhaps prefer other appliances, and an apparatus which does not thoroughly fix, and jars by long leverage, if strong traction is applied, would be less used where the greatest delicacy of treatment was needed and possible.

The book suggests a new question; namely: Is the author or the publisher responsible for the spelling of the book cover? The word "orthopaedic" is spelled on the cover of the book as it was originally by the French, who coined the term, but on the title page the clumsier English form with a diphthong is used. To which does the author give the sanction of his valued authority?

SMALLPOX.—A case of smallpox has recently appeared in Wakefield, Mass. The patient is said to have come from New York within a short time. The house in which the patient was found has been quarantined, and the other occupants vaccinated. Two more cases have been reported to the Boston Board of Health from South Boston, and removed to the Detention Hospital.

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THE SPREAD OF MEDICAL KNOWLEDGE.

THAT medicine has been one of the greatest civilizing agencies is no longer questioned. Armed with a certain amount of medical knowledge, men have penetrated into countries hitherto but little known, and spread the lessons, both moral and physical, which modern medicine teaches. We have, for example, before taken occasion to point out the very great significance of the advent of the physician into China, and have ventured to draw certain comparisons between his mission and that of the medically unenlightened missionary. With the latter we have no quarrel, but the fact is apparent that the practical knowledge of men and of the prevention of disease which goes with a medical training is an exceedingly valuable adjunct to the lessons of enlightenment which the arrival of the reformer is supposed to bring. To teach men how to live cleanly and to avoid in some measure the innumerable formidable disorders to which they are liable, should be, and in fact has often proved itself to be, a first step toward views of life which we have been taught to believe an indication of the higher civilization.

This pioneer work physicians are everywhere doing, and the evidence of the gradual extension of medical knowledge to what a few decades ago were remote quarters of the earth is one of the most hopeful signs of gradual civilization in the best sense of that term. This labor on the frontier must be undertaken in great measure by individuals who have the enthusiasm of their convictions, and are willing to plod along unaided by the stimulus of large numbers of fellow workers. Experience has, however, shown that it does not take many years for a medical centre to grow up about these small beginnings. India is a case in point; with the British Government

as an active supporter, we have seen the medical work in that country grow to be a system of vast importance, not only locally but to the world at large, with hospitals, well-equipped research laboratories and an active medical press. The magnitude of the problems confronting medicine in India have only been fully appreciated since they have been faced by an intelligent set of men bent on definite practical results. We look forward with confidence to the extension of such work throughout the increasingly numerous countries into which our civilization is penetrating. Whatever political differences there may be, and however difficult of reconciliation, there can be no question of a common interest in matters of health. On this ground peoples of most diverse training and traditions may meet without ulterior feelings or motives.

The announcement recently made of an Egyptian Congress of Medicine to be held at Cairo in December, 1902, is a significant step in this direction. This is the first congress of this sort to be held; it is under the patronage of the Khédive, but an invitation is extended to other countries to participate in the proceedings. The president of the congress is Dr. Ibrahim Pasha Hassan and the secretary general Dr. Voronoff. The congress is divided into three general sections,—later to be extended,—medical sciences, surgical sciences and ophthalmology, in the preliminary programme a considerable number of German, French and English names appear. The main object of the congress is to discuss those diseases which are peculiar to, or particularly prevalent in, Egypt, and to present communications on epidemics which regularly visit Egypt, and so indirectly menace various Mediterranean ports. It is urged that the undoubted value of such work should not fail to attract the attention of European physicians, who are invited to take part in the proceedings of the congress. We have no doubt that with the rapidly growing interest in diseases, which with modern freedom of communication can no longer be regarded as strictly local, this congress will excite a very general interest, and will tempt a certain number of representative men from various countries to participate actively in the meetings.

Whether or not this is the case, however, the formation of such a congress is significant of progress of medical knowledge, and the growth of fellow feeling among physicians everywhere. Not many years ago an Egyptian Congress of Medicine open to medical men throughout the world would have been received with absolute incredulity; now we take it rather as a matter of course, with, perhaps, too little thought of the steps which have led up to such a possibility.

INTERNATIONAL CONGRESS OF NURSES.

In other columns mention is made of the International Congress of Nurses, which met in Buffalo at the Pan-American Exposition, Sept. 18, 19 and 20. So far as we know, this is the first time that the attempt has been made to bring to a formal gathering nurses from the various countries of Europe and from widely separated parts of America, for the purpose of mutual instruction and fellowship. About one hundred official delegates registered at the congress, and upwards of five hundred nurses attended every session. The meetings were well managed, and a large number of papers were read, many of them of very general interest. The most important resolution passed in the course of the sessions was one affirming the need of legal status and state protection of the minimum training required to make a good nurse. From various indications it is becoming apparent that nursing has gone beyond the stage of being a mere calling and is rapidly taking its place among the professions. No doubt such an end is desirable, and there is no better means of attaining it than by coming together in general meetings for the purpose of discussing the various problems which modern organized nursing will have to meet if it is to maintain itself as a distinct profession. The gradual development of nursing, the increase in the time of training, the general change in standard which has marked the last few years, have all been matters of interest to physicians and laymen alike. We sometimes wonder where it is all going to end, but on the whole we are optimistic, and hopeful that the final result will prove our occasional doubts wrong, and justify the signs of activity in the nursing world which we see everywhere about us.

MEDICAL NOTES.

DETECTION OF PLAGUE BACILLUS.—The plague bacillus can be detected during life if an infected gland is pierced with a hypodermic needle, and some of its contents used to make cover-glass preparations in cultures. Novy (*American Journal of the Medical Sciences*, October, 1901) failed in one attempt of this kind because his needle did not actually pierce the small gland in which the plague bacilli were active.

EXCLUSION OF WOMEN MEDICAL STUDENTS.—It is reported that the professors of anatomy, chemistry and physics at the University of Königsberg have excluded women students from their lectures. The result of this action is that women cannot study medicine regularly at that institution.

HOSPITAL FOR TUBERCULOSIS IN NEW MEXICO.—A hospital for the treatment of tuberculosis has

recently been established at Silver City, N. M., under charge of the Sisters of Mercy. Silver City is regarded as an especially desirable location for such a hospital on account of its climate.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Oct. 9, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 40, scarlatina 30, measles 9, typhoid fever 37, smallpox 6.

DEDICATION OF TUFTS MEDICAL SCHOOL.—The new building of the Tufts Medical and Dental School on Huntington Avenue was formally dedicated Oct. 3. The exercises were held in the new building, in the presence of several hundred graduates and students, the faculty and trustees. President Capen presided, and in the course of his remarks said: "We lay a particular stress upon our view of the very intimate relations between medicine and dentistry. Dentistry in this country has always traveled a different road from medicine, though sometimes this road has been distinctly parallel with that of medicine. Any man with a good eye and deft fingers can acquire the art of excavating a cavity with precision and filling it neatly and firmly. The more enlightened members of the profession, however, know that this is not dentistry. The immense progress that has been made during the last 25 years in anatomical and physical science has shown that dentistry is only a branch of medicine, after all, as it was anciently regarded. Some are ready to affirm that it is a specialty of medicine, as much so as ophthalmology, laryngology or otology. At all events this is our belief. This is the motive of the arrangements which we have made here. We have assumed that a considerable portion of the training of the dental student should be identical with a portion of the training of the medical student; and, that there may be opportunity for this, we have lengthened the course leading to a degree in dentistry from 3 years to 4 years. In both departments we have set up a lofty ideal. We are trying to reach the best possible achievement, to make the most substantial contribution to the health and happiness of the community." Dr. Harold Williams, dean of the medical and dental schools, in receiving the building, spoke of the progress of medical education and the desirability of competition. The building covers 150,000 square feet and is planned in such a way as to be capable of almost indefinite extension.

DIPHTHERIA IN LOWELL, MASS.—A considerable number of cases of diphtheria have appeared in Lowell since the opening of the schools. It is said that there has been an average of 14 cases a

week since the early part of September, and it is feared that it may be necessary to close some of the schools. The number of deaths has been small, and precautions are being taken to isolate the patients as far as possible.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.

—The trustees of the Massachusetts General Hospital invited the society to hold their regular semi-annual meeting at the McLean Hospital, Waverley, Wednesday, Oct. 9, 1901. Brief papers were read by the medical staff of the hospital, on the subject "Twenty Years' Medical Work of the McLean Hospital."

NEW YORK.

REVERSAL OF AWARD IN THE HOEY CASE.

In the JOURNAL for July 4 was reported a case in the New York Supreme Court, in which Mrs. Kate Hoey received an award of \$12,500 damages for the death of her husband, who died in September, 1900, from acute tuberculosis, which, it was claimed, was the indirect result of injuries sustained in a collision on the cars of the Metropolitan Street Railway Company, the verdict of the jury being based on the medical testimony presented at the trial. The company appealed, and the Appellate Division of the court has now reversed the verdict. In announcing this decision Justice Russell says: "There was ample evidence upon which the jury could find that quick consumption, originating a few weeks before his (Hoey's) death, was the direct cause which produced death. A verdict to the contrary would not have been justified by the evidence. The jury was not at liberty to find that Hoey would have died before the bringing of this action from the effects of the injury, having also found that his death came when it did from hasty consumption. Eminent physicians examined all substantially agreed that tuberculosis is produced by the inhalation of germs from the atmosphere, and that this principle has become a truism as a fact, not as a mere opinion. If we must accept these teachings of pathology, which have become demonstrations, in passing upon human rights, we must regard as a conclusive fact that Hoey died from consumption immediately produced from the inhalation of bacilli, and not so produced by a blow over 9 months before his death. It becomes, therefore, a matter of mere speculation as to whether Hoey would have lived or died before the action was brought but for the intervention of a new controlling cause. All human frames are subject to some physical weakness which may at some time render the body puerile to a disease resulting in death. The system of Hoey was undoubtedly shattered by the negligence of the defendant, and if there was sufficient in this

case from which the jury might infer that death came from microbial germs generated by trau-matism, the verdict for the plaintiff might be sus-tained; but the jury has found that tuberculosis directly caused the death, and this finding ex-pressly negatives the assertion that such death was caused by the injury, except that there is a bare possibility that the frame weakened by the injury succumbed more readily to the new dis-ease than it otherwise would but for the injury." It was on the last-named contention that the ver-dict of the jury was based.

POLLUTION FROM CITY SEWER.—Onondago Creek originally flowed in a winding course to a lake on the outskirts of Syracuse, N. Y., but in 1867 the city constructed an artificial channel, and the waters of the creek were diverted into it. At the present time Onondago Creek is largely used to carry away the sewage of the city, and the stream, as well as the lake near the mouth of the latter, is greatly contaminated; while in the spring the abutting land is overflowed, and in consequence deposits are left which become of-fensive. An injunction restraining the city of Syracuse from constructing an additional sewer with an outlet into the creek has been granted by Justice Andrews of the New York Supreme Court, at the instance of Thomas K. Gale and others, abutting property owners. "The inevita-ble result," says Justice Andrews in his opinion, "will be greatly to increase the present pollution of the stream, to pollute the lake where it reaches the plaintiffs' property, and to increase the de-posits left upon this property by the spring floods. This is especially so, as it is not claimed that the plans for such sewer contemplate any means for protecting the plaintiff's property, even if such means could be adopted. Under these circumstances, I am of the opinion that the plain-tiffs are clearly entitled to an injunction. As to a portion of their property, they are, as has been seen, riparian owners upon the stream, and they are clearly entitled to prevent its pollution. The fact that they have acquiesced in what has already been done is no answer to this claim."

VERDICT FOR \$4,500 NOT EXCESSIVE.—On the trial of an action brought by Claudia Ivey against the Brooklyn Heights Railroad Company to re-cover damages for personal injuries sustained in consequence of being thrown from one of the defendant's cars while alighting therefrom, it ap-peared that at the time of the accident the plain-tiff was 31 years of age, in fairly good health, and fully capable of earning her own livelihood and accustomed to do so. Her injuries consisted of a fracture of 3 ribs and contusions of the shoulder and head. She continued to suffer from pain, dizziness, shortness of breath, and nervous-

ness up to the time of the trial, some 17 months after the accident, was unable to work, and was obliged to depend upon her friends for support. The Second Appellate Division of the New York Supreme Court, on an appeal by the railroad com-pany from a judgment in favor of the plaintiff, has rendered a decision holding that a verdict for \$4,500 was not excessive. In such a case, the court holds, by Justice Woodward, it was not an error for the trial court to decline to recall the jury after they had retired and to charge them "that there is no permanent injury in this case," although there was no expert evidence that the plaintiff's injuries were permanent, as the jury might infer from the facts disclosed by the evi-dence that the plaintiff's disability would con-tinue for some time.

MEDICAL ASSOCIATION CITY OF NEW YORK.—The Year Book of the Medical Association of the Greater City of New York, Dr. Robert F. Weir, president, which has just been issued, shows that the limit for membership prescribed by the by-laws, 500, was reached in June last, just 2 years from the time when the first meeting for scientific work was held. The membership is made up of regular physicians in all the five bor-oughs of the consolidated city, and, following the lines of the city charter, there is a chairman for each borough, who is voted for exclusively by the members from his own borough. In addition to other interesting matter, the book contains ap-propriate memorials of Drs. S. B. W. McLeod, Lan-don Carter Gray, Horace Tracy Hanks, and other eminent deceased members, and a full abstract of the scientific proceedings of the society from Octo-ber, 1900, to June, 1901, inclusive.

OFFICERS OF MEDICAL SOCIETY OF COUNTY OF NEW YORK.—At the first meeting after the sum-mer recess of the Medical Society of the County of New York, held on Sept. 23, Dr. Frank Van Fleet was nominated for President, Dr. Charles N. Dowd for first Vice-President and Dr. Robert Lewis, Jr., for second Vice-President. Delegates were appointed to the first semi-annual meet-ing of the Medical Society of the State of New York, which is to be held at the Academy of Medicine, New York, on Oct. 15 and 16, and a committee was also appointed to arrange for a reception to be tendered the State society at that time.

DISMISSAL OF CHARGE AGAINST A PHYSICIAN.—The indictment found against Dr. Obed L. Lusk, sanitary superintendent of the Borough of Queens, for alleged neglect of duty in connection with a case of smallpox at Woodside, has been dismissed by County Judge Moore, the court sus-taining the demurrer which had been entered to the indictment.

JAMES W. DUNPHY, M.D.—Dr. James W. Dunphy of New York died on Oct. 1, from pulmonary tuberculosis, at the age of 27. He was graduated from the medical department of Columbia University in 1895, and afterwards served on the house staff of St. Francis' Hospital. At the time of his death he was attending physician to St. Joseph's Hospital for consumptives in the borough of the Bronx.

CARPENTER LECTURE.—The Wesley M. Carpenter Lecture for 1901 was delivered before the New York Academy of Medicine on Oct. 3, by Dr. Abraham Jacobi, who took for his subject "Pediatrics in America before 1800."

PAN-AMERICAN EXPOSITION NOTES.

INTERNATIONAL CONGRESS OF NURSES.—The annual convention of the International Congress of Nurses for 1901 was held in the city of Buffalo, N. Y., Sept. 16-21, inclusive. The meeting was most successful, not only by reason of the large attendance but particularly on account of the high order of merit of the papers presented to the congress. Delegates were present from India, Japan, South Africa, Australia and the European countries. A feature of note was the introduction of a resolution urging the formation in this country of a "McKinley Order of Nurses," similar in aims and organization to the "Victorian Order of Nurses," in existence in England. At the conclusion of the business session in Buffalo, a special meeting was held in the "Temple of Music" at the Pan-American Exposition, at which addresses were made by the officers of the society and various Exposition officials. At the conclusion of these exercises a complimentary drill was given the nurses by the detachment of the Army Hospital Corps stationed at the Exposition, and the brigade army hospital was inspected by them.

CARELESSNESS IN SANITARY MATTERS.—As the last month of the Exposition draws near a tendency to the commission of sanitary faults on the part of certain of the restaurant concessionaires has been manifest, and has only been controlled by energetic efforts on the part of the efficient sanitary officer, Dr. Nelson W. Wilson. One restaurant was discovered to be recently disposing of much of its refuse by throwing it in the canal. The condition of the latter has been in general excellent, owing to the efforts of a corps of scavengers, whose flat scows traverse the entire canal and mirror lakes daily and who remove all floating debris with narrow-mesh nets. A considerable amount of fresh water is passed into the canals daily from the fountains, so that stag-

nation of the water and resulting bad odors have been avoided. In a few of the more quiet pools the breeding of mosquitoes has occurred, but not in such numbers as to cause any great discomfort. In general the sanitary policing of the Exposition has been most admirable, and is superior to similar conditions obtaining at the World's Fair at Chicago. For weeks a series of live stock exhibits has been held—the dog show, cattle show, swine show and sheep show—and large numbers of animals have had to be provided for, yet the live stock buildings and their surroundings have been kept free from any annoyance as regards either sight or smell. This has been a noteworthy object lesson in cleanliness to visitors and the attending stockmen, which it is hoped may have its effect upon the farms and dairies, from which much of our food supplies must be drawn. The "model dairy," with its selected herds of high-bred cattle, has undoubtedly done much, in an educational way, to this end.

THE CRÈCHE.—The Crèche, established as a result of articles in this JOURNAL, has well repaid the slight cost of its equipment and maintenance. It is located immediately in the rear of the Emergency Hospital, and is under the charge of the nurses attached to that institution. A fee of twenty-five cents is charged for each child cared for at the nursery during the period in which it is open,—from 9 A.M. to 6 P.M. The institution is much appreciated by women who bring their infants to the Exposition, and who are glad to be relieved of their responsibility and cares when mingling with the crowds of sightseers. It is understood that the Crèche is to have several floats loaded with children in the "Baby Parade," an advertising feature which is expected to raise the attendance, on Oct. 1. It is certainly to be much regretted that an institution of such character should lend itself to any display of hapless infants for advertising purposes, so totally at variance with the objects for which it is itself maintained. That the directors of the Exposition should approve an advertising scheme of the above character, which has everything to oppose it, and nothing to commend it save a possible increase in the gate receipts, is certainly unfortunate.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—The American Electro-Therapeutic Association held its eleventh annual meeting in Buffalo, Sept. 24-26, meeting in the Seventy-Fourth Regiment Armory. Many delegates were present, and a number of interesting papers were read on the use of electricity in medicine. On the evening of the 26th a session was held at the New York State Building at the Exposition, at which the features were the reading of a paper by Dr. A. W. Bayliss

of Buffalo, and an address by Mr. F. W. Rustin, the engineer who planned and executed the marvelous electrical illumination and display at the Exposition. Among the social features of the convention was a trip by the members to Niagara Falls.

MODEL COTTAGE NURSERY.—Speaking of the care of children at the Exposition, one is reminded of the model cottage nursery, located in the annex of the Manufacturers Building. This exhibit is very complete, though in some details, as in the use of wicker furniture instead of some impervious and more readily cleaned material, it is scarcely up to the latest sanitary standards. The care of the child, its feeding and early physical and mental development, are here shown in a very thorough way, and the use of each article and bit of apparatus demonstrated by an attendant. The exhibit is well patronized and has done much good by its practical demonstration of the best method of the bringing up of children.

THE TEMPLE OF MUSIC.—The Temple of Music, where the late President was assassinated, is now the first feature of the Exposition to be visited by strangers. The Exposition authorities have decided—it would seem unwisely—to have the spot where the President stood railed off for the more exact information of the morbidly curious, thus perpetuating the details of a tragedy which it would seem more advisable to have forgotten as soon as possible.

Miscellany.

REPORT OF MILK COMMISSION OF MEDICAL SOCIETY OF COUNTY OF NEW YORK.

At a meeting of the Medical Society of the County of New York the report of the milk commission appointed in January, 1900, was read by the chairman, Dr. Henry Dwight Chapin. The commission, he said, had made over 800 bacteriological tests, had made 30 visits to dairy farms, many of them more than 200 miles from the city, and had held 2 conferences with the large milk dealers. From a chemical point of view the milk was found to be good. Out of 20 samples examined all showed at least 4%, and some 5%, of fat, while the law requires but 3%. The attention of the commission was, therefore, devoted to the bacteriological conditions of milk and to the question as to its proper handling and preservation. "It has seemed wise," the report continued, "to establish a standard of cleanliness from a bacterial standpoint, to which dealers must conform. The standard prescribed by the commission is that the acidity must not be higher than 3%, and that the milk must not contain more than 30,000 germs or bacteria of any kind per cubic centime-

tre, and that butter fat must reach 3.5%. The amount of bacteria in the milk used in the city is something alarming. Out of 20 samples examined on a winter day, Nov. 19, the lowest was 90,000 germs and the highest 2,280,000, while on June 29, with the thermometer at 90°, out of 20 samples examined the lowest contained 240,000 and the highest 516,000,000 per cubic centimetre. The prevalence of bacteria, to a great extent, arises from the dirt in the milk.

Having enumerated 7 conditions on which the amount of bacteria depends,—beginning with the cleanliness of the barn and ending with the cleaning of the milk bottles before they are returned,—the report went on to say that aeration, as practiced by the ordinary farmer today, is not a success. In good hands it might be employed with advantage, but in many cans as at present used it results in an increase of germs. The 3 things which are absolutely necessary to secure milk comparatively free from germs are strict cleanliness, rapid and sufficient cooling, and thorough icing until the milk reaches the consumer. In the transportation of milk ordinary freight cars should not be used, and the ends of the cars should be kept closed, so as to prevent the heated air from passing through the car and giving rise to germs. The railroads should be asked to co-operate by furnishing refrigerating cars in which the milk could be kept adequately iced, and after being unloaded the milk should be re-iced before its transmission to the dealers. In the concluding part of the report it was stated, as announced some time ago in the JOURNAL, that the commission is prepared to guarantee or certify the milk of all dealers applying for a certificate whose milk reaches the required standard, a special label having been printed for this purpose.

Correspondence.

SHOULD A TUBERCULOSIS HOSPITAL BE CALLED A MORGUE?

DENVER, COL., Sept. 24, 1901.

MR. EDITOR: Have the medical profession of Massachusetts not yet learned that the hospital for tuberculosis should be built in Colorado (for the summer months) and Arizona (for the winter months) and that if built in Massachusetts it is more suitably named a morgue?

Believing, as I do, that the time is not far distant when every state in the Union will have its tuberculosis hospital in Colorado or Arizona, and for patients who can claim no state there will be a national tuberculosis hospital in the arid regions of the West, I can look only with amazement at an outlay of \$150,000 for a tuberculosis hospital in Massachusetts.

If all the influence and all the money behind all the families of all the patients who have sought Colorado for tuberculosis were concentrated on congressional legislation, storage reservoirs, artesian wells and irrigating ditches would be brought into existence, and the arid region from the Canada line to the Mexican boundary would blossom as the rose and not only develop a region of farms, villages, towns and cities in which consumptives could be cured but in which after being cured they could earn a livelihood, and the tu-

berculosis question of the congested cities of the East would be settled, and tuberculosis would be stamped out.

Yours very truly,

O. J. PFEIFFER, M.D.

"BLIND HEADACHE."

SALEM, MASS., Sept. 15, 1901.

MR. EDITOR: The vernacular term, "blind headache," which is, perhaps, better known than is the more pretentious one of "scotoma scintillans," was formerly supposed to be associated with, if not dependent upon, what Dr. Holmes (in his realistic narrative of "Tip Van Winkle, M.D.," read 30 years ago next May, before the Massachusetts Medical Society) termed "gastric ills" or "peristaltic woes," and it was accordingly treated—how effectively history does not inform us.

It is not infrequently encountered, and most practitioners are familiar with its symptoms. Professor Förster of Germany has been one of its victims, and he has clearly described its phenomena. It ordinarily begins when the subject has been fasting rather than eating, and mental and physical exertion and eyestrain have somewhat vaguely been assigned as exciting causes.

Some observing patients assert that it originates from a small area which increases in size till either half or the whole of the field of vision of both eyes is obscured. All objects are indistinctly seen, because of waves of flickering light such as are noticed along a wall on a hot and clear day. While this is present it is quite impossible to read ordinary type, and vision is not helped by glasses. Pain is absent during this stage, which rarely lasts over 15 or 20 minutes. With the return of normal vision, pain is complained of in the head—laterally, ordinarily—which may persist for several hours. Years sometimes elapse between the attacks, in which case they signify but little. When, however, they occur often and are accompanied or followed by other symptoms of central trouble,—aphasia, paralysis, etc.,—they may point to grave organic lesions.

Quite recently 4 young people, 2 men and 2 women, and all of more than ordinary intelligence, sought advice because of this affection. Three had myopic and one had hypermetropic astigmatism. It is a question, however, if the state of their refraction alone had much influence in bringing on the attacks of "blind headache." Appropriate cylindrical glasses had already been ordered for 3, but the internal treatment that was prescribed perhaps afforded the relief which was had quite as much as the wearing of glasses. Still, it is well known that, not infrequently, headache, nausea and even vomiting are caused by uncorrected refractive or muscular errors, and which, after having exhausted the materia medica, are ordinarily speedily cured by the wearing of glasses. Scintillating scotomata being now considered more than formerly as of cerebral origin, it follows that the mere correcting of refractive errors is not likely invariably to give the desired relief. The site of the trouble is apparently in the cortex of the occipital lobe, in or near the cuneus, but how much involving it remains unsettled. Professor Fuchs considers it as somewhat analogous to a fainting-fit, owing to a disturbance in the circulation (cerebral anemia?). Now, 2 of my patients were men past middle life. In both there was lateral blindness—homonymous homianopia—which was permanent. Here structural changes were probably due to hemorrhages.

Attacks of blind headache ordinarily appear when the patient has been fasting, and when the brain is probably hyperemic rather than anemic. It is well known that the lower animals sleep after eating, and in man the "hungry headache" is often followed by a

sense of hebetude after the ingestion of a hearty meal, perhaps owing to a lessened blood pressure in the brain during the process of digestion.

With this supposition in view, it has for several years been my habit to prescribe the bromide of potassium in these cases. If, in the initial stage, 10 or 15 gm. of the elixir is given, the dimness of vision soon disappears, and no headache follows, though a sense of soreness, sometimes localized, may persist for some hours. Personally, its use has been of great value.

Quite recently, in referring to Dr. de Wecker's "Thérapeutique Oculaire," 1878, I found that he advised the use of this salt, and he alone of all the authorities whom I consulted. Some patients have experienced relief on taking a single dose, while others have continued its use for several days. Doubtless other agents that act on the vasomotor nerves would be equally efficacious. It is not assumed that the function of digestion should be utterly ignored, while at the same time maintaining that the seat of the trouble is ordinarily in the head and not in the abdomen. Most of the textbooks refer only briefly to the treatment—perhaps in accordance with the prevailing tenet that an accurate diagnosis is more to be desired than mere empirical therapeutics.

Truly yours,

DAVID COGIN, M.D.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, SEPT. 28, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrhœal diseases.	Diphtheria and croup.	
New York . . .	3,437,202	1,202	532	35.96	2.66	1.99	18.47	1.75	
Chicago . . .	1,698,575	—	—	—	—	—	—	—	
Philadelphia . .	1,346,067	305	113	24.13	4.93	2.19	4.65	2.19	
St. Louis . . .	575,238	—	—	—	—	—	—	—	
Baltimore . . .	508,957	134	45	32.08	6.71	2.98	11.93	.74	
Cleveland . . .	381,768	—	—	—	—	—	—	—	
Buffalo . . .	352,397	—	—	—	—	—	—	—	
Cincinnati . . .	325,902	—	—	—	—	—	—	—	
Pittsburgh . . .	321,616	108	41	18.52	6.48	5.57	2.78	5.56	
Washington . . .	278,718	—	—	—	—	—	—	—	
Chicawake . . .	258,315	—	—	—	—	—	—	—	
Providence . . .	175,597	67	31	18.77	9.38	—	8.04	1.34	
Boston . . .	560,892	224	75	25.86	8.02	1.33	11.15	.89	
Worcester . . .	118,421	41	16	24.40	4.88	2.44	12.20	—	
Fall River . . .	104,863	43	28	51.15	—	—	34.87	4.05	
Lowell . . .	94,969	47	30	33.39	6.38	—	10.03	8.51	
Cambridge . . .	91,886	22	11	13.63	4.54	4.54	—	—	
Lynn . . .	68,013	—	—	—	—	—	—	—	
Lawrence . . .	62,559	36	19	36.78	2.77	—	16.06	—	
New Bedford . .	62,442	24	11	20.83	—	—	8.33	4.16	
Springfield . . .	62,059	19	3	38.34	5.26	10.23	15.79	—	
Somerville . . .	61,643	21	5	33.34	9.52	4.76	19.05	—	
Holyoke . . .	45,712	18	6	47.77	5.58	—	11.11	5.55	
Brookton . . .	40,063	15	6	20.00	6.67	—	12.50	—	
Haverhill . . .	37,170	11	1	50.00	—	20.00	—	—	
Salem . . .	35,356	14	5	35.70	7.14	—	28.56	—	
Chelsea . . .	34,072	12	3	25.00	—	—	—	—	
Malden . . .	33,664	11	5	18.18	—	—	9.09	—	
Newton . . .	33,587	6	1	16.67	—	—	16.67	—	
Fitchburg . . .	31,531	5	1	—	20.00	—	—	—	
Taunton . . .	31,036	16	5	33.33	—	—	18.75	—	
Glooucester . . .	26,121	6	6	33.33	—	—	—	—	
Everett . . .	24,336	7	5	14.30	—	—	—	—	
North Adams . .	24,200	11	4	18.18	—	—	—	—	
Quincy . . .	23,899	6	2	50.00	—	16.67	33.33	—	
Walsham . . .	23,481	6	2	33.33	—	—	16.67	—	
Pittsfield . . .	21,766	4	2	50.00	—	25.00	—	—	
Brookline . . .	19,935	—	—	—	—	—	—	—	
Chicopee . . .	19,167	1	1	100	—	—	—	—	
Medford . . .	18,244	3	2	—	—	—	—	—	
Newburyport . .	14,478	5	1	20.00	—	—	20.00	—	
Melrose . . .	12,962	—	—	—	—	—	—	—	

Deaths reported 2,541; under five years of age, 1,024; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrhœal diseases, whooping cough, erysipelas, fevers and consumption) 782, acute lung diseases 105, consumption 270, scarlet fever 9, erysipelas 2, typhoid fever 54, whooping cough 20, cerebrospinal meningitis 10, smallpox 6, measles 5, diarrhœal diseases 348.

¹ Read at Lynn before the Essex South District Medical Society, April 2, 1901.

From whooping cough, New York 6, Philadelphia 7, Baltimore 2, Boston 3, Lowell and Holyoke 1 each. From cerebrospinal meningitis, New York 3, Boston 1, Worcester 3, Springfield, Gloucester and Marlboro 1 each. From scarlet fever, New York 4, Philadelphia 1, Pittsburg 2, Boston 2. From typhoid fever, New York 24, Philadelphia 8, Baltimore 4, Pittsburg 6, Boston 3, Springfield 2, Haverhill 2, Worcester, Cambridge, Somerville, Quincy and Pittsfield 1 each. From erysipelas, New York 2. From measles New York 3, Boston 2.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Sept. 14 the death-rate was 18.3. Deaths reported 4,018: acute diseases of the respiratory organs (London) 161, whooping cough 45, diphtheria 77, measles 38, fever 61, scarlet fever 57.

The death-rate ranged from 11.6 in Plymouth to 28.8 in Gateshead; Birkenhead 20.2, Birmingham 22.4, Bolton 19.5, Brighton 16.9, Bristol 16.6, Burnley 24.1, Cardiff 14.5, Croydon 16.6, Derby 13.8, Hull 20.7, Leeds 18.7, Leicester 17.9, Liverpool 19.9, London 16.0, Manchester 22.5, Newcastle-on-Tyne 27.8, Oldham 22.4, Preston 24.0, Salford 26.4, Sheffield 20.5, Swansea 15.4, West Ham 17.6, Wolverhampton 21.0.

METEOROLOGICAL RECORD

For the week ending Sept. 28, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer		Relative humidity		Direction of wind		Velocity of wind		Wet bulb		Rainfall in inches
		Daily mean	Maximum	Minimum	Daily mean	Daily mean	Daily mean	Daily mean	Daily mean	Daily mean	Daily mean	
		Daily mean	Maximum	Minimum	8.00 A.M.	8.00 P.M.	Daily mean	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S. 22 30.20	60	71	48	73	75	78	74	W	W	2	10	C. C.
M. 23 30.19	67	58	56	78	78	78	78	W	W	14	24	C. C.
T. 24 30.13	68	53	41	62	72	72	72	W	W	15	15	C. C.
W. 25 30.44	52	57	46	61	62	62	62	N	N	12	3	C. C.
T. 26 30.43	52	60	44	67	73	70	70	W	W	5	6	C. C.
W. 27 30.44	60	70	59	73	66	70	70	W	W	12	12	C. C.
S. 28 30.32	64	76	52	82	77	80	80	W	W	8	10	C. C.
S. 29 30.33	71	50		72								

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ \overline{F} —Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING SEPT. 28, 1901.

F. A. ASSERSON, assistant surgeon; J. W. BACKUS, assistant surgeon. Ordered to the Naval Hospital, Cavite, P. I. A. E. PECK, assistant surgeon. Ordered to the "Manilla."

C. R. BRICK, assistant surgeon. Resignation accepted, to take effect Sept. 25.

D. G. BEEK, assistant surgeon. Detached from the "Marietta" and ordered home to wait orders when vessel is put out of commission.

E. J. CROW, assistant surgeon. Detached from the "Castine" when put out of commission and ordered home to wait orders.

E. M. SMITH, passed assistant surgeon. Detached from the Naval Hospital, Cavite, and ordered to the "Celtic."

W. L. BELL, assistant surgeon. Detached from the "Celtic" and ordered to the Naval Hospital, Cavite, P. I.

J. W. BACKUS, assistant surgeon. Detached from the Naval Hospital, Cavite, and ordered to the "Brooklyn."

F. A. ASSERSON, assistant surgeon. Detached from the Naval Hospital, Cavite, and ordered to the "General Alva."

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING SEPT. 19, 1901.

WASHIN, EUGENE, surgeon. Relieved temporarily from command of the service at Buffalo, N. Y., and assigned to special duty with the president. Sept. 13, 1901. Detailed

to represent the service at meeting of the American Public Health Association Sept. 16-20. Sept. 13, 1901.

PETTUS, W. J., surgeon. Granted leave of absence for 2 months from Sept. 15. Sept. 14, 1901.

WOODWARD, R. M., surgeon. Detailed to represent the service at meeting of the American Public Health Association Sept. 16-20. Sept. 13, 1901.

ROSENAR, H. J., passed assistant surgeon. Detailed to represent service at meeting of the American Public Health Association, Sept. 16-20. Sept. 13, 1901. Granted leave of absence for 1 day, Sept. 14. Sept. 16, 1901.

MOORE, DUNLOP, assistant surgeon. Relieved from duty at Nome, Alaska, and directed to proceed to the States and await orders. Sept. 13, 1901.

ALTBRE, G., acting assistant surgeon. Granted leave of absence for 14 days from Sept. 9. Sept. 14, 1901.

STANTON, J. G., acting assistant surgeon. Granted leave of absence for 18 days from Sept. 13. Sept. 14, 1901.

WETMORE, W. O., acting assistant surgeon. Directed to assume temporary command of service at Buffalo, N. Y., during absence of Surgeon Eugene Washin on special detail. Sept. 13, 1901.

FOR SEVEN DAYS ENDING SEPT. 26, 1901.

BROOKS, S. D., surgeon. Granted leave of absence for 14 days from Sept. 23. Sept. 24, 1901.

CUMMING, H. S., passed assistant surgeon. Granted leave of absence for 30 days, on account of sickness. Sept. 26, 1901.

GRUBBS, S. B., assistant surgeon. Granted leave of absence for 11 days from Sept. 25. Sept. 20, 1901.

PARKER, H. B., assistant surgeon. To proceed to Jacksonville, Fla., for special temporary duty. Sept. 23, 1901.

HORDY, W. C., assistant surgeon. To proceed to South Atlantic Quarantine as inspector. Sept. 21, 1901.

THORNBURY, F. J., assistant surgeon. Relieved from duty at Dutch Harbor, Alaska, and directed to return to the States. Sept. 20, 1901.

GIBSON, L. P., acting assistant surgeon. Granted leave of absence for 10 days on account of sickness. Sept. 17, 1901.

HALLETT, E. B., acting assistant surgeon. Granted leave of absence for 3 days from Sept. 24. Sept. 23, 1901.

MCDOWELL, A. B., acting assistant surgeon. Granted leave of absence for 20 days from Oct. 12. Sept. 24, 1901.

OWEN, HENRY, acting assistant surgeon. Granted leave of absence for 10 days from Sept. 24. Sept. 16, 1901.

ROBBINS, S. D., acting assistant surgeon. Granted leave of absence for 30 days from Sept. 6, on account of sickness. Sept. 20, 1901.

MASON, M. R., hospital steward. Relieved from duty at Dutch Harbor, Alaska, and directed to return to the States. Sept. 20, 1901.

SOCIETY NOTICE.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—A regular meeting of the society will be held at 3 Park Street, Boston, Mass., on Thursday, Oct. 17, at 7.30 P.M.

Paper: Dr. Agnes C. Victor, "A Plan for the Municipal Control of Tuberculosis in Boston."

Dr. Emma B. Culbertson will open the discussion. Dr. Mary F. Hobart will discuss the subject in its relation to treatment houses.

DR. AGNES C. VICTOR, Secretary,
Trinity Court, Boston.

BOOKS AND PAMPHLETS RECEIVED.

Deutsche Zeitschrift f. Chirurgie. Von Carl Beck, Professor der Chirurgie in New York. Illustrated. Reprint.

The Primary Treatment of Infected Wounds with Tincture of Iodine. By Carl Beck, M.D., New York. Reprint.

Ueber deform gehelte Frakturen und ihre Behandlung. Von Carl Beck in New York. Illustrated. Reprint. 1901.

On Tenonitis and Tenonothelitis Prolifera Calcararia. By Carl Beck, M.D., New York. Illustrated. Reprint. 1901.

Beitrag zur Diagnostik und Therapie der Struma. Von Dr. Carl Beck, Professor der Chirurgie in New York. Illustrated. Reprint.

Ueber Sarkombehandlung mittels der Röntgenstrahlen. Von Dr. Carl Beck, Professor der Chirurgie in New York. Reprint. 1901.

The Principles and Practice of Medicine, designed for the use of Practitioners and Students of Medicine. By William Osler, M.D. Fourth edition. New York: D. Appleton & Co. 1901.

Original Articles.

THE VALUE OF THE X-RAY IN THE DIAGNOSIS OF RENAL STONE; REPORT OF FOUR CASES.¹

BY PAUL THORNDIKE, M.D., BOSTON,

Instructor in Genito-Urinary Surgery, Harvard Medical School; Assistant Surgeon, Boston City Hospital.

LAST fall 4 patients in whom the presence of renal calculus was suspected entered the Boston City Hospital so nearly at the same time that they were studied together. Three of them were on my own service, and for the privilege of reporting the fourth I am indebted to the courtesy of my hospital colleague, Dr. F. B. Lund.

These cases are briefly reported, not in order to show beautiful x-ray plates of kidneys containing calculi, but because the cases were studied by the same people under the same conditions, and show results, partly negative in character, which the writer deems of enough interest to justify their presentation before this meeting.

CASE I. Man, 44 years of age. Had attacks of pain, supposed to be of renal origin, for about a year. There has been some degree of discomfort in the region of the right kidney most of the time during that year, and this has been aggravated by exercise. He has had a number of acute attacks of pain, one of which was associated with a bloody urine. With the attack from which he was suffering at the time of his entrance to the hospital, vomiting was a marked symptom.

Physical examination.—Nothing was revealed except a slightly tender spot on deep pressure to the right of and above the umbilicus. Urine shows occasional hyalin casts with adherent blood corpuscles; a large amount of normal and abnormal blood, and a few crystals of calcic oxalate.

The patient had another acute attack while in the hospital, the blood in the urine persisted, and the hospital photographer reported that the x-ray plate showed a shadow in the right kidney (I). Operation was performed through a loin incision (post-pertoneal), and a stone was found embedded in the substance of the kidney. One gauze wick was inserted into the opening in the kidney, through which the stone was removed, and the remainder of the wound was closed.

First dressing was done 48 hours later, and this wick removed. The sinus healed promptly, and the patient left the hospital with the wound entirely healed and with a macroscopically normal urine. On examination the stone proved to be composed chiefly of uric acid mixed with some urates.

CASE II. Man, 56 years of age. During the last few years he has had several attacks of very severe, sharp pain in his right side and extending down into the scrotum. The attacks of pain were generally accompanied by vomiting, but he never noticed any blood or gravel in his urine at any time. The last attack was 3 days before entrance to the hospital, and, when the pain disappeared, there was left a tender spot on deep pressure in right loin.

Physical examination.—Nothing was revealed except the tenderness mentioned above. Urine shows a few casts, a few blood corpuscles and a little pus, but no crystalline elements. A week later a subsequent examination of the urine showed many crystals of uric acid large enough to be easily seen with the unaided eye.

Photographer reports that the x-ray plate shows a shadow in right renal region, about the interpretation of which he is in doubt.

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Operation, through a loin incision. The kidney was removed from its bed and brought out on the loin and was then split open along its convex border, just as a pathologist would do it at an autopsy, hemorrhage being readily controlled by the fingers of an assistant on the renal pedicle. No stone was found, either in the substance of, or the pelvis of, the kidney; but there was found a hydronephrosis, although the ureter was potent to a large probe passed down into it. The kidney was sewed up with 3 deep mattress sutures of catgut and a few single stitches along the convex border. One small drainage wick was inserted down to, but not into, the kidney, and the wound closed. First dressing was done 48 hours later, in order to remove the wick, but at no time during the convalescence was there any leakage of blood or urine from the wound. Patient was discharged after a 3 weeks' convalescence with a macroscopically normal urine.

CASE III. Man, 65 years of age. Had a gonorrhea 7 years ago and has had a cystitis ever since. For 3 years has had intermittent attacks of severe pain in the left side. Some of these attacks are associated with bloody urine.

Physical examination.—A slight tenderness is shown on deep pressure in the left lumbar region and a retraction of the left testicle. Nothing else can be found. Urine shows much pus; a little blood; cells of both renal and vesical origin, and an occasional cast. No crystalline elements. No tubercle bacilli in urine.

Photographer reports that the x-ray plate shows a shadow in the left renal region. Operation through a loin incision reveals three small stones, which were found and removed from the substance of the left kidney. A small gauze drain was inserted into the opening in the kidney, from which the stones had been removed, and the remainder of the wound was closed. Wick was removed after 24 hours, and after 3 weeks of daily dressing both blood and urine had disappeared, and the sinus nearly healed. Patient was discharged, with a superficial granulating wound, but has since had recurrences of his pain, and now desires another operation. The stones were composed of calcic oxalate with a trace of calcic phosphate.

CASE IV. Dr. Lund's case: Woman, aged 22 years. Twelve years ago she began to have periodical attacks of pain in her right side, associated with a large yellowish deposit in the urine. Her first bad attack of real colicky pain came 6 years ago, and since then she has had a series of attacks. The present attack began 3 weeks ago, during which time a dull, dragging pain in the side has been constant. No vomiting.

Physical examination.—Nothing is revealed, except that what is apparently the lower end of a kidney can be palpated on deep inspiration. Urine shows pus, blood, and an occasional cast, but no crystalline elements.

The x-ray plate shows several stones with considerable clearness (II).

Operation, through an incision from the tip of the twelfth rib to the crest of the ilium. A multicystic kidney containing a number of stones was found, and as there was very little secreting substance left, it was deemed wiser to remove the kidney with the stone (II). One small drainage wick was inserted, but removed after 48 hours, and the patient convalesced well in 1 month. The stones were composed of uric acid and urates, covered with a thin coating of calcic phosphate.

Here, then, are 4 cases:

I. A case of renal calculus composed of uric acid and urates, where there was abundant clinical indication for operation without the confirmatory evidence of an indistinct shadow on the x-ray plate, which shadow is, however, undeniably present.

II. A case of hydronephrosis where stone was suspected, and where a most complete exploration

of the kidney definitely demonstrated its absence. In this case the photographer was doubtful about the interpretation of the plate. The writer could see nothing in it.

III. A case where there were 3 small calculi of calcic oxalate (with a trace of calcic phosphate), probably secondary to a pyelitis, which resulted from the extension upward of an old gonorrhoeal cystitis, and where the photographer interpreted a shadow which the writer could not see. In this case also there was ample clinical indication for operation without the x-ray photograph.

IV. A case where a number of uric acid stones, covered with a thin coating of calcic phosphate, in a thoroughly disorganized kidney, could be readily seen, both in the plate and the print, by the most uneducated observer.

In all these cases renal stones were believed to be present, and photographs were taken for confirmatory evidence. In 3 of them the stones were found, and the fourth case proved to be one of hydronephrosis, due probably to a sagging of the kidney. In all the cases the x-ray photographer knew the clinical diagnosis, and did his work in each case hoping and expecting to find confirmatory evidence. In the 3 cases where stones were found, he felt sure of his interpretation of the shadows on his plates, but in the case where subsequently no stone was found, he was in doubt. The man may fairly be regarded as a photographic expert, and as an expert in the interpretation of the lights and shadows of an x-ray plate. He is not an educated anatomist, but is a photographer by profession, is a paid official of the hospital, and does no other work than the taking of very large numbers of x-ray and other photographs of hospital cases, both medical and surgical. Of the plates from the 3 cases where stones were found, only 1 shows the stones with any degree of clearness. This was the plate from Case IV, the stones from which are composed of uric acid and urates with a thin veneer of calcic phosphate. Of the 2 others, the plate from Case I (that of the uric acid stone containing a small amount of urates) shows a dim but undeniable shadow; and the other, Case III (that of several small stones of calcic oxalate), showed to the writer nothing whatever, either in plate or print; yet in this case the photographer was sure of his shadow in the plate, while stating with equal positiveness that the print showed nothing.

In the case of hydronephrosis the writer could see nothing in either plate or print, and the photographer was doubtful about the renal shadow, which he was inclined to believe might be a stone.

In all the cases repeated exposures were made, and no care or trouble was spared in the effort to get the best plates possible. The writer considers the experience and ability of the photographer beyond question, and so believes that as good plates were obtained as it is at present possible to get in these individual cases.

It seems to be true that stones which contain mineral salts are much more readily photographed than others, and yet here were two cases where the

stones were made up largely of uric acid, and in both distinct shadows were evident, while in one of them the stones were shown with considerable clearness, probably due to the admixture of urates in the former and of calcic phosphate in the latter case.

It would seem that there is something to expect from x-ray photography in connection with the diagnosis of renal stone; for in those cases, even when there is every clinical reason for thinking that the stone, if present, is composed of uric acid, it evidently needs only a small amount of urates or some other mineral salt to give a shadow which, although it does not show for much on the plate or print, is still capable of being recognized with some degree of precision by properly experienced observers.

Just a word in conclusion concerning the various methods of exploring a kidney. The writer was present at a lecture some little time ago and heard the lecturer refer to the method of lifting out the kidney on to the loin, and then splitting it along its convex border in such a way as to expose its whole interior to easy examination. The lecturer said that he had never been able to do this and had tried many times. The writer's experience with renal cases is not large (probably 15 cases would cover all the strictly exploratory operations he has ever done, not of course including among them the operations for drainage of pus, etc.), but he has been able to carry out this exploratory technique in 6 instances, and has never had the least trouble from hemorrhage or otherwise, either during or at any time subsequent to the operation. In some stout people it is a practical impossibility to carry out this method of investigation, and efforts to do so should not be persisted in, but in many patients of average weight the procedure is not difficult, and can be accomplished with no undue tension upon the renal vessels. In the writer's belief it is, in cases where it can be done, far less likely to permanently injure the renal tissues than the less certain and far less satisfactory method of exploring the kidney with the finger through an opening made in the convex border or elsewhere in the kidney substance. It is the writer's present practice to endeavor so to expose the kidney in every exploratory operation he performs, and it is satisfactory to realize how often it is easily possible to do so. In Case II, mentioned above, the kidney was easily exposed in this way, and after the exploration the wound was closed, except for one small wick down to, but not into, the substance of the kidney. In several of the writer's cases the wounds have been sewed up tight, without any drainage, and in no case has there been any leakage of urine or blood of sufficient degree to call itself to the attention of the surgeon.

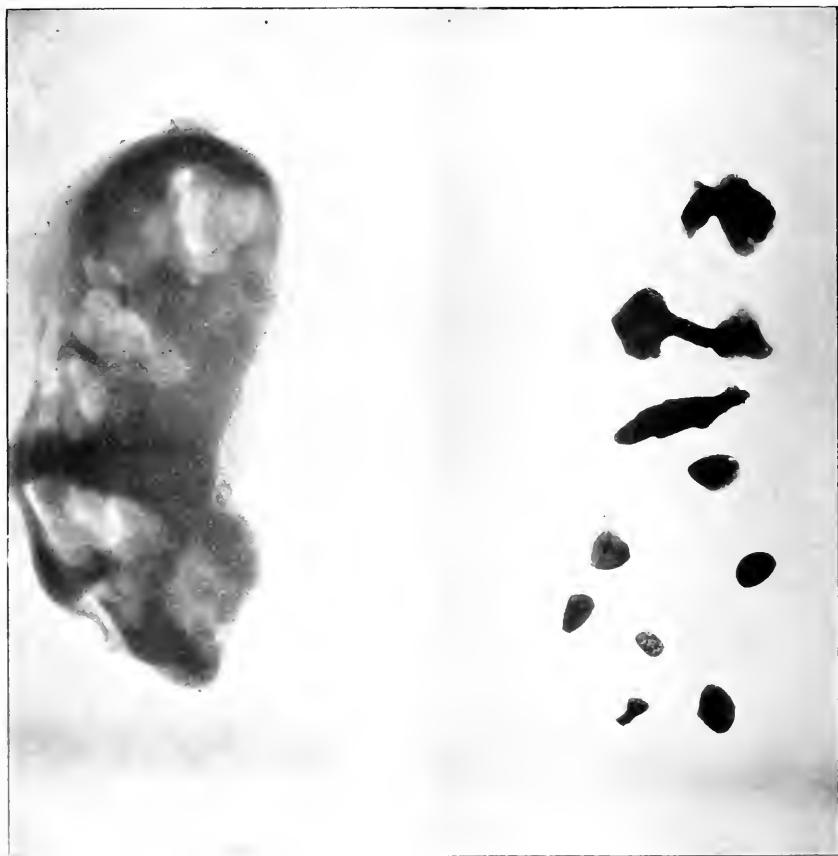
A GIFT TO A MEDICAL SCHOOL.—Chancellor MacCracken announces the receipt of a gift of \$25,000 to the Medical Department of the University of the City of New York. The name of the donor is withheld by request.



CASE I. Arrow shows shadow of renal stone composed of uric acid and urates. The more prominent shadows are flaws in the plate.



CASE IV. Arrows show shadows of stones composed of uric acid and urates covered with a thin coating of calcic phosphate.



CASE IV. Photograph of kidney and the stones it contained, after removal

MALIGNANT DISEASE OF THE TONSIL.*

BY F. E. HOPKINS, M.D., SPRINGFIELD, MASS.

THIS symposium on diseases of the tonsil is of such extent and richness that my individual contribution to it may well be brief and aim at the presentation of only the most practical phases of the subject. I shall not try to produce a complete monograph upon malignant disease of the tonsil, but rather to stimulate discussion which shall add something of value to our common fund of information.

Cancer of the tonsil occurs but rarely. At least one recent textbook on diseases of nose and throat makes no mention of it, and Bosworth in his work on "Diseases of the Throat," edition of 1892, says that he has had no personal experience with sarcoma of the tonsil; and he records in this same edition that of carcinoma of the tonsil Lennox Browne has seen but 12 cases—about 1 in 5,000—in a practice extending over a period of 20 years, and Mackenzie has seen but 7 cases. These statements apply only to primary disease of the tonsil, which is the point under consideration. Although rare, the disease is of such gravity, and demands on the part of the surgeon the exercise of such a degree of judgment and skill, that place is well given to its discussion at this time. The résumé of some recent thought on malignant disease of the tonsil and your discussion of the subject cannot fail of interest and profit. Butlin,¹ moved by the practical requirements of the situation and the similarity of results to be expected with either sarcoma or carcinoma, considers the two together, saying that they appear to be equally and in essentially the same manner fatal, and he includes both under the common name of malignant disease or cancer. It will tend to simplicity if we follow the same general plan, mentioning a few points in which the two forms of neoplasms differ. Because of the character of the growths most frequently seen, a still further simplification is possible. In the process of development sarcoma of the tonsil, following in a measure the form of lymphoid structure in which it occurs, becomes a round-celled tumor. As a rule carcinoma occurs at a later period in life than sarcoma, and at a time when the lymphatic structures of the tonsil have undergone certain retrograde changes, but the epithelial structure persists. If, as a result of local irritation, heredity, or whatever unknown cause, nutritive activity undergoes an abnormal increase, we have the conditions which may prove the starting point of carcinoma. It would be expected then that the form would be epithelioma, and it is found in the great majority of cases that this is true. If, then, a case of malignant disease of the tonsil comes before one, the diagnosis lies between a round-celled sarcoma and epithelioma.

Males are much more subject to cancer than females. Bosworth,² commenting on this fact, says: "We usually expect to find a larger number

of cases of malignant disease among males than females, but the preponderance here is perhaps unusual, and is only to be still further accounted for by the fact that the habits of life, and the exposures to which men are subjected, lead to the development of disease of the upper air passages, which may possibly exercise a certain predisposing influence in the development of malignant disease."

Epithelioma of the tonsil quickly ulcerates, forming flat plaques or deep and foul ulcers. The reason for this is that the primary development of an epithelial cancer is superficial, and the faucial region being in a state of constant functional activity, the surface of the neoplasm is subjected to friction. Sarcoma more frequently forms a rounded, smooth, distinct tumor, in the early stages not ulcerated, and appearing like simple hypertrophy of the tonsil. Ulceration occurs later, and begins at a point which comes in contact with some other surface; as, for example, the base of the tongue.

It is stated that carcinoma in its progress tends to invade tissue forward toward the base of the tongue, while sarcoma extends backward.³ Sarcoma also penetrates the tissues of the neck, and in both forms the cervical glands become early involved. This circumstance is explained by the intimate connection between the tonsils and the cervical lymphatic glands. Almost any ordinary inflammation of the tonsils may be accompanied by enlargement of the cervical lymphatics. Much more would a malignant process be expected to show this involvement. This fact has an important bearing on the plan to be followed in operating for removal of cancer. Time hardly need be given to consideration of etiology and pathology, for the new growths follow a course of development similar to cancer in other localities.

Symptomatology.—Sarcoma begins insidiously, and the only symptoms may be those of mechanical interference with the faucial functions of respiration, phonation and deglutition. At a late stage respiration and deglutition may be so interfered with as to call for tracheotomy and artificial feeding. The new growth in the throat excites a flow of mucus, and the difficulty in swallowing causes its accumulation, so that the mouth is filled, much to the patient's discomfort. If ulcerative process is going on, the mucus is of an irritating character and ill smelling. Hemorrhage may be a notable symptom, usually at a late stage, and is sometimes the cause of death. As already remarked, the neoplasm sometimes invades the tissues of the neck early and appears externally, the external part growing rapidly. It is this invasion of tissue and the extensive involvement of lymphatics which often renders operation so hopeless a procedure. So far as symptoms are due to the presence of a tumor in the fauces, carcinoma resembles sarcoma, but pain is likely to be an earlier and more troublesome symptom with carcinoma. Pain of a sharp and lancinating character, shooting up into the ear, often accompanies the development of carcinoma, increasing with the

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growth of the tumor until it is almost constant. Reflected pain located in the ear has been so prominent a symptom as to lead to the treatment of the ear in the early stage of this disease of the tonsil. The cervical lymphatics are involved earlier in the progress of the case than with sarcoma. Ulceration also occurs earlier. With the increase of the size of the tumor, and the consequent greater interference with nutrition, there is loss in weight and strength; and from sepsis attending the ulcerative process, or that peculiar poisoning attending the progress of cancer, we get the condition recognized as cancerous cachexia.

Diagnosis.—The occurrence of a unilateral enlargement of the tonsil in an adult, especially if of recent development, at once excites suspicion of malignancy; and yet, with all the aids which can be gained from clinical history and microscopical examination, the diagnosis in the earlier stages is often far from easy. One must differentiate between simple hypertrophy, syphilitic manifestations, tuberculous process, and even phlegmon; at least there is record that general practitioners have pronounced as phlegmon what proved later to be sarcoma. It will not be without interest to cite cases in which these conditions have been met, for this will not only prove the statement, but the history of the cases illustrates methods followed in securing diagnosis. Of syphilitic manifestations no better case could be quoted than that of Delavan, reported to the American Laryngological Association at its meeting in 1897. Here the clinical history and microscopical findings were doubtful, and the case was only cleared up by the use of specific treatment. The report is as follows:—

"About 2 months before consultation began to notice soreness of left side of pharynx. The tonsil began to increase in size, although prior to this time there had never been any trouble with it. As the enlargement continued the tonsil became inflamed, and finally began to break down, an erosion appearing near the centre of its surface.

"The clinical appearances of this case were highly suggestive of sarcoma. Although the family physician was a well-known practitioner of unusual ability and experience, neither he nor myself were able to find the slightest evidence of syphilis after repeated careful examinations. The patient was a gentleman of excellent intelligence and social position. He was aware of the gravity of the situation, and of the danger of the operation necessary for the removal of a malignant tumor of the pharynx, and while professing the utmost willingness to aid us by every means in his power, positively denied the knowledge of having contracted specific disease. In order to arrive at a diagnosis as speedily as possible, a fragment of the diseased tissue was removed and sent to Dr. Eugene Hadenpohl of the College of Physicians and Surgeons, New York. The first report of the pathologist expressed a doubt as to the nature of the lesions, although several other microscopists who saw the specimen considered the case one of sarcoma. A second

small fragment was removed, and examined about 10 days after the first, and this also gave a like negative result.

"The entire tonsil was now removed by means of a cold wire-snare, and the mass thus separated was sent to the pathologist. Again the general verdict was sarcoma, excepting on the part of Dr. Hadenpohl."

As illustrating the difficulties in differentiating between sarcoma and simple hypertrophy, the following report of a case which came under my observation is in point:

Paul W., 13 years old, was brought to me by Dr. G. H. Jones on Aug. 6, 1896, with the statement that during the preceding June he had been operated upon for the removal of suppurating cervical glands upon the right side. No microscopical examination was made, but the surgeon regarded the adenitis as a tubercular process. At the time of the removal of the lymphatic glands the tonsils were not especially enlarged, and no attention was called to them. Upon his visit to my office the right tonsil was so much enlarged that it nearly filled the oropharynx. There was no pain, no ulceration, and the annoyance was simply a mechanical one. Because of the history and rapid development I considered it either a tubercular or sarcomatous growth. It was removed with the galvano-cautery snare, and submitted to Dr. Jonathan Wright for examination.

His report is as follows: "Oct. 7, 1896. Specimen from tonsil examined today. It seems to be simple lymphoid hypertrophy of the character one usually meets with in a tonsil. I see no evidence of tuberculosis or of sarcoma. From the history I should think of the latter. This is one of the many cases in which the microscope in my hands does not help much, as either tubercle or lympho-sarcoma may be at the bottom of the trouble. All that I can say is that I can see neither in the sections I have examined."

On May 7, 1897, the patient returned, saying that for several months there had been no symptoms referable to the throat, when about April 1 it began to grow again, and increased in size so rapidly that it was now nearly as large as when first removed. There was no pain and no enlargement of lymphatic glands. A small area upon the anterior surface which came in contact with the base of the tongue was eroded. With this exception the appearance was very like that 9 months earlier. The growth was again removed with the hot snare, the base subsequently cauterized, and 3 months later the pharynx appeared normal. Dr. Wright pronounced this recurrence simple hypertrophy. On Feb. 5, 1898, there was again recurrence, which was said not to have occupied more than 6 weeks in its growth.

Of this Dr. Wright wrote as follows: "March 4, 1898. Recurrent tonsil, hardened and embedded in celluloid, and cut shows dense structure made up of round cells without lymph-nodes, with very scanty stroma, the cells so grouped around the blood vessels as to make it extremely probable, in view of the history, also, that we have here to

do with a lympho-sarcoma of a malignant type, but this can only be asserted positively, if at all, by the examination of circumjacent tissue. You are, therefore, thrown on the clinical aspects of the case for your decisive diagnosis."

It is not necessary here to give later details of this case. The patient died of recurrence early in July, 1899, 3 years from the time he first came under my care.

Simulating phlegmon of the tonsil is Gaudier's case.⁵ The patient, male, 35 years old, was sent to Dr. Gaudier with the diagnosis phlegmon of left tonsil. Two exploratory incisions had been made, but no pus found. He complained of difficulty in swallowing, in opening the mouth, and in turning the head to the left side, but not of pain or tenderness. No enlarged glands were found in the neck, there was no fever, and the general condition was good. A large tumor was situated between the anterior and the posterior pillars on the left side, stretching the former forward and the latter backward, pushing the soft palate upward and the uvula toward the other side. The tumor was elastic all over, but nowhere fluctuating, and was about the size of a mandarin orange. On its surface, "like a cap," sat the apparently normal tonsil. A slight wound made in the tumor gave rise to profuse bleeding. At this time the symptoms had been present only 8 days.

A diagnosis of rapidly-growing small-celled sarcoma was made, and no operative treatment was attempted.

Fifteen days later patient was scarcely able to swallow at all, and had difficulty in breathing both by the mouth and by the nose. The tumor had increased to the size of a large orange, extended forward between the upper and lower teeth, and upward behind the soft palate. The whole tumor was removed. Patient died rather more than a month later of pneumonia. Microscopic examination of the tumor showed it to be a very vascular small-celled sarcoma, with some myxomatous portions.

While a local tubercular process might simulate carcinoma, it would not be primary, but accompanied by such evidences of general infection as to leave no room for doubt; yet it is not impossible that malignant disease of the tonsil should exist along with a general tuberculosis, in which case the diagnosis might for a time be very puzzling. After all is said, the diagnosis in the individual case must be determined by careful consideration of the clinical manifestations aided by microscopic examination. And of course every effort should be made to secure diagnosis at the earliest possible moment, since it is but a truism to say the best hope of successful operation lies in early and complete removal.

The prognosis is most serious. It is unnecessary to weary you with statistics,—a sentence from Butlin⁶ well sums up the situation. "The disease proves fatal in very many instances within a year, or even six months, of its first appearance; indeed, few persons survive for more than three-quarters of a year."

In the matter of treatment the method of operating is of the first interest and importance; for while other plans may have to be entertained in cases which are plainly inoperable, thorough removal with knife, snare or cautery is the first thought in presence of this disease. If one sees the case early, and especially if it be sarcoma, an operation through the mouth may properly be performed. This statement is made on the supposition that the new growth has not invaded surrounding structures, and that the cervical lymphatics are not seriously involved. Indeed, A. Frankel⁷ advises this operation even in carcinoma, but would first ligate the carotid, probably with the idea of lessening the nutritive blood supply of the part rather than from fear of hemorrhage at the time of operation. The idea of trying to shell out the growth with the finger or blunt dissection would seem to offer better promise of thorough removal than by the knife or cautery, though Butlin says of cases thus treated, "Unfortunately they are not less prone to recur." In my own case, though the carotid was tied, and the mass apparently thoroughly enucleated by the finger, yet recurrence was as rapid as when earlier it had been removed by the galvano-cautery snare. Bosworth,⁸ encouraged by success in use of the cold-wire snare in removal of sarcoma in other regions, recommends it here. Whatever method is followed, thorough removal is the desired object. Any enlarged lymphatic glands should certainly be removed, and if the carotid be ligated the internal alone would doubtless answer as well as the common. Nutritional activity of the part ought thus to be more effectually hindered. As to the external operation, I have never seen this performed and cannot do better than describe the method as followed by surgeons of note. Cheever is credited with having been first to perform the operation for removal of the diseased tonsil through an incision in the neck. Some who have followed have modified the operation, making it considerably more formidable. The following case reported by McBurney is of interest, and its description includes the explanation of this plan of operating. This was a case of carcinoma of the left tonsil, and the cervical lymphatics were extensively involved. Diagnosis confirmed by Dr. Prudden.⁹

"Preliminary tracheotomy was first made to facilitate etherization and the subsequent treatment of the wound. A long, straight incision, from the lobe of the ear downward and corresponding to the anterior edge of the sterno-cleido-mastoid muscle, was made. Through this a thorough removal of all lymphatic glands and connective tissue was easily accomplished. The external carotid artery was ligated close by its origin. Then a straight incision, about at right angles to the first, was made, passing upward and forward, and crossing the jaw at about the situation of the last molar tooth. The submaxillary gland and all connective tissue and lymphatic glands below the jaw were removed. The jaw was then divided with the saw in the line of the second superficial

incision. It was now easy to draw outward the ramus of the jaw, and so completely expose the whole external surface of the tonsil, the large vessels and pneumogastric nerve being drawn backward. The pharynx was then entered with the knife at a point about one-half inch anterior to the edge of the tonsil. The knife was then carried upward well into the soft palate, backward and then downward, always at a considerable distance from the tonsil, until the tonsil, a portion of the posterior edge of the tongue and of the soft palate, and the whole lateral wall of the pharynx were removed. The divided jaw was sutured with silver wire, and the superficial wound partly closed by suture. The deep wound was packed down to the pharynx with iodoform gauze.

At the time this report was made nearly 3 years had elapsed since operation, and there was no evidence of recurrence. This operation, formidable though it is, gives opportunity for the dissection of involved glands, and thus the more complete removal of all diseased tissue. If a general rule were to be formulated it might well be:

Enucleate the tumor with the finger and blunt instruments, if the case is seen early and before the surrounding structures are invaded. Remove also cervical lymphatics, if these are involved.

If the new growth has passed beyond the stage which admits of this shelling-out process with reasonable hope of successful issue, then the external operation is to be performed. What shall be done in those cases which are inoperable when first seen, or have become so? The palliative removal of the growth, to permit of swallowing and breathing, has already been referred to. This might well be done by blunt dissection rather than by cutting. Successful results have been reported by methods of treatment other than radical removal.

Allusion may here be made to Hubbard's case¹⁰ of epithelioma of the soft palate treated by injections of liquor potassae. Diagnosis was confirmed in this case by Dr. Jonathan Wright. The patient lived nearly 2 years after the beginning of treatment, and for most of that time was in good health. He died of cardiac lesion.

Dr. W. B. Coley wrote me that he had treated a case of sarcoma of the tonsil with the injections of the toxins of erysipelas, after the method which he had made so well known. Though the patient died of recurrence, it was after an interval of 8 years, which is a noteworthy showing.

Dr. Massey¹¹ has reported cures by the cataphoric destruction of cancer cells. Among his successful cases one was a carcinoma of the tongue, another a sarcoma of the upper maxilla. He uses a current of such power that one would hesitate to employ it in the throat, in such close proximity to important nerve centres. Yet in so desperate a situation it gives a sense of satisfaction to know of every possible resource which may be available.

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TUBERCULAR PERITONITIS.*

BY HENRI T. FONTAINE, M.D., CONCORD, N. H.

In the following study on the subject of "Tubercular Peritonitis," I will omit the usual considerations on the etiology and morbid anatomy of the disease, except in so far as they regard the source of the infection.

The alimentary canal is considered the most prolific source. The bacilli can be ingested in infected milk and meat, or by swallowing tubercular sputum. Then it is easy for them to ulcerate through the intestinal wall and reach the peritoneum. The general circulation also frequently carries the infection. The tubercle bacilli may thus be deposited in the peritoneum directly, or in an ovary, a Fallopian tube, in a hernial sac, in the prostate, or in the seminal vesicles. These in turn become the primary focus, from which the peritoneum is infected.

With regard to the Fallopian tubes, many have thought the infection came from without, through the vagina and uterus. Although possible, this source is certainly not a frequent one. Tuberculosis of the vagina and of the uterus are extremely rare diseases. Besides, children and virgins with a hereditary tendency are the most frequently infected through primary tuberculosis of the internal genitalia. Tubercular endometritis, a rare disease, is generally secondary to tuberculous disease of the Fallopian tubes. Cases studied at autopsy have shown that diffuse tubercular endometritis usually begins at the fundus, near the cornua, and spreads downward. Cullen¹ reports a case in which the endometrium is involved only at the fundus, and is of recent date, while in the Fallopian tubes the process is much older, since it has advanced to the stage of cheesy degeneration.

The lymphatic system is also responsible for the carrying of the bacilli to the peritoneum. An example of this can be seen when we find a tubercular pleura as the primary focus. For years the diagnostic value of a concomitant pleuritic effusion in tubercular peritonitis has been recognized. Apert² gives us a beautiful study of such a case, coming to autopsy at just the proper time. In none of the abdominal viscera could any signs

* Read before the Saranac Lake Medical Society, Saranac Lake, N. Y., February, 1901.

of a tubercular process be found, although the peritoneum was literally covered with tubercles. This occurrence he attributes to the peculiar distribution of the lymph channels of the peritoneum, which are independent of the viscera. They remain superficial to these organs and do not penetrate into their substance. Running around their periphery, they only meet the lymph channels of the parenchyma of the organ at the hilus, where alone the two systems of lymphatics anastomose. At the diaphragm, however, the arrangement is different. Here the lymphatics of the peritoneum penetrate into the muscle, and, running between the bundles of muscular fibres, communicate with the lymphatics of the pleura, which have the same distribution from above, also penetrating the diaphragm.

Apert made sections of the diaphragm, and, under the microscope, observed not only the lymph connections between the two serous membranes, as shown by the tubercular tissue, but also saw the bacilli themselves in the lymph channels.

Symptoms.—Acute tubercular peritonitis sets in with fever, abdominal tenderness, general or circumscribed, and with the symptoms of an ordinary acute peritonitis. The chronic variety is gradual in its onset, and so slow in its development, that it may give rise to no symptoms. Such are the cases discovered by accident during an abdominal section. Enlargement of the abdomen may be the first thing to call our attention to the disease; or a sensation of tenderness, either localized or diffuse, in the abdomen. With it is often associated severe pain, which may be prolonged, with intermissions of comparative comfort. Attacks of abdominal pain are likely to be accompanied by fever, and both are often associated with alterations in the size of the abdomen. One of the most important symptoms is an irregular elevation of temperature. There may, however, be prolonged intervals of normal or subnormal temperature.

The enlargement of the abdomen is due, at the outset, to the exudation of liquid, which, in the course of time, may become so abundant as to produce considerable distention. It is also partly explained by the presence of gas in the intestines, variations in the quantity of which accounts for the modifications in size of the abdomen.

In the second stage, when fibrous adhesions encapsulate the diminished fluid, circumscribed tumors are formed, which may be flat or tympanitic on percussion, according to the predominance of exudation or of intestinal gas. These tumors are fixed and elastic, not resistant and sausage-shaped, like masses of thickened or shrivelled omentum, nor like the indurated products of a tubercular peritonitis felt on pelvic examination.

As the disease progresses, digestive disturbances are conspicuous. Loss of appetite, nausea, often vomiting, and diarrhea or constipation. The constipation is frequently so severe as to simulate intestinal obstruction.

Finally, loss of flesh and strength, especially in those cases where intestinal fistulae have arisen, complete the clinical picture.

Diagnosis.—A diagnosis of tubercular peritonitis, to be beyond question, depends on the microscope or on inoculation experiments. Before operation the effused fluids may be used for these tests; while after operation we may have a piece of the diseased peritoneal tissue as additional tubercular material to work on. Oehler,³ who has had a large experience with outdoor patients of this kind, says that the diagnosis is comparatively easy when there is loss of weight, cachexia, slight fever, occasional diarrhea, enlarged abdomen, in which the presence of fluid and at times of small nodular tumors can be determined. In mild cases the diagnosis is frequently doubtful. The ascites may develop through some disturbance of the intestinal tract, or from hernia, but it disappears in a few days. Such cases cannot be called tubercular.

Where the ascites has ceased for a considerable time, without apparent cause, and when some degree of cachexia is noticeable, there is strong suspicion of tubercular peritonitis. The presence of fluid in the abdominal cavity is not always easily discovered. Percussion is made, not only in the different lying positions, but also with the patient standing upright. Beginning percussion on the lower part of the abdomen, the finger at first just touches the patient lightly; later it is pressed more deeply into the tissues. In the first case dulness is found, owing to the presence of a layer of fluid between the finger and the intestines. In the second case the liquid is pressed away, and the finger touches the intestines; consequently tympanites is elicited by the percussion. Another symptom, which helps the diagnosis, is the involvement of the umbilicus. Under the skin are to be felt small nodules, or there is a diffuse infiltration. This is explained by many authorities as an extension of the tubercular process along the obliterated umbilical vessels.

In one of his cases Oehler saw red streaks radiating right and left towards the ribs, starting at the reddened umbilicus. They were apparently inflamed lymphatic vessels, and they persisted 4 to 6 weeks, or as long as the reddening of the umbilicus continued. In grave cases there frequently occurs at the umbilicus a perforation or an intestinal fistula. This is due to the fact that over the umbilicus the skin lies immediately over the peritoneum, while elsewhere they are separated by fat, fascia and muscle. So in this instance an increase in vascularity or in edematous transudation goes straight from the subserosa to the skin.

In boys the tunica vaginalis testis is also to a certain extent an indication of the disease. Where it remains a trifle open, it is involved along with the general peritoneum. He has observed a thickening of the cord and of the testicles in several cases. Schmidt made the same observation in 3 cases out of 15.

Pigmentation of the skin, especially that of the face, has been repeatedly observed in tubercular peritonitis.

Edebohl mentions a "plaque-like" localized thickening of the deeper portions of the abdominal parietes, perceptible to gentle touch. This condition was observed in the flat abdomen, and is a valuable sign.

In the search for a diagnosis the "association of a tubal tumor with an ill-defined anomalous mass in the abdominal cavity" (Osler) is strong presumptive evidence of tubercular peritonitis.

According to Loehlein¹ one of the minor aids in diagnosing is the difference between the left and right hypogastrium on palpation and percussion. In case of tubercular ascites there is distinct dullness left of the median line, above the iliac fossa, while the sound becomes clearer on the right side in proportion to the distance from the median line. The explanation is probably in the retraction of the affected mesentery towards its root, drawing the intestines towards the right side of the abdominal cavity, while the effusion is localized more on the left.

A still more important aid in differentiating is the discovery of small tubercles on the serous membrane of Douglas pouch, palpated through the rectum.

Exploratory laparotomy is being advocated as combining diagnosis and treatment. This method of examination is rarely necessary, and it is too dangerous to be lightly undertaken in advanced stages of the disease. Even in the earlier stages it is only justified when the diagnosis is very obscure, and when the symptoms are such as to demand speedy interference.

Loehlein and others advise a posterior colpocelectomy for diagnostic purposes, with excision of a fragment for microscopic investigation. This intervention is reputed to have the same therapeutic value as a laparotomy.

Tubercular peritonitis with effusion must be differentiated from ascites due to cirrhosis of the liver or heart trouble. The latter has no tenderness, the only discomfort being due to pressure of the fluid. Besides, jaundice, gastro-intestinal hemorrhages and enlargement of the spleen are to be expected. In children the liver is usually at the stage of hypertrophy, so an examination of these various organs will easily distinguish between ascites and peritonitis with effusion.

Chronic peritonitis with effusion may be hard to differentiate, if there is no evidence of pre-existing or associated tuberculosis of the lungs, intestines, genitals, kidneys, lymphatic glands or bones. An associated pleuritic effusion also favors the tubercular nature of the disease. Chronic peritonitis usually shows a traumatic origin or an antecedent acute peritonitis.

Parovarian cyst must be differentiated from a tubercular encysted dropsy. In the former the fluid is characteristic. The growth is likely to be slower, with less disturbance, and without emaciation and debility. It usually can be traced to its origin in the pelvis by palpation.

Encysted dropsy as a rule follows an attack of peritonitis. Fluctuation is not so general as in ovarian cyst. Fixation is complete. Vaginal examination shows normal pelvic organs. They can be outlined and separated from the mass in the abdomen.

Malignant disease of the peritoneum shows a more rapid progress. One would look for associated malignant disease elsewhere, especially in some abdominal organ.

Prognosis.—Until recently the mortality in cases of tubercular peritonitis was considered extremely high; but of late years frequent recoveries have been announced. Casinari² states that of 840 reported cases 208 died, giving a mortality of about 24%. It is only since 1882 that, by recognition of Koch's bacilli with the microscope, or by evidence of their presence through inoculation experiments, the diagnosis of tubercular peritonitis has been beyond criticism. Since then it has been proven, by indubitable cases, that the disease has a tendency to spontaneous recovery, that many are cured by laparotomy, and others by medical measures alone.

In the light of recent medical literature it is surely not presumptuous to call the prognosis favorable. Especially is this so in the chronic ascitic form, and still more so in children than in adults, because of the greater frequency of other tubercular complications in the latter.

(To be continued.)

PRIVILEGED MEDICAL COMMUNICATIONS.¹

BY DAVID W. CHEEVER, M.D., LL.D., BOSTON.

THE lawyer holds all communications from his client as privileged, even although the latter is a criminal. The courts sustain lawyers employed as counsel in refusing to testify as to what their clients reveal to them.

The confessor in the Roman church is not allowed to divulge the confession of the penitent, even of a criminal. In the Anglican church the priest is protected by the hierarchy in refusing to make public secrets confided to him as a clergyman. But by the common law of Massachusetts the physician is obliged to state publicly on the witness stand whatever may have been told him by his patient, even though involving character or family secrets.

In this respect Massachusetts law differs from the rule adopted in the courts of New York, where the doctor is not only protected, but even forbidden to testify as to his knowledge obtained in a professional capacity.

In many other states the physician is protected. Here, if he refuses, he is held to be in contempt, and is fined and imprisoned. In England he may be prosecuted in a civil suit for damages, if he tells the private affairs of his patients.

This anomaly of our laws, at first sight, seems wholly wrong. It is nearly so. We instinctively,

¹ Presented before the Councilors' Meeting of The Massachusetts Medical Society, Oct. 2, 1901.

as physicians, can recognize only one side, the sacredness of professional secrets.

While it is the purpose of this paper to call the attention of our brother physicians to this violation of the most sacred contract between the patient and the doctor and, rather than be obliged to break the law by refusing to testify, to seek to have it repealed, or amended; we also, in the spirit of equity, wish to look carefully at the other side, and see when there may be justification or propriety in speaking. (1) We will consider, then, when should the doctor be protected in keeping silent; (2) when could he be with propriety obliged to reveal what has been told him? For we think that we are much more likely to secure a modification of the Massachusetts law if we do not demand too much.

(1) *Privileged communications.*—Indiscretion, weakness, fear, sin, all seek the family physician as a father confessor. He holds the honor of the patient, and the character and social standing of families, in his hands. He knows what no other knows,—and he often knows what is unknown in the family itself. Mental obliquity, cases of conscience, private diseases, hereditary taints, sins of a sexual nature, once committed but long repented of, hysterical fears, questions of inheritance, of responsibility mentally, of illegitimacy, of adultery, of suicide, of life insurance, of testaments,—why lengthen the list? It is endless. It involves every relation of human life. The doctor holds, and holds sacred, if he is allowed to, the secret history of many families, and when advanced in years and practice carries to the grave with him knowledge which would revolutionize the life of whole communities. The mischief of telling is so much greater than the mischief of concealing, that the simplest principles of expediency should forbid the revelation. Every instinct of honor, propriety, decency is arrayed against it. Hippocrates laid an obligation on his students that nothing heard in the sick chamber should ever go outside it. The wisdom of former ages is only confirmed by the experience of today.

(2) *When, if ever, should he be obliged to speak?*—Only in cases of crime and where justice would miscarry if he refuses to tell the fatal secret. Let the criminal law court decide and relieve the doctor of his obligation of secrecy. In all civil suits let him be protected. But in crimes there can be no proper security for society if the doctor becomes a *particeps criminis* by concealing the truth.

The doctor, then, owes a primary duty to his patient, but he also owes a duty to society in cases of real crime. And whenever the courts clearly see that he holds the key of a vital fact in the prosecution, he may be required to speak. How carefully must this be administered? How sedulously guarded to secure justice to all? He who sits in the judgment seat must decide. When the physician should be called on to testify ought to be extremely rare.

We hold, then, that the rules on privileged med-

ical communications should be amended in Massachusetts to conform generally to the law of New York.

No physician should be allowed to betray professional confidence, unless the judge of a criminal court decides that he must do so or impede the punishment of the criminal.

A BRIEF RÉSUMÉ OF THE LIFE AND WORK OF AMBROISE PARÉ.

WITH BIOGRAPHICAL NOTES ON MEN OF HIS TIME.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

(Continued from No. 15, p. 400.)

It has been said by Goelickium and other historians of medicine that Paré did not know Latin, and this is very probably true, because otherwise I think he could not but have read in Celsus a very positive recommendation for the use of the ligature, for Celsus speaks so frequently of this method that it would lead one to suppose that its use was common in those days. Curiously enough I cannot discover in the works of so great a surgeon as Fabricius ab Aquapendente any indication of the use of the needle for ligating, though he alludes to the artery forceps and

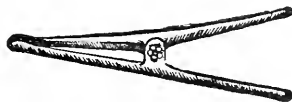


FIG. 3.—Paré's sinus dilator. Copied from his "Opera Chirurgica," 1612.

This instrument very closely resembles Dr. Bigelow's sinus dilator.

ligature and argues against their use in the following quotation from Galen (Lib. xiv. Meth.): "Quod si laqueis tentes arterias ligare, sympathiae aboriuntur, id est, affectiones per consensum."

In 1549, nine years after his first campaign, Paré published his first work, entitled, "*La methode de traicter les playes par les hacquebutes et autres bastons a feu, et de celles qui sont faictes par fleches, dardz et semblables; aussi des combustions specieusement faictes par la pouldre a canon: composée par Ambroise Paré, maister barbier chirurgien à Paris, 1545.*" It was the anatomist Sylvius (Note 2), one of the greatest lights of the Faculty of Paris at this time, who advised Paré to publish his cases and the results of his experience and give them to the medical public. This was a most excellent piece of advice, both for the readers who, appreciating the value of the book, made its success, and also for the author, whose name was suddenly made prominent (Fig. 3).

An unforeseen misfortune interrupted the progress of his campaigns in the year 1539. His protector, Colonel-General de Monte-Jan, died. Paré returned to Paris with the marshal and was married in that city in 1541 to the daughter of

the Valet chauffe—ciré de la Chancellerie de France.

In 1542 war was again declared, and Paré became attached to the personal suite of Monsieur de Rohan and was obliged to leave in all haste to join the army at Lyons. Here, as in Italy, we find him as careful, as skilful and as prudent in his military surgery. In this war another event brought the name of Paré still more to the front. The army surgeons having been unable to discover and extract a ball which entered behind the right scapula of the Duke de Brissac, the young surgeon was called to attend him, and when he had examined the wound he ordered the patient to take the position that he was in when the ball struck him, with the result that the missile immediately projected under the skin and was then extracted with great ease. The following year Paré left for Landrecies, where he remained for some time, and then returned to Paris to take up his civil practice, as was always his custom when he returned from his campaigns.

As the art of printing had become universal, Paré's work on wounds was rapidly diffused throughout the country and naturally was a great help in bringing its author into prominence. The surgeons, finding that one of their corps had entered into the domain of reformation that ignorance or fear had prevented them from entering, did not conceal their joy. The first movement on the part of Paré gave rise without doubt to a perfectly natural stupefaction after their surprise had ceased, when they found themselves face to face with a practice that completely annihilated those that had been used and consecrated by the authority of time. But as the facts spoke for themselves, the surgeons found it necessary to abandon their old theories and to recognize the scientific basis of the practice of the young surgeon, since by reason and experience they were able to demonstrate the truth of his teachings.

They had no longer any use for the cautery in cases of hemorrhage, for in its place they now tied the bleeding vessels, and after hemostasis was complete the wound was covered with an ointment that even modern surgery could not condemn as being devoid of antiseptic properties.

The professors and doctors of the Faculty of Medicine were also obliged to bow down before the evidence of the demonstration, but they nevertheless retained at heart a most bitter feeling against the reformer who had broken away from ancient teachings and dared to allow the publication in French of his new theories. The members of the medical faculty retained a jealous care over their traditions, and no master had ever written upon medical subjects in anything but Latin. From this there ensued an interminable quarrel between the men of letters who, wishing to hold their prerogatives, shut themselves up in a kind of sanctuary which was forbidden to the profane and those men without literary education. Finally, surgeons of other nations, who had also been surprised by the new discoveries of Paré, commenced

to arouse themselves, and in their turn became engaged in the reform of surgical art, following the road traced out for them by Paré. The stimulus given by Paré was magnificent. For the sleeping surgery of this epoch a man was wanted who would be capable of arousing the profession from their torpor and trace for them an end to be attained. Our hero dared to break away from tradition, and he stood as a torch lighting science.

Paré, who was naturally active, but nevertheless loved retirement and long work in the silence of his library, again started for the war in 1546, being still attached to the suite of Monsieur de Rohan. At the siege of Bologna the Duc de Guise received a wound on the head from a lance, which transixed the skull so that the point came through and out at the other side. The king's surgeon refused all intervention in this case, because he feared that the patient's eye would be forced out in withdrawing the lance, and he inferred that it would have been much better for the duke had he been killed outright. Paré was called to the bedside of the duke, and after examining the wound took a pair of heavy forceps and, asking his august patient if he would allow him to place his foot on his head, so that he might have a point of fixation, withdrew the lance with such skill that not a single fibre of the muscles of the eye was injured. I would add that the patient made an uninterrupted recovery.

The hostilities ended very suddenly, and Paré returned to Paris to enjoy several years of peace. This time he gave himself up particularly to the study of anatomy under the direction of Sylvius and his friend, Thierry de Hery, whom he had known from infancy. He became the prospector of Sylvius, and I believe was the first to found a chair of anatomy, opening the era of public dissections; and in a treatise published in 1550, which for many years remained a classic, he relates all that a surgeon should know for the treatment of the various ailments to which the human body is heir. The science of obstetrics smiled upon him, and he annexed to his work on anatomy, already alluded to, a small treatise having for title *La maniere d'extraire les enfants tant morts que vivans du ventre de la mere, lorsque nature de soy, ne peut venir à cet effet.*

The success of this new publication encouraged him to publish a second edition, dedicating it to the king, who had heard the greatest good said of Paré from all sides, and which decided his majesty to employ him as one of his household surgeons.

The reputation and fortune of Paré had placed him in the ranks of the high functionaries of the court. He had hardly been nominated surgeon to the king when Charles V besieged Metz, which was defended by the Duc de Guise. The garrison had become extremely reduced by the enemy's attacks, while the extreme cold, want of food, and disease had produced a constant and increasing loss of men. Medicines were lacking, and the barber surgeons of the city who were called upon to care for the wounded could not attend to all

their patients, while their ignorance made another element of danger.

The Duc de Guise sent one of his captains to the king to describe to him the condition of the city and especially the lack of medical care. Paré was sent to Metz and, being able to pass through the enemy's lines, entered the besieged city on Dec. 8, 1552. The siege had lasted for a month and a half, and the arrival of Paré was received with the greatest transports of enthusiasm by the soldiers.

A day or two after his arrival he trephined Monsieur de Bugueno, a gentleman in the duke's suite, who had been struck on the head by a bursting stone and had been unconscious for a fortnight. He was cured by the operation, and this success, so extraordinary for the time at which it occurred, again raised Paré in the esteem of the chiefs of the army (Fig. 4).

As to the troops, there was no need of marvelous operations and unexpected recoveries to keep their confidence in Paré's science and ability, and for their respect and love for him. At all hours of day and night he was found with the wounded, examining and caring for all those who came to him, with the conscientiousness and solicitude that were always present in him throughout life.

History, painting and engraving have made popular Paré's stay in besieged Metz, and many

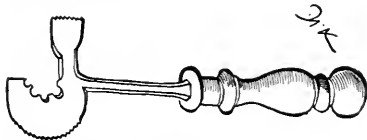


FIG. 4.—Saw used in Paré's time for operations on the skull. Copied from "The Surgery of Fabricius von Hilden." About 250 years later Mr. Hay of Leeds, England, produced a saw which still bears his name, almost identical to the one here figured.

believe that it was the greatest episode of his life. In reality it is quite sufficient to examine his writings and works which have been written on the subject, to find all necessary proof that his noble conduct at the siege of Metz was not at all exceptional for him.

He had become one of the greatest lights in his profession, and from circumstances was one of the men upon whom the salvation of the besieged city and the honor of the royal arms depended, and it is perfectly natural that his heroism was heralded in all parts. But those who praised him most had probably forgotten that for the 16 years preceding this event Paré had given his aid to wounded soldiers, excepting during the periods of peace, and had unceasingly endeavored both in his mind and heart to discover all possible methods for alleviating their suffering.

It is evident that Paré was not often placed under such adverse conditions, nor was his duty always so difficult or as absorbing as it was at the siege of Metz. War has never been an easy thing for either conqueror or conquered, but no matter how atrocious our modern battles may be, I hardly think that one can form an idea of the

suffering that existed on the battlefield in Paré's time. At this epoch man fought man to man, as in the golden age of chivalry, which was already a time of the past; and still more, firearms had become in current use, and even if they could not send the projectiles very far, their calibre was quite sufficient to produce most frightful wounds, so that their murderous effect was added to those of the steel implements of war, with the result that fighting distant from the centre of the action did not, as in our days, diminish the chances of death. After each encounter the wounded were many on both sides, and if they were of low birth, unless they had some protection, they ran considerable risk of being abandoned to a miserable death on the field. Then occasionally out of pity, and in order to avoid their being thrown half alive into a ditch or tortured by their adversaries, the wounded men were often killed by their companions-at-arms.

If, on the other hand, they were cared for, it was always by such means that the most insufficient surgery of modern armies would find rudimentary. The surgeons were few and ignorant; dressings or cauterizations, as I have already said, played the principal part and were usually only the occasion for new torture and suffering to the poor soldier. Ambroise Paré brought into their midst, not only the most cultivated surgical science of his time and a great manual dexterity, but also rigorous principles of conduct, a firm conscience and the delicate sentiments of humanity. Those of rank remembered his services and appreciated him, while the humble also remembered them and loved him.

The French army having at last defeated the enemy, the troops returned to Paris, and the king having been informed of the great and many merits of his surgeon, liberally recompensed him, and promised him that in the future he should want for nothing. Then suddenly Picardy was in arms, and Paré was obliged to leave in haste for Hesdin at the order of the king.

In this campaign the enemy came out victorious, putting the French army to route and killing a great number, as well as taking many prisoners, among whom was Paré. The adventures through which he passed are most curious, and fearing that if his name were known to his captors a large ransom would be demanded for his release, or, on the other hand, to be put to death if he were considered a simple soldier, he tried to turn the difficulties but without success. Almost in a state of discouragement, he borrowed an old cloak and breeches from a poor soldier, and in this disguise he endeavored to cross through the enemy's lines.

This subterfuge did not, however, deceive the enemy on the value of their prisoner, because among them, as well as among the soldiers of the French army, Paré had several times had the opportunity of astonishing the most clever surgeons of Charles V's army. He would have in all probability remained a captive for a long time but for a happy circumstance occurred which gave him

his liberty. One of the generals, who had been afflicted with an ulcer on the leg for many years, begged the Duke of Savoy to allow him to have Paré, who arrived in the camp of this officer, and was immediately asked to cure him. Although he greatly feared the result, he commenced his treatment and had the fortune to cure the duke completely, and on account of this his august patient rendered him his liberty.

Henry II was extremely large in his favors to his surgeon, so that the Collège de Saint-Côme, to which Paré did not belong, as will be remembered, on account of an insufficiency of classical studies, seized this occasion to create him one of its patrons. In spite of the fact that the statutes of the college exacted a knowledge of Latin on the part of the candidate, and in spite of the necessity to make him undergo his examination in Latin, everything was understood and arranged in advance; and still more,—a most unheard of thing, perhaps,—the college paid him the honors of a gratuitous reception.

In consequence of all this Paré demanded to be admitted to the examinations on Aug. 18, 1554, being nominated bachelor on the 23d of August, licentiate on the 8th of October, while on the 18th of December of the same year he took the bonnet of master. The ceremony took place in the church of the Mathurins. The rector of the university was present, as well as the representatives of the faculty, and according to the position or the celebrity of the candidate the building would be filled with bishops, magistrates and nobility, and the reception of Paré was not one of the least brilliant, but it occasioned many smiles on the part of those present.

More than 20 years later, in a new campaign between the faculty and the surgeons of Saint-Côme, the famous Riolan (Note 3) recalled this circumstance in the following words: "Entre les chirurgiens qui excellent aux oeuvres de l'art, il en est (chacun sait de qui je veux parler, sans qu'il soit besoin que je les nomme) il en est qui ne savent pas décliner leur propre nom. Nous les avons appelés de la boutique du barbier à la maîtrise chirurgicale, et recus gratis contre le coutume, de peur que les barbiers reconnus plus habiles que les chirurgiens ne fissent honte à leur collège; nous les avons entendus débattant de la manière la plus plaisante du monde le latin qu'on leur avait soufflé, et ne comprenant pas plus ce qu'ils disaient que ces enfants à qui, dans les collèges, les professeurs font répéter des harangues grecques."

As soon as the new master had become installed, he immediately gave himself up to his functions with that delicacy and talent that was so characteristic of him. Beside his lectures on surgery he soon gave to the medical public a new edition of his "Universal Anatomy." At his request dead bodies were sent in large numbers to the college. He dissected with great care, going over all the parts that he had already studied, and controlling all that had been published by other anatomists.

The story is told that on one occasion, when the body of a hanged criminal had been sent to him, he divided it directly through the middle; on the right side he made his dissections, while the left side of the body was left intact, so that when he might wish to make an incision on a patient he could beforehand compare the two. Surgical anatomy was first given to the medical profession by Paré, and as the dissection of the cadaver already alluded to remained for 27 years without any trace of decomposition, it would seem to show that Paré was not unacquainted with some process of embalming.

It has been said that Paré copied Vesalius, who was the father of descriptive anatomy; but it would appear to me that the years are too few which separate these two great men for such a reproach to be justified. They lived nearly at the same epoch, and, if occasionally a few paragraphs are borrowed here or there by one or the other in their respective works, these extracts are plainly owned up to by each, and their publications appeared each one in its own manner and in too great rapidity and too near together for one to be a complete copy of the other, as has been implied. Another thing which we should recollect is the fact that Sylvius, who was Paré's master, was also the teacher of Vesalius, and consequently there is nothing astonishing in the fact that we find a certain similarity in the ideas of both these great men, since the study of anatomy was made by them under the same master, who himself was most learned in this branch of science.

Henry II, who died in 1559 under the well-known tragic circumstances,—having been hit in the eye by a lance during a tournament,—Paré, who had been called to attend him, retained his position as surgeon-in-ordinary to Francois II. Eighteen months later this king died in a most mysterious fashion, according to the story of his contemporaries, but in reality probably died from cerebral complications produced by an otitis media.

Paré did not escape the ridiculous suspicion of having poisoned the king by pouring poison into his ear, but this calumny did not affect his character, because in 1563, at the time the civil war commenced, he was made first surgeon to the king. A year after this appeared the third edition of his surgical works, entitled, *Des lieres de chirurgie*. Many additions had been made in the preceding edition, particularly three books which were completely new; namely: *Des chaudes-pisses, des pierres et des retentions d'urine*. The first of these works he derived entirely from the book his friend, Thierry de Hery (Note 4), had published in 1552 on syphilis, and he admits this most frankly himself.

During the interval between the death of Francois II and his nomination to the position of surgeon-in-ordinary to the king, Paré published a work on wounds of the head.

The new edition of his surgical works had hardly been completed than he was obliged to leave Paris to accompany the king and the court

on a trip through the provinces, which lasted two years. He went over the east of France and then the south, where he remained several months, and wherever he went he made it his business to consult all the well-known physicians and surgeons on their various treatments and their techniques, allowing no opportunity for anything to escape him in his search for instruction.

The winter of 1564 was very severe, and a great misery reigned throughout the country. In the spring epidemics broke out, which found among the debilitated people a most favorable soil for their development. The plague came first, and rapidly extended over nearly all France. Paré took it, and had a large bubo in the axilla and a still larger one on the abdomen, which left him with a cicatrix the size of the palm of the hand. When he returned to Paris, the plague had disappeared, but in its place smallpox and measles were raging. The number of physicians was not sufficient to care for all the patients, so that the surgeons and barbers were called upon to help them.

This circumstance gave Paré the opportunity of becoming a physician once more, and from the material he gathered he wrote a book entitled, *Traité de la peste, de la petite-verole et rougeole, avec une description de la typhre*, which appeared in 1568, and which did not cause much comment on the part of the faculty. But although the faculty, that Paré considered with a most respectful deference in his writings, did not attack this purely medical work, it did not allow the praise that Paré gave to antimony to pass by unmolested.

When speaking of Paracelsus in the beginning of this paper, I mentioned the introduction of this new agent into therapeutics, but its introduction into France gave rise to much opposition and revolt on the part of the physicians. In 1560 Riolan expressed himself in the following terms against antimony, for which both he and that most charming and sarcastic physician of Paris, Gui Patin, were so warm in denunciation of its use: "Alchymistes s'estans establis dans Paris, distribuans leurs drogues empoisonnées et donnant à tout le monde de l'antimoine qui entroit en vogue et recommande par les escrits d'un medecin de Montpellier nomme Delaunay, ils avoient esté par censure de l'Eschole condamnez et par arrest de la cour l'usage de l'antimoine interdit d'en vendre."

A physician, even of the Faculty of Montpellier, was at that time in the eyes of the Faculty of Paris far above a surgeon, even although it was Paré. It could not tolerate from this great man anything that it denounced, and consequently it went to court about it. But the affair did not last long, because Paré was not quarrelsome; and besides, the effective and moral authority of the faculty was such that a fight would have been most serious, so the great surgeon retired silently. But when he again published his treatise on smallpox the passage relating to antimony had disappeared, and in its place we may read the following: "Quelques-uns approuvent et recom-

mangent fort l'antimoine, alleguans plusieurs experiences qu'ils en ont veu. Toutefois parceque l'usage d'iceluy est reprouve par messieurs de la Faculte de medecine, je ne me departiray d'en rien escrire en ce lieu."

The following years brought new success to Paré, especially during his voyage in Flanders, where, on account of his fame, he was called to attend several personages of rank who had been wounded. But the difficulties and combats that he had escaped up to that time were now about to commence. These difficulties arose under the following circumstances, and he himself was partially the cause of them:

In those parts of surgery that he had not up to that time written on were to be found tumors, which at his epoch were considered as diseases pertaining more to the care of the physician than to the surgeon. Now, in 1571, a surgeon of the College of Saint-Côme, by name Malcezieu, had made a French translation of the *Synopsis Chirurgie*, written by a physician by the name of Gournelen (Note 5), who had published this book in 1566. This work of Gournelen's was the most complete treatise that had been published up to that time as far as tumors went.

(To be continued.)

ASSOCIATION OF ANEMIA WITH CHRONIC ENLARGEMENT OF THE SPLEEN.*

BY ARTHUR H. WENTWORTH, M.D., BOSTON.

(Continued from No. 15, p. 406.)

DE RENZI⁴⁰ (abstract in Wien. Med. Presse, 1898) says: "Splenic pseudoleukemia" is a rare and doubtful disease and should not be confounded with "splenic anemia." In "splenic anemia" there is never any new growth of lymphoid tissue in the spleen or in other organs, and recovery occurs in some cases."

West⁴¹ gives a description of splenic anemia in Allbutt's system of medicine, which is taken largely from Bruhl's description of the disease published in 1891. The references to the literature are incomplete and include many doubtful cases, among which may be mentioned Elstein's, Pel's, Carr's and Strümpell's.

Stengel in 1897⁴² says of splenic anemia, "The observations warrant our disregarding entirely the term splenic anemia. I do not know of the existence of a separate disease that we may dignify with this title or with such names as 'primary splenomegaly,' or 'idiopathic enlargement of the spleen.' The condition of the blood and the characteristics of the spleen do not differ from those met with in well-marked secondary anemias or splenic enlargement."

Chvostek⁴³ says in his article on splenic enlargement that in many cases of chronic hyperplasia there are no symptoms. The patients in these cases look and feel well. As a rule, however, there are symptoms. These symptoms are

* Read before the Massachusetts Medical Society, June 11, 1901, as a part of the general topic, "The Diseases of Nutrition of Infants."

due to the general disease that causes the enlargement, or to the large size of the spleen. Symptoms of anemia are often associated with this condition, as yellowish pallor, loss of flesh, weakness, etc.

In real — *Encyclopedia d. gesammten Heilkunde*⁴⁴ under diseases of the spleen, it is stated that "the enlargement of the spleen due to hyperemia and hyperplasia is not a disease but a symptom which may be due to a great number of causes. Certain symptoms may depend upon the enlargement, such as pain, sense of weight, etc."

"Changes in the blood constantly accompany chronic splenic enlargement. These changes are a diminution in the number of red corpuscles and a corresponding diminution in albumin and iron; occasionally an increase in the number of leucocytes." It is not stated that the spleen produces the anemia, but that the same cause may produce both the anemia and the splenic changes.

"Diseases of the spleen are usually secondary. The organ is largely made up of connective tissue with slight metabolism and little tendency to become affected primarily by disease."

Langhans⁴⁵ in Virchow's Archives says of the splenic form of pseudoleukemia, "It occurs in rare cases but only in connection with the *soft form of lymphoma*." "In the cases of pseudoleukemia described as splenic anemia, careful observation would show the participation of at least some of the abdominal glands."

In the edition of "Strümpell's Textbook" for 1897, under "Pernicious Anemia,"⁴⁶ Strümpell says, "The spleen may be enlarged, but it is not as a rule very large, and there are no noteworthy changes in its structure." These cases of pernicious anemia, with marked enlargement of the spleen, are frequently termed "anemia splenica." Strümpell sees "no reason for separating them from the cases of pernicious anemia without splenic tumor." Under the diagnosis of leukemia⁴⁷ he says, "Cases with a gradual progressive anemia without apparent cause, associated with a chronic splenic tumor, or more often associated with multiple lymph-node enlargement, without increase in the number of leucocytes, are called pseudoleukemia or anemia splenica."

"The rarest form of pseudoleukemia is the splenic. Only a few cases have been observed."

Ziegler,⁴⁸ in his textbook on pathology, says that so far as known the functions of the spleen consist in the destruction of red corpuscles and the production of lymphocytes in the follicles. Of chronic splenic enlargement he says, "It may occur in a disease of the spleen combined with a pathological condition of the blood, which may show itself either as leukemia or as simple anemia. So that authors have differentiated a leukemia and an aleukemia (pseudoleukemia) hyperplasia of the spleen, or splenomegalia." "Large spleens met with in both forms of cirrhosis of the liver may not be due to congestion in some cases, because the appearances are not those of congestion, and because in these cases there is no evidence of congestion elsewhere."

Orth⁴⁹ thinks it very probable that there is no distinct splenic type of pseudoleukemia. The observations are few and doubtful.

ANEMIA SPLENICA INFETTIVA DEI BAMBINI (ANEMIA SPLENICA INFANTILE).

L. Somma in 1884⁵⁰ described this disease under the name of anemia splenica infantile. Etiology unknown; chronic insidious course; always progressive; very common in first years of life; a morbid entity not dependent upon chronic digestive disorders or other conditions; related to splenic form of pseudoleukemia, might even be called by this name; essential symptoms of the disease are the splenic enlargement and the grave anemia. The splenic changes produce the anemia. He considers the splenic changes to be a true hyperplasia. This disease is the prototype of the one described by Banti in adults; three typical symptoms are: (1) Waxen color; (2) fever; (3) large spleen. The fever may be absent; other symptoms are secondary. He describes three stages.

Early stage.—Insidious, not characteristic, malaise, spleen enlarged.

Second stage.—Large spleen, marked anemia, usually obstinate and irregular fever, blood of grave anemia without increase in leucocytes, liver sometimes enlarged.

Third stage.—Cachexia, enormous spleen, obstinate fever, hemorrhages, weakness, gastro-enteric disturbances, no glandular enlargement, almost always a fatal termination, duration not stated.

He describes the following clinical cases:

CASE I. Child, 5 years; various ailments in infancy; fed on bread and water; advanced degree of cachexia; recurrent fever not yielding to quinine; large spleen; other organs sound; seen later and spleen found to be smaller; much improved. (Never seen again.)

CASE II. Ten months old; artificially fed; cachexia; splenic tumor; other organs said to be negative; mother reported that another child had died of same disease. (Never seen again.)

CASE III. Fourteen months old; large spleen; anemic; organs said to be negative; died 6 months later. (No further observations made.)

CASE IV. Fifteen months old; other children in the family had rickets; at 8 or 9 months digestive trouble; recurrent fever; splenic tumor; quinine did no good; 2 months later anemia severe; large spleen; improved under tonic treatment; died later; disease lasted 8 months. (No further observations.)

CASE V. Three months old; gastro-enteric trouble; lost flesh; anemic; purpuric spots; large spleen; at 16 months little better; later much better; finally recovered; spleen somewhat enlarged at 26 months.

CASE VI. Hospital case, 14 months old; grave anemia; edema of feet; slight edema of face; large spleen; liver little enlarged; purulent discharge from middle ear; blood not examined; became worse and died in convulsions.

Autopsy report: Anemia of organs; pulmonary congestion; serum in ventricles of brain; spleen firm and large. (Nothing further.)

CASE VII. Hospital case, 2 years old; grave anemia; petechiae; spleen very large and firm and tender; blood showed diminished red corpuscles; slight augmentation of leucocytes; great diminution of hemoglobin; died with severe anemia.

Autopsy report: Anemia of organs; enterocolitis; large spleen congested and firm, capsule thickened (no further report).

CASE VIII. Hospital case, 11 months old; still nursing; small frame; grave anemia; petechiae; spleen large and firm; bronchial catarrh; convulsive symptoms; died.

Autopsy report: Anemia; increased fluid in ventricles of brain; spleen enlarged and congested, not very firm, hemorrhages into it; liver little congested (no further report).

CASE IX. Hospital case, 4 months old; bad feeding; emaciated; prominent abdomen; grave anemia; fever; enteric disturbance; spleen enlarged; blood showed diminished red corpuscles and diminished hemoglobin, slight increase in leucocytes; gastro-enteric disturbance became severe, and patient died.

Autopsy report: Somewhat anemic organs; subacute enteritis; spleen large and congested (no further report).

CASE X. Hospital case, 9 months old; grave anemia; petechiae; epistaxis; no fever; spleen enlarged; abdomen distended with gas; blood showed diminished red corpuscles; microcytes, diminished hemoglobin; leucocytes not increased; bronchial catarrh, pneumonia and death.

Autopsy report: Pneumonia both lungs; slight stasis in bases; enormous spleen congested and firm (no further report).

CASE XI. Twenty-eight months old; (sister died of pulmonary tuberculosis) fever not yielding to quinine; became anemic; loss of appetite; spleen enlarged; fever continued; child grew somewhat better in the country for a time; then had vomiting and convulsions with irregular respiration later and died (no further report made).

CASE XII. Thirty months old. Typhoid fever at 18 months; splenic tumor 1 year later; fever; grew better and fever ceased; then occurred and abdomen enlarged; yellowish-white color of skin; 3 months later spleen somewhat enlarged; other organs negative; abdomen distended; superficial veins in abdomen distended; fever (no further report).

CASE XIII. Three months old; brother said to have died of same disease; mother cachectic; grave anemia; fainting attacks; no fever; heart sounds feeble; spleen large and firm; liver more enlarged than spleen (no further report).

I have abbreviated these reports somewhat, but I have included all that was said about the physical examination and course of the diseases. Such incomplete observations as these do not warrant consideration, and I have repeated them merely to show that the diagnosis of a primary disease of the spleen from such data is inadmissible.

In 1890 Di Lorenzo⁵¹ reported 4 cases with 1 autopsy. The lesions in the case that was autopsied were an increase of connective tissue in the spleen; sclerosis of the follicles. The lesions in other organs not reported. Microscopic examination of the organs not reported. No blood examination reported. All of the cases were infants and had enlarged spleens and anemia. One case may have been syphilis; rickets not mentioned; no enlargement of the superficial lymph-nodes.

In 1889-1890 Fede⁵² gave his views on anemia splenica infettiva. He preferred this name to any other. He doubted if the disease were a form of pseudoleukemia, because he had seen a child recover under tonic and hygienic treatment. He described 2 classes of cases, both with enlarged spleens; namely, cases with and cases without fever. He believed anemia splenica infettiva to

be an infectious disease of infants. He had observed 8 cases in 1 year. No details of the cases were given.

Cardarelli described the disease as pseudoleukemia splenica (infettiva) dei bambini. He retained the name which he had applied to a case that was observed and autopsied in 1879. In this case the spleen and the liver were the only organs examined. The lesions resembled those found in pseudoleukemia and not the fibrous tissue increase which is considered to be characteristic of anemia splenica. It is probable that this was a case of pseudoleukemia and not anemia splenica. In this case the lesions in the spleen are described as "marked lymphatic infiltration of sheaths of small arteries; enlargement of follicles and marked hyperplasia of the splenic cells." The incompleteness of the autopsy report renders it impossible to be perfectly certain of the diagnosis. Cardarelli believed the case similar to the cases of "chronic relapsing fever" described by Ebstein. These cases are believed to have been cases of pseudoleukemia.

In 1890 Cardarelli⁵³ gave a description of the disease, of which the following is an abstract: It occurs most frequently between 2 and 4 years, also in infancy; no connection with rickets; denies relation with syphilis, but admits that has seen good results follow treatment with mercury in some cases; denies relation to malaria; a noticeable fact is the occurrence of several cases in same family; thinks obstinate diarrhea one of the early symptoms; blood shows diminution of red corpuscles and hemoglobin and no increase in leucocytes; glands not enlarged; liver more or less enlarged; more or less anemia, usually pronounced; appearance is cachectic; petechiae if disease lasts long.

He describes 3 forms: (1) Febrile, or acute; (2) afebrile, or chronic; (3) chronic, with recurrent fever.

(1) Febrile or acute, 3 or 4 to 18 months' duration; never seen cases early in the disease; does not yield to treatment; enlarged spleen; often enormous, but may not be; no enlargement of lymph-nodes; liver more or less enlarged; usually pronounced anemia, but not always; appearance usually cachectic; loss of flesh; edema; petechiae; nosebleed; weakness; attacks of fever with intermissions.

(2) Afebrile or chronic; same symptoms as in the febrile form, but no fever; spleen often larger and more tendency to hemorrhages; duration longer; slight increase in leucocytes in some of the cases.

(3) Chronic, with recurrent fever. Intervals of apyrexia may last for weeks or for months; spleen grows smaller in apyretic intervals, may become normal size; anemia also diminishes; says there are like cases described by Ebstein and Pel; very long course may last through childhood to adolescence or even to adult life; prognosis better in these long cases.

Cardarelli has seen 34 cases; 6 times in several members of same family; in 23 cases 7 recov-

ered, all the others died. Some lived several years with anemia and enlarged spleens. Some still living (in 1890) after 12 or 14 years.

The article contains nothing but clinical observations. The reports of the examinations are very incomplete and unsatisfactory. From the data furnished it would be impossible to make an accurate diagnosis on any of the cases to which he refers. The only probable explanation seems to me to be that he has reported cases of secondary anemia associated with enlargement of the spleen due to a variety of causes. There were no post-mortem examinations reported in any of the cases except the partial one in 1879.

In 1890, at the first pediatric congress held at Rome, G. Somma and Fede⁶ read papers on anemia splenica infettiva dei bambini. These papers appeared in the transactions of the society in 1891, and were also published in 1890 in the *Arch. Italiano de Pediatria*.

Somma's paper consists of references to the literature, chiefly Italian, and a description of the clinical manifestations of the disease. This description is the same as Cardarelli's, and I need not repeat it. It will suffice to give his conclusions. His references include Gretscl, Pel, Ebstein. These cases, as I have already pointed out, were not cases of anemia splenica. Somma refers to Di Lorenzo as the first to suggest the term "infections" ("infettiva") in 1890.

Somma's conclusions are as follows:

(1) Anemia splenica infantile, or pseudoleukemia splenica as it is called by others, is an illness prevalent in infancy, more frequent than generally supposed. Adults are not exempt, but it is probable that in these cases the origin dates back to early childhood.

(2) Ignored or unknown until quite recently, it was brought into the domain of modern pathology by Antonio Cardarelli, Luigi Somma and Francesco Fede.

(3) The disease is characterized by severe progressive anemia; chronic enlargement of the spleen which shows special characters not found in other diseases.

(4) Clinically it has certain pathognomonic and accidental phenomena. The first are always present, the latter vary.

(5) In its evolution there are usually 3 stages: Early stage, acme and stage of cachexia.

(6) There are 3 forms of the disease: *a*, Chronic febrile; *b*, chronic afebrile; *c*, chronic with recurrent fever. Any one of the 3 forms may appear in the beginning of the disease.

(7) The true nature of the disease has not been discovered. He believes it to be due to a pathogenic organism that finds conditions most favorable for its growth in the spleen, whence it finds its way into the circulation and there produces the anatomical and functional changes which make up the clinical picture.

(8) The course is chronic. The duration covers a period of from 8 months to 3 years. There are not lacking cases in which the term is extended to adult life.

(9) The result is fatal in most cases; in some the course is prolonged to adult life; in rare cases the patients recover.

(10) The prognosis should be guarded. The treatment is chiefly symptomatic. The indication for splenectomy is still a matter of discussion on account of its gravity. When performed it should be done early in the first period of the disease.

Somma had observed 12 cases up to 1891. He never found the glands enlarged. He does not agree with Cardarelli that there is an acute febrile form, but believes it to be a chronic febrile. He agrees that there is little or no increase in the number of leucocytes. These statements of Somma's are worthy of notice because of their incorrectness.

(1) In his conclusion *No. Three* he says that the spleen shows "special characters not found in any other diseases." The lesions which have been described in the spleen are those of *chronic hyperplasia*. It is necessary merely to consult any textbook on pathology to learn how varied the conditions are that produce this change in the spleen.

(2) In conclusion *No. Seven* he refers to the infectious origin of the disease and its localization in the spleen. There is no evidence to be found in the splenic lesions, the course of the disease, or in the results obtained by bacteriological examination, to warrant such a statement.

(3) He says in reference to the enlargement of the spleen that, aside from malaria, if one finds a very large spleen, in 99 cases in 100 it will be a case of anemia splenica!

(To be continued.)

Clinical Department.

GANGRENOUS APPENDICITIS; GENERAL PERITONITIS; MULTIPLE ADHESIONS; GANGRENE OF BOWEL WALL; PERFORATION OF BOWEL; PURULENT AND FECAL ABSCESSSES; OPERATION; DRAINAGE; DEATH; AUTOPSY.

BY CHARLES L. SCUDDER, M.D., BOSTON,

Assistant in Clinical and Operative Surgery, Harvard University, etc.

O. M. P., 28 years of age, unmarried.¹ This woman has always had good health. The catamenial periods have been regular and painless. The last regular period was three weeks ago. Two weeks and a half ago she was seized with acute abdominal pain, which was general throughout the abdomen, but slightly more severe in the epigastrium. The day following the initial symptoms the pain was decidedly less. Since that time, every second or third day there have been periods of pain at times, unprovoked by the ingestion of food. There has been vomiting associated with distension of the abdomen. Yester-

¹ Massachusetts General Hospital Records, vol. xlv, p. 8.

day the pain was much more severe than before the abdominal distension was greater, no fecal dejections followed large enemata of water.

Examination.—Facies that of a woman who had suffered pain for some days, the facies of a mild general sepsis. Abdomen uniformly distended and uniformly rigid. No distinctly defined tumor detected. Both flanks tympanitic. Rectal examination finds both cul-de-sacs boggy and slightly lowered. Uterus movable and not abnormally placed. The general condition is poor. The pulse 135 and of poor quality.

Operation disclosed a most interesting and unusual condition of things. The bowel was everywhere adherent to the anterior abdominal wall and to itself, so that it was with difficulty that the peritoneal space was opened. Between the adherent coils of intestine was found puriform material. The bowel was soft and boggy. Over the surface of the gut in many places were seen dark bluish-black areas the size of the tip of the finger, which were soft like wet blotting-paper; through such a softened area it was extremely easy to push with ever so gentle pressure an opening into the bowel. In the left iliac fossa was an accumulation of fecal and of purulent material. Upon wiping dry this abscess cavity, fecal material was seen to flow from a perforation of the bowel attached to the pelvic brim. The peritoneum over these areas of softening of the bowel had lost its shiny appearance. The bowel was necrotic in these various spots. The wound through the abdominal wall was left open for free drainage. Gauze wicks were placed deep to the fecal fistula.

The woman lived about seven days following the operation. No new symptoms developed, save the appearance of an external fecal fistula and progressing weakness.

This case illustrates an extremely uncommon condition of things within the peritoneal cavity associated with an ordinary gangrenous appendicitis. The dark bluish areas of softening of the bowel wall suggested at once an actinomycotic process. The subacute course of the disease with multiple adhesions of the intestine rather tended to emphasize this view of the etiology. Microscopical inspection, however, failed to demonstrate the presence of the ray fungus. The condition of the bowel wall is accounted for by a maceration, or chemical effect due to soaking in a purulent fluid.

An autopsy was performed March 12, 1901, by Dr. J. H. Wright.

Anatomical diagnosis.—Gangrenous appendicitis; diffuse chronic pericarditis with subphrenic abscess and multiple peritoneal abscesses; perforation of intestine; laparotomy wound; fibrinous pericarditis; general anemia.

The body of a woman, 155½ cm. long, said to be 28 years of age, well developed, but greatly emaciated. In the anterior abdominal wall, between the umbilicus and pubes, in the median line a widely gaping wound 8 cm. long. In the base of this wound blackened coils of intestine are appar-

ent. Subcutaneous fat very small in amount. Muscles small. Anterior margin of the liver even with the costal border in the right mammillary line. Between the entire superior surface of the right lobe of the liver and the diaphragm, as well as beneath the right lobe of the liver, an accumulation of a large amount, perhaps in all 400 cc., of a yellow, grumous fluid, and mushy, yellowish masses of a shredly material. The coils of intestine everywhere are bound together and to the abdominal wall by connective tissue adhesions. On manipulation of the intestines considerable quantity of a blackish fecal material exudes. The surface of the intestines, in the region adjacent to the wound in the abdominal wall, is generally bluish, discolored, and tears with great ease, so that in removing the abdominal viscera en bloc they rupture in several places. This rupturing follows because of the very extensive intestinal adhesions. The coils of intestines are freed from one another and dissected with difficulty. In separating the coils in a number of places small pockets of thick, creamy pus are disclosed.

No ulcerative process is found anywhere in the mucous membrane of the large or small intestine. At one point in the small intestine a small perforation, probably 6 mm. in diameter, is present, which cannot be accounted for as the result of a tear. The mucous membrane bordering on this perforation shows no extension of an ulcerative process, but is of normal appearance. This opening is in relation with what appears to be a necrotic and inflammatory process on the outside of the intestine, and is regarded as the result of a perforation proceeding from without inward, rather than from within outward. There are extensive connective tissue adhesions in the region of the cecum and appendix, but these are no more extensive than elsewhere. Enclosed between the coils of the small intestine and their mesentery an indefinite cavity is present which presents evidence of containing fecal material. Near this cavity, and probably immediately connected with it, the vermiform appendix is found after some search.

The exact relations of the appendix to this cavity, as well as the relations of the cavity itself, are not sufficiently determined, owing to the extensive adhesions and to the necessity of disturbing the normal relations in the course of dissection. The appendix vermiformis over most of its distal extremity is bluish, softened and necrotic in appearance. On opening it a considerable portion of its walls appear to be absent, the loss of substance being margined by necrotic, shreddy material. Over a small part of its length it is dilated, and in this situation presents two small losses of substance extending quite through the wall. The largest of these is about 6 or 7 mm. in diameter.

The uterine and adnexa are normal, but involved in some fibrous adhesions to the intestines. The bladder is not remarkable, except for some red patches on the mucous membrane. Small fibrous

adhesions exist at the apex of each of the lungs. The lungs are not remarkable externally.

Heart.—Pericardial sac generally adherent over wide areas to the heart by a coarsely granular, yellow, in places finely shaggy, layer. This layer is perhaps one-half mm. thick in places. On separating the pericardial sac from the heart, the surface of the heart generally, as well as the entire surface of the pericardial sac, presents this fine, shaggy or granular appearance. A large part of the surface of the left ventricle is dark red in color and dotted over with grayish nodules less than a pinhead in size, in addition to some adherent shreds. There is no excess of fluid in the pericardial sac. Weight of heart 250 gm. Valves and cavities normal; myocardium pale. Stomach and pancreas not remarkable. No ulcers of duodenum.

Liver.—Substance pale, but not otherwise remarkable. Gall bladder not remarkable.

Spleen.—Firmly bound down by fibrous adhesions. The organ is of normal size. On section the substance is red, not diffuent. Follicles and trabeculae visible.

Kidneys.—Capsules free, leaving a smooth surface showing some remains of fetal lobulation. On section the kidney substance is generally bloodless and pale. No atrophy; markings normal. Combined weight of kidneys, 261 gm. Adrenals and aorta normal.

Head.—Not opened.

BACTERIOLOGICAL REPORT.

Cover-glass examination.—Fibrous exudate of pericardium; various bacteria; a few capsule-bearing pneumococci.

Pus of peritoneal cavity.—Enormous numbers of bacteria, many pus cells.

CULTURES ON BLOOD SERUM.

Liver.—One large, gray-white, mucous-looking colony and a few small, gray-white, round colonies. Water of condensation cloudy. Microscopical examination shows bacillus, mucosus capsulatus and unknown bacteria.

Spleen.—Several gray-white, discrete and confluent, mucous-like small to large colonies. Cloudy water of condensation. Microscopical examination shows bacillus, mucosus capsulatus and unknown bacteria.

Pus subphrenic abscess.—Gray-white, mucous-like serum of colonies. Cloudy water of condensation. Microscopical examination shows bacillus, mucosus capsulatus and unknown bacteria.

PLAGUE IN SAN FRANCISCO.—The fortieth patient died of suspected bubonic plague Aug. 30, 1901. The autopsy showed a large left inguinal bubo with hemorrhage, in which plague bacilli were found. The heart muscle showed fatty degeneration, and there were numerous plaques upon the aorta. One lung was edematous, the other congested. The spleen was enlarged and hemorrhagic; the kidneys small, soft and congested. The mucous membrane of the stomach also showed hemorrhages.—*Philadelphia Medical Journal*.

Medical Progress.

REPORT ON PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., AND WM. DUDLEY HALL, M.D., BOSTON.

(Concluded from No. 15, p. 411.)

CASES OF CONGENITAL WORD-BLINDNESS.

NETTLESHIP¹¹ reviews an article published in the *Lancet* of May 26, 1900, by Dr. Hinshelwood, concerning individuals who are unable to learn to read. The patients are described as being boys who were bright and intelligent in other respects. They could remember words that they had heard spoken and equally well recognize faces and pictures that they had already seen. The auditory memory of letters, words and numbers was excellent, but there was scarcely any visual memory for letters. Hinshelwood believes this to be a congenital defect of visual memory, due to organic defect in that part of the brain where such visual impressions are stored and recorded, his opinion being based upon the fact that after death, in those cases in which there has been noticed a loss of reading power, there have been found changes in the left supramarginal convolution and angular gyrus. Nettleship describes 5 of his own cases, and makes note of the fact that 8 out of 9 affected were males. From an educational point of view he considers the condition as one of importance, for, if curable, a methodical instruction in reading while the brain cells are yet capable of development should be instituted. It is likewise well worth considering whether such a congenitally defective child might not have a better chance if taught the letters of the alphabet as in the old method, rather than by methods more modern. On the other hand, if improvement is not to be expected the sooner the parents and teachers know it the better. He believes that the best way to detect congenital word-blindness, and to determine how and to what extent it admits of improvement, is to continue in the old plan of teaching children their letters as early as possible. Slight cases may be somewhat improved, but in the other and severer types it may be necessary to abandon the usual methods and educate on other lines. Although the detection is easy in children of well-educated parents, the opposite obtains in the case of the children of the lower classes, and who form a large per cent. of the attendance at the elementary public schools. This subject, which is now receiving attention from medical men, should likewise interest the tutors of backward children.

THE PATHOGENESIS OF CHOKED DISC.

Merz¹² asserts that the experiments were performed mostly on dogs and rabbits, and the conclusions are that elevated intracranial pressure can by itself cause choked disc, but this pressure must be uninterrupted for a certain time. Periodic or transient elevations of intracranial pressure

¹¹ The Ophthalmic Review, March, 1901.

¹² Archiv. f. Augenheilkunde, xli, 325.

will only produce a venous hyperemia. Choked disc can be produced by a very slight increase of the intercranial pressure, the fundus changes being in proportion. Although it is easy to produce these changes in the dog, the deep excavation in the rabbit makes this more difficult, which may explain the lack of uniformity in this class of experiments. At first the veins dilate, then narrow a little, and the nearer to the eye the vessels pass through the sheath of the nerve, the more quickly do we get the vascular changes. The circulation in the venous sinuses when interfered with by the increased intercranial pressure, plays an important rôle in the production of choked disc; likewise a stasis of fluid in the subvagal space and compression of vessels from where they pass through the sheath up to the intra-ocular end of the nerve; also a compression of the nerve itself and disturbance of the lymph circulation. As the dog's eye resembles so closely the human eye, the author thinks that his experiments, which consisted in the injection of salt solution into the skull, indicate what takes place in the human being.

ACUTE GLAUCOMA AFTER USE OF COCAIN; HOLOCAIN IN GLAUCOMA.

James Hinshelwood¹³ describes the instillation of a 2% solution of cocaine into the eyes of a woman aged 50, for the purpose of examining the fundus, which precipitated an attack of acute glaucoma. She had 6 diopters of hypermetropia. The fundus was found to be normal (?), and proper glasses were prescribed. Very soon she complained of pain in the right eye, becoming more and more intense and accompanied by vomiting. The next day the picture was typical. Symptoms subsided under the use of eserine followed by an iridectomy on the third day. Vision did not become normal. The author expresses himself emphatically against the use of cocaine when there is the slightest suspicion of glaucoma, and it should never be used in treatment for the disease; and especially as holocain has all the pain-relieving qualities of cocaine without its dangerous effects. He recommends the latter in acute glaucoma, when it is deemed advisable to postpone the operation. He thinks it increases the effect of eserine and increases the rapidity and intensifies the mydriatic effect of euphthalmin. He does not combine the two solutions, but lets one precede the other. The unpleasant dragging sensation produced by eserine is not then noticed. It is of benefit in secondary glaucoma due to injury while awaiting operation. It does not increase the tension and seems to have a greater anesthetic effect than cocaine.

THE SO-CALLED PARADOXICAL PUPILLARY REACTION.

Professor Sillex¹⁴ says that by this is meant the condition where the pupil, instead of contracting under the influence of light, more or less rapidly

dilates. An historical survey of this subject, the observations of which are very few, is given. Sillex reports a head injury in an adult of several years' standing. Under the influence of strong light the pupils would rapidly dilate, the tests being made with great care that the patient did not accommodate. There was no hippus. Syphilis, tabes, paralysis, and such organic nerve affections as Fränkel considers to be the cause, were excluded. The cause in this particular case may be regarded to be due to a formation of dense connective tissue at the point of injury after the fall. With increased excitability and lowering of the resisting powers of the entire nervous system may develop a diminished power in the pupillary fibres. When light falls upon such an eye we have a rapid exhaustion of these fibres with abolition of function and a coming into play of the dilator fibres. As a proof of the tenableness of this theory of increased excitability or irritability, and as a result of diminished function, he cites the fact that his patient by good lamp light can read the same print sometimes less easily than by the usual room illumination, while ordinary vision under the first condition is somewhat better.

KERATITIS ASPERGILLINA.

Gentilini¹⁵ says that since the first publication of Leber in 1879, who made the diagnosis from a bacteriological examination, revealing the presence of *aspergillus fumigatus*, only 7 cases have been described in literature. According to Uthoff 2% of the cases of serpent ulcer are caused by *aspergillus*. The author considers its occurrence very rare, as only 3 cases have been seen at Fuch's clinic since 1894, although each case of serpent ulcer or similar disease was examined under the microscope, and cultures made. In these 3 cases the *aspergillus* was found in all and had entered the cornea after an injury. It grows only under certain conditions of temperature and nutrition, and can be cultivated artificially only with great difficulty. Despite the profuse lachrymation, the ulcer is dry and whitish, its surface rough and projecting. Quite characteristic of this type of ulcer is a zone of infiltration surrounding the ulcer and separated from it by a zone of clear tissue. This ulcer may slough in toto, while the serpent ulcer sloughs only in particles. After the separation, spontaneous or operative, the infiltrated ring clears up, and vessels course from the limbus through the transparent ring to the scar.

INJURIES TO THE EYE BY LIME.¹⁶

Schmidt-Rimpler, instigated by Andreae's statements regarding speedy and profuse irrigation in burns by lime, to carry out a series of experiments in Professor Rieke's physical laboratory regarding the process of slaking lime, arrived at practically the same results as Andreae. The temperature rises slowly to about 100° after a half hour. Therefore the injury by lime is by

¹³ Ophthalmic Review, November, 1900.

¹⁴ Zeit. f. Augenheilk., June, 1900.

¹⁵ Beitr. zur Augenheilk., xlv, 225.

¹⁶ Berlin. klin. Woch., Nos. 36 and 37.

canterization and not by combustion. In about 16% a combustion did occur through explosion of hot slaked lime. He attributes the white corneal opacity to an albuminate of lime. The superiority of oil over water as a therapeutic measure his experiments on rabbits seem to show, for when equal-sized pieces of mortar were placed in the conjunctival sacs of rabbits, some of which having previously been filled with almond oil and the lids sutured, the resulting inflammation having subsided, the cornea over which the oil had been poured was clear, while the other had a circumscribed marked opacity. He advises irrigations when oil is not conveniently at hand. Stutzer is in favor of irrigation obtained by pouring a thin stream from the height of half a metre, the lids being meanwhile held apart.

AMAUROTIC IDIOCY.

Mohr¹⁷ in his article gives a résumé of papers already published on this subject, including those of Sachs of New York, who has collected cases where these two conditions coexist, and in which the subjects are children. Ophthalmoscopic appearances are quite characteristic. At the macula will be seen a broad, white, round spot having a brownish red centre. There is also weakness, inability to get about, and a fatal termination. Several children in the same family are apt to be infected. The following are some of the usually noticed symptoms: Mental defect more or less complete; different degrees of paralysis of the extremities; reflexes normal, diminished or intensified; loss of vision; atrophy of optic nerves; marasmus; death before the second year; several members of the same family. The course is interesting and striking, as the child is born apparently normal in all respects and remains so for about a year, when the wasting process begins. The extremities become weak; the paralysis and amaurosis supervene. Then appear the changes at the macula which are known to consist in an edema with growth of the ganglion cell layer and atrophy of the nerve fibres.

TETANY AND CATARACT.

Two years ago Peters¹⁸ stated that there was a connection between cataract and convulsions, and lately has gone into the subject exhaustively, and calls attention to the frequency of zonular cataract and rickets. He also gives statistics and thinks that these cataracts are more often due to tetany than to rickets. He reports 4 cases of tetany associated with this form of cataract. Forty per cent. of all the cases of tetany that he has seen had also cataractous changes in the lens. As to how these changes are due he maintains a discrete silence.

THE ACTION OF ABRINE ON GRANULATIONS.

Lapersonne¹⁹ states that abrine dropped upon the healthy conjunctiva produces an aggregation of leucocytes, either polynuclear or with one

enormous nucleus. This action is accompanied by a free serofibrinous transudation and casting off of the conjunctival epithelium. In 24 hours no false membrane had formed, but there could be seen very fine fibrillae lying on the surface of the mucous membrane. The drug produced a positive chemotaxis. It was found that, although the antibrine serum controls the effect of the drug in man to a slight degree, this power is too limited to be of clinical value. A 1% aqueous solution of the drug was found to give the best results. After cocaine the under surface of the upper lid was rubbed with a cotton wad soaked in the solution and repeated on the two following days. On examining cases several months after a cure, scar markings were found to invade the conjunctival membrane. The drug probably produces a violent inflammation, giving rise to a large amount of cellular tissue which in time becomes cicatricial tissue. This is followed by rapid disappearance of the pannus, probably due to thrombosis of small vessels caused by plugs of leucocytes.

CONCERNING PERONINE IN OCULAR THERAPEUTICS.

Smirnoff²⁰ claims for it the anesthetic action of benzol and the myotic action of morphia. He has used it in 100 patients; 35 had absolutely normal eyes. He preferred a solution 1% strength, as solutions 10% or 25% caused considerable hyperemia and edema of the conjunctiva. The anesthetic action is as prompt and more lasting than cocaine, but is subject to variation in different individuals; in a small number of the cases the action being delayed 5 minutes, while in 15 cases of corneal pannus the action was negative. The myotic action was not very strong, being about one-half mm., but persisted about 24 hours, resisting the action of atropine. The diffusion action in the anterior chamber exceeds eserine and almost equals cocaine. Its behavior in glaucoma was gratifying, for the instillation of a 1% solution, with 1 exception, produced complete anesthesia, with no more symptoms of irritation than in the healthy eye. This same solution, when used in chronic glaucoma 3 to 6 times a day, brought about an amelioration of the subjective symptoms. The tension was lowered, the anterior scleral veins became scarcely visible, the cornea cleared, and in 3 the vision improved.

ATRABILIN.

Wolffberg²¹ asserts that as a result of further experimentation with the suprarenal preparations it has been shown that freshly prepared atrabilin in well-corked bottles is absolutely sterile, and although contamination can occur when the bottle has been opened the addition of a small quantity of boric acid, sublimate or formalin will be all that is necessary to prevent the growth of microbes. His conclusions are that in from 30 to 60 seconds after the instillation of the solution a marked blanching of the conjunctiva will occur,

¹⁷ Arch. f. Augenheilk., xli, 3.

¹⁸ Zeitsch. f. Augheilk., February, 1901.

¹⁹ Arch. d'Ophthalmol., August, 1900.

²⁰ Vratash, No. 10, 1900.

²¹ Woch. f. Ther. u. Hyg. des Auges, December, 1900.

this being more so in a normal eye. It is especially noticeable in trachomatous pannus. There is no mydriasis, and only the faintest suspicion of myosis. It causes no increase in the tension and may be said to help the action of atropine, cocaine, pilocarpine and eserine. It is thought that preparations of this class may somewhat lower the tension. The lachrymal secretion is diminished; there is no anesthesia. As a cosmetic, its effect will be to add to the lustre of the eye by slightly widening the lid space and removing reddened areas. The author is not yet prepared to support Zimmermann's views as to its value in operations.

TREATMENT OF HEMERALOPIA BY LIVER.

Tzitrine²² has had abundant opportunity to study this condition at the province of Simbersk, where it is of yearly occurrence. Out of 634 soldiers of the regiment stationed there, 58 were affected. The cause did not seem to be due to malnutrition, as the ration was sufficient. Rapid improvement was noticed after the absorption of from 40 to 60 gm. of cod liver oil, not enough to materially modify the nutrition or fat formation. None of the patients had scurvy, but malaria was associated with it in 5 instances. The greater number were in perfect health, 5 only being somewhat anemic. All affected were hypermetropes, consequently the writer finds it a predisposing factor and considers it a sort of accommodative and retinal asthenopia. Springtime and bright sunlight rather favored an outbreak. The treatment consisted in the administration of liver both internally and externally. The patients were subjected to a smoking process by being exposed to the vapors arising from boiled liver, and each received 125 to 250 gm. of boiled beef liver internally. The improvement was rapid.

VALIDOL IN SCOTOMA SCINTILLANS.

Neustätter²³ believes that he has obtained beneficial results in 5 cases of scotoma scintillans, in which he has prescribed Validol in 5-drop doses. Although but little was noticed for several minutes after administration, the irregular lines soon became less conspicuous and suddenly disappeared not to reappear. The visual field cleared up quickly. Second attacks were relieved with equal promptitude, and it was rarely necessary to give a second dose. Results obtained in the fifth case were not so satisfactory, but this was probably due to abuse of alcohol on the part of the patient. Validol is an oleaginous substance containing menthol, smells like ether, and has a decidedly pleasant taste when taken on a lump of sugar which is a convenient and ready method of administration. Its use is advised in this class of cases because it not only removes the scotoma, but it also relieves the headache, and as far as can be learned is a harmless product.

KATHAROL IN DISEASES OF THE EYE.

Daxenberger-Regensberg²⁴ describes katharol as a 3% permanent solution of hydrogen dioxide

which is bactericidal, cleansing and hemostatic. He advises it for loosening the crusts in eczema of the lid and lid margins and locally in full strength in corneal ulcer and in conjunctivitis with much secretion. It makes a good lotion for general ophthalmic use. It is odorless, nonpoisonous and painless when applied in full strength, but is recommended in a strength of 20 to 30 drops in a wineglass of boiled water at a temperature varying from that of the room to lukewarm according to the necessities of the treatment. It is nonirritating and inexpensive.

PRESERVATION OF AQUEOUS SOLUTIONS OF EXTRACT OF SUPRARENAL CAPSULE.

Lucien Howe²⁵ recommends that one-half dr. of the extract be rubbed in distilled water to a paste, gradually adding the water till you have a fluid ounce of the mixture which is then heated at a temperature of 160° F. for about 20 minutes, the loss by evaporation being replaced by sufficient sterile water to again make a fluid ounce. Add 15 gr. of borac acid and, when dissolved sufficiently, filter. Further precipitation may occur, but the solution may be expected to keep in well-corked bottles at the ordinary room temperature for several weeks without apparent alteration either in its character or its physiological effect.

ON THE ACTION OF SUPRARENAL EXTRACT.

Zimmermann²⁶ says that fresh solutions of the gland may be introduced into the conjunctival sack without causing irritation, and if continued long enough the effect will even reach the scleral vessels. This property must render the drug of considerable value in congestive and inflammatory conditions of the deeper ocular structures and suggests its use combined with some of the older myotics as a means of quieting certain cases of glaucoma which have proved intractable.

Reports of Societies.

THE MASSACHUSETTS MEDICAL SOCIETY. COUNCILLORS' MEETING.

A MEETING of the Councillors was held in Boston, at the Medical Library, on Oct. 4, at 12 noon. Ninety-two Councillors were present; the president, Dr. F. W. DRAPEL, in the chair.

The following delegates were appointed to the State Society of Vermont: Drs. F. H. Thompson, C. H. Cook; New York: Drs. C. Seymour, W. N. Bullard; New York State Medical Association: Drs. F. I. Knight, W. W. Scofield.

The chair announced that Dr. G. S. Eddy of Fall River, who at the last meeting was chosen orator for the anniversary of the society in 1902, has declined the service, and that in accordance with the by-laws the president with the committee of arrangements have appointed Dr. W. S. Everett

²² Ejenedelnix, 1900, No. 42, p. 737.

²³ Die Ophthal. Klin., June 20, 1900.

²⁴ Woch. f. Therap. u. Hyg. d. Auges, January, 1901.

²⁵ American Journal of Ophthalmology, July, 1900.

²⁶ La Clin. Ophthal., October, 1900.

of Hyde Park as Dr. Eddy's substitute, and that Dr. Everett has accepted the appointment.

DR. CHEEVER in a carefully prepared paper presented the subject of

PRIVILEGED MEDICAL COMMUNICATIONS.¹

He moved, and it was voted, that the subject be referred to the committee On State and National Legislation.

DR. J. H. McCOLLUM appealed to the Councillors that they individually urge upon their patients the importance of primary vaccination and re-vaccination at the present time. He stated it to be his conviction that we are on the verge of an epidemic of smallpox; that the conditions are similar to those in the extensive epidemic of 1872; that there are many in the community unprotected by vaccination.

The subject was discussed at length by members of the council, all agreeing to the importance of the matter presented by Dr. McCollum.

Recent Literature.

Anders' Practice of Medicine.—A Textbook of the Practice of Medicine, by JAMES M. ANDERS, M.D., Ph.D., LL.D., Professor of the Practice of Medicine and Clinical Medicine, Medico-Chirurgical College, Philadelphia. Fifth edition, thoroughly revised. Philadelphia and London: W. B. Saunders & Co. 1901.

Dr. Anders' "Practice of Medicine" is an octavo volume of nearly 1,300 pages. This is a fifth edition, four years only having elapsed since the appearance of the first edition. So rapid a succession of editions give every opportunity for such revision as fresh investigations and new observations necessitate. The author has availed himself of this opportunity. In common with other authors of other "Practices of Medicine," he has evidently found that the section requiring more revision than any other, owing to the result of recent investigations, is that dealing with the group of infectious diseases. The presentation of the book is all that could be asked of publishers and printers.

A Textbook of the Diseases of Women. By HENRY J. CARRIGUES, A.M., M.D., Gynecologist to Saint Mark's Hospital in New York City; Gynecologist to the German Dispensary in the city of New York, etc. With 367 illustrations. Third edition, thoroughly revised. Philadelphia: W. B. Saunders & Co. 1900.

The third edition of this valuable textbook has been considerably revised and improved. It is noteworthy for the completeness with which the anatomy and embryology of the female genitalia are treated. It is an excellent reference and textbook. The illustrations are in the main well done, but a few relics of an ancient régime still remain.

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VACCINATION: A PREVENTIVE THAT PREVENTS.

THE fact that smallpox at the present time is extremely prevalent throughout the country, and that it is particularly prevalent in Boston, is not fully appreciated by the profession. It is of interest to note that more cases of smallpox have occurred in Boston during 1901 than have occurred at any time since 1873, except the calendar year of 1894. Up to the present time, for the calendar year of 1901, 68 cases of the disease have been reported to the Board of Health. In 1894 there were 77 cases. The number in the other years since 1873 has varied from 0 to 44. In 1900 there were only 7 cases in Boston. As it is a fact that there is a large contingent of unvaccinated persons in the community, it therefore is incumbent on physicians to advise vaccination, particularly primary vaccination, to all their patients. Without going into an elaborate discussion regarding the protective power of vaccination, supported as it is by an immense array of statistics, it seems that the following report of the Board of Health in 1802 is particularly applicable to the present conditions.

The physicians of the present day can hardly realize the immense havoc caused by smallpox previous to the discovery of the protective power of vaccination. It is with the object of calling the attention of the profession to the importance of vaccination and to its marked protective power that the accompanying photographic reproduction of a Boston Board of Health report of the year 1802 is presented. Any intelligent person who reads this report must be convinced, if any argument is needed, of the effect of vaccination in preventing the spread of the disease. It must be borne in mind that the physicians who made the experiments described in this report were the leading men in the profession at that time, who had daily experiences with the ravages of smallpox.

¹See page 430 of the Journal.

REPORT OF THE BOARD OF HEALTH.

THE Board of Health, for the town of Boston, are happy to have in their power, this day, to announce to their fellow-citizens the result of one of the most complete experiments which perhaps has ever been made, to prove the efficacy of the Cow-pox, as a preventive against the Small-Pox; and while they take the liberty to congratulate the public on this important discovery, they do earnestly recommend its introduction generally, and are confident that it will be the means of preserving themselves and adding to the happiness of millions.

The utmost care has been taken, during the experiments; and a detailed statement of facts are subjoined, for the gratification of every enquirer.

In June, 1801, Dr. JACKSON addressed a letter to the Board of Health, requesting their countenance in certain experiments which he contemplated making, to prove the efficacy of the Cow-pox, as a preventive against the Small-Pox; to which application the members of the Board would not permit that attention which the plan proposed by Dr. JACKSON required.

In June, 1802, Dr. WATERHOUSE made a similar application, accompanied with a very minute history of that disorder, from himself, and also various documents of its utility, from Societies in New-York and elsewhere, who had substituted for the purpose of making experiments himself to those proposed to be made by Dr. W. by which it appeared, that the public in those places, were deriving incalculable benefits by a pretty general inoculation. About the time the Small-Pox was raging in the family of Mr. HOUSE, Fifth-Street, and three persons out of five, under the care of the Board of Health, had died.—The Cow-pox had obtained much credit.

The Board of Health, deeply affected with the fatal ravages of the Small-Pox, and the family before mentioned, and viewing their Institution as founded, under God, for the preservation of the health of their fellow-citizens; and believing, as they did, that this mild and safe disorder, "the Cow-pox," might be substituted for that fatal and distressing one, the Small-Pox, that if generally adopted, completely to annihilate and blot it from the catalogue of human woes;—determined, under the influence of these considerations, to prove by experiments, to be made under their immediate observation, whether their faith in the efficacy of the Cow-pox was well founded or not.

With this view, the plan of the experiments proposed were published in the newspapers, for the consideration of their fellow citizens. The Secretary of the Board was also directed, in their name, to desire the assistance of Doctors LLOYD, DANFORTH, RAND, JERRARD, WATKINS, JARVIS, and WATERHOUSE, who, agreeably to the invitation of the Board, met them at the Health-Office.—Various impediments presented themselves in carrying into effect the plan as published. It was alleged, that the distance of *Noddle's Island* from the town, would prevent the attendance of the gentlemen concerned, as often as would be requisite; and to make them in town, it would be necessary to have the permission of the town, in town-meeting, it being contrary to law to inoculate with the Small-pox without it. It was therefore determined to apply for the license of the town, and to take up suitable buildings, &c. for that purpose." It was with much difficulty a place could be obtained, comporting with the vote of the town. But barred in the pursuit, the object, the happiness of mankind, the Board was determined that no difficulties which presented themselves, should divert them from their purpose.

At length Mr. WILLIAMS gave permission to erect a small building on *Noddle's Island*, and to make the proposed experiments there. Thus provided, on the 16th day of August, nineteen children, viz.

DANIEL SCOTT, Chamber-Street.
ALFRED CLARK, Cornhill.
JOHN SLEIGH, Prince-Street.

OZIAS GOODWIN,
Geo. Goodwin's, } Charter-Street.
SAMUEL WATTS, }
SAMUEL RICHIE, }
ROBERT WILLIAMS, } Cole Lane.
HENRY WILLIAMS, }
KEUBIN LORING, } Willson's Lane.
THOMAS TRUMAN, }
E. L. TRUMAN, } Dugget's Alley.
JOHN WEBB, }
SETH KING, } Market-Square.
GEORGE FOSBEE, }
WILLIAM AUSTIN, } Fifth-Street.
JEDD HARRIS, }
THOMAS SPIER, } Friends-Street.
WM. GREENE, } Hanover-Street.

Were inoculated with the Cow-pox, at the Health-Office, in presence of the Board, and of a number of gentlemen invited. The physicians who attended were Drs. Lloyd, Rand, Jeffries, Warren, Waterhouse, Wells, J. C. Howard, and T. Danforth; and the children went through the disorder to the satisfaction of the gentlemen physicians, and of this Board.

Fresh Small-pox matter being obtained, through the care of Dr. WATTS, the proprietor of the Small-pox Hospital at Falmouth—on the 9th of November, twelve of the children before named, together with George Bartlett, son of Dr. Bartlett, of Charlestown, who had the Cow-pox two years since, were inoculated at the Hospital erected on *Noddle's Island*; with the Small-pox from the matter obtained from Dr. Webb; and at the same time two children of Mr. Christopher Clark, of Hinchman's Lane, viz. Thomas and John, who had never had either the Cow-pox or Small-pox, were also inoculated with the latter; and in the proper time the arms of the two Clarke's became inflamed—the lymphatic fever, and usual appearances attending the Small-pox, appeared—and finally pustules to the amount of about 500 on one, and 150 on the other, put forth and matured, as has been invariably the case in all instances of the small-pox, of our knowledge. From these two children, thus afflicted with the Small-pox, fresh matter was taken, and the thirteen children before named, who were totally unaffected with the first inoculation with Small-pox, were again inoculated on the 21st day of November; and the other seven children, who had the Cow-pox as first mentioned, were also inoculated with fresh matter from the Clarke's; and the whole remained together in the same house, in the same room, and often in the same beds, without producing the least appearance of the Small-pox; either by uncommon soreness of the arm, head-ach, the least degree of fever or pustules;—and this we certify to the public, having daily visited the Hospital ourselves, and made the most critical observations and inquiries, which are confirmed by the report of the physicians who attended the experiments (hereto annexed) and therefore are content to attest, that the Cow-pox is a complete preventive against all the effects of the Small-pox upon the human system.

THE PHYSICIANS' REPORT.

WITH A view of ascertaining the efficacy of the Cow-pox in preventing the Small-pox, and of diffusing through this country the knowledge of such facts as might be established by a course of experiments instituted for the purpose, and thereby removing any prejudices, which might possibly be public mind on the subject, the Board of Health of the town of Boston, in the course of the last Summer, came to a determination to invite a number of Physicians to cooperate with them on this important design; and with a liberality becoming enlightened citizens, erected a Hospital on *Noddle's Island*, for carrying it into execution.—Accordingly, on the 16th of August last, nineteen boys, whose names are subjoined, were inoculated for the Cow-pox at the office, and in presence of the above mentioned Board, with fresh, transparent Cow-pox matter, taken from the arms of a number of patients then under this disease. These all received and passed through the disease to the complete satisfaction of every person present, conversant with the disease.

On the 9th of November, twelve of the above children, as subjoined, with one nineteen George Bartlett by name, who had passed through the Cow-pox two years before, were inoculated for the Small-Pox on *Noddle's Island*, with matter taken from a Small-pox patient in the most infectious stage of that disease. The arms of their heads became inflamed at the incisions, in proportion to the various irritability of their habits, but not to a degree greater than what any other foreign, virulent matter would have produced. The Small-pox matter excited no general disposition whatever, through the whole progress of the experiments, though the children took no medicines, but were indulged in their usual modes of living and exercise; and were all lodged promiscuously in one room.

* At the same time and place, in order to prove the activity of the Small-pox matter, which had been used, two lads, who had never had either the Small-pox or Cow-pox, were inoculated from the same matter. At the usual time, the arms of these two patients exhibited the true appearance of the Small-pox. A severe eruptive fever ensued, and produced a plentiful crop of Small-pox pustules, amounting by estimation, to more than five hundred in one, and two hundred in the other.

When these pustules were at the highest state of infection, the thirteen children before mentioned, were inoculated a second time, with recent matter, taken from the pustules, which said matter was likewise infused into the arms of the seven other children, who were absent at the first inoculation.—They were all exposed, most of them for twenty days, to infection, by being in the same room with the two boys, who had the Small-pox, so that, if susceptible of this disease, they must inevitably have received it; not by inoculation, in the natural way.

Each of the children was examined by the Subscribers, who were individually convinced from the inspection of their arms, their perfect state of health, and exemption from every kind of eruption on their bodies, that the Cow-pox prevented their taking the Small-pox, and that they do therefore consider the result of the experiment as satisfactory. And we certify, that the Cow-pox is a complete security against the Small-pox.

JAMES LLOYD.
SAMUEL DANFORTH.
ISAAC RAND.
JOHN JEFFRIES.
JOHN WARREN.
THOMAS WELSH.
BENJAMIN WATERHOUSE.
JOSIAH BARTLETT.
JOHN FLEET, jun.
JOHN C. HOWARD.
THOMAS DANFORTH.

Charlestown, December 15, 1802.

This may certify, that my son, GEORGE BARTLETT, at the age of eight years, was inoculated for the Cow-pox, on the 11th day of November, 1801; that the appearance of his arm, and the symptoms, fully corresponded with the first and published ones I had then seen; so convince me, and others of my medical friends, that he had the disease.

JOSIAH BARTLETT,
Fellow of the Mass. Med. Society.
To the President and Members of the Board of Health,
Boston.

Boston, Dec. 8th, 1802.

WE, SUSANNA TRUMAN and LUCY LEARNED, nurses attending on the experiments corroborating the efficacy of the Cow-pox, do hereby certify that there was not the least sickness or appearance of Small-pox among any of the children who were subjects of the same, during their stay at *Noddle's Island*, excepting the two boys, THOMAS and JOHN CLARK, who had never had the Cow-pox, and were inoculated for the Small-pox, with a view to render the experiment more complete.

SUSANNA TRUMAN.
LUCY LEARNED.

Health-Office, Boston, Dec. 16, 1802.

Published by order of the Board of Health.

ISAIAH DOANE, Printer.
R. GARDNER, Secretary.

WILLIAM C. LITTLE, PRINTER.

RUDOLF VIRCHOW.

IT is not often that a man in any walk of life attains his eightieth year physically and mentally unimpaired. Such an event is particularly worthy of note when such a person's life has been filled with productive activity of the most original character. Virchow reaches his eightieth year universally respected and admired as one of the greatest scientific men of the past century and the practical founder of what we commonly call modern medicine. He is the last survivor of the trio of distinguished men, including Du Bois Reymond and Helmholtz, who for many years were sufficient in themselves to raise Berlin to a position of the highest dignity in the scientific world. The characteristics which particularly stamp Virchow, and for which he will, no doubt, long stand as an example, are the rare combination of versatility, originality and thoroughness. His ultimate claim to greatness will rest on these notable qualities of mind. He has appealed with apparently equal success to the men who compose the world of politics, and to those whose interests lie in the narrower paths of science. As a consistent advocate of liberal institutions in Germany he has always been a power in politics. Had the Emperor Frederick lived, he might have had greater opportunity, but he will long be remembered as a good citizen as well as an ardent scientist. To the medical world he is known as the brilliant expounder of the cellular doctrine as applied to pathology, thereby establishing a basis for the prolific research of later years in the field of applied medicine. As a pioneer in the science of anthropology and allied themes he also has a unique claim to distinction.

It is therefore eminently fitting that men should gather in various places to do him honor. As was natural, the most elaborate celebrations were held in Berlin on several days of last week, the festivities ending with a student parade and *Kommers*. In this country a dinner, under the general management of Dr. A. Jacobi, and presided over by Dr. William Osler, was held in New York City on the evening of Oct. 12, commemorative of Virchow's life and work.

Virchow has always stood for conservatism in matters of science, and has thereby at times excited considerable adverse criticism, particularly in relation to the doctrine of evolution by natural selection, and to certain of the problems underlying the relation of bacteria to disease. This influence has undoubtedly been salutary in checking overenthusiasm, and demanding an absolutely judicial attitude toward matters of scientific import. No doubt his days of active productiveness are past, but his influence in the scientific world and his positive additions to knowledge

will long be felt. It should be a gratification that it has been possible to commemorate the eightieth birthday of this eminent representative of the best both in science and practical life.

MEDICAL NOTES.

COMMITTEE OF ARRANGEMENTS FOR THE ASSOCIATION OF MILITARY SURGEONS.—The following gentlemen have been named to act as the Committee of Arrangements for the next annual meeting of the Association of Military Surgeons of the United States, to be held in Washington, D. C., on June 5, 6 and 7, 1902: Chairman, Major George Henderson, Surgeon-General, N. G., D. C., 817 T Street, N. W. Members, Major Louis A. La Garde, U. S. Army, Soldiers' Home; Major W. C. Borden, U. S. Army, Washington Barracks; Major F. P. Reynolds, U. S. Volunteers, Washington Barracks; Captain E. L. Munson, U. S. Army, Surgeon-General's Office; Surgeon S. E. Dickson, U. S. Navy, U. S. Marine Barracks; Assistant-Surgeon L. L. Williams, U. S. Marine Hospital Service, Office of Supervising Surgeon-General; Dr. George M. Kober; Dr. J. Ford Thompson; Dr. Wallace Neff.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about \$180, will be made on July 14, 1902, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the secretary of the college on or before May 1, 1902. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award. The Alvarenga prize for 1901 has been awarded to Dr. George W. Crile of Cleveland, Ohio, for his essay entitled: "An Experimental and Clinical Research into Certain Problems Relating to Surgical Operations."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Oct. 16, 1901, there

were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 44, scarlatina 30, measles 24, typhoid fever 34, smallpox 9.

ELEVATED ROAD A MENACE TO EYESIGHT.—As the result of the investigation by the Board of Railroad Commissioners regarding the assertions that small particles of steel dropping from the elevated railway tracks have been a menace to eyesight, a report has been made by the board which finds that there is justification for the complaints. The causes of the falling of minute particles of steel are classified as follows: "Wear of rails and wheels from contact between them; wear of rail and brake shoes from contact between them; wear of third, or conductor, rail; wear of slide shoe upon conductor rail; wear of other parts of iron work." It is estimated that 96% of the falling particles come from the wear of rails, wheels and brake shoes, and that the remaining small percentage only can be attributed to the third, or conductor, rail and other causes.

REMOVAL OF BOSTON GARBAGE PLANT TO SPECTACLE ISLAND.—It is now practically assured that the garbage plant at Cow Pasture, Dorchester, will be removed to Spectacle Island, Boston Harbor, thereby settling a matter long in dispute. The Common Council has concurred with the Board of Aldermen in the passage of the order recommended by Mayor Hart calling for an appropriation of \$140,000 to pay for the removal of the plant. The question was one that has been before the City Council in various ways for more than two years.

SUPERINTENDENT OF CONNECTICUT STATE HOSPITAL FOR THE INSANE.—Dr. Henry S. Noble has been chosen superintendent of the Connecticut Hospital for the Insane at Middletown, to succeed Dr. Charles W. Page, resigned. Dr. Noble has been assistant superintendent of the institution for many years.

NEW YORK.

IN HONOR OF PROFESSOR VIRCHOW.—A banquet in honor of the eightieth birthday of Virchow was held at Sherry's on Saturday evening, Oct. 12, and there were present at it about 100 men prominent in the medical profession and the scientific world. Dr. William Osler of the Johns Hopkins University presided, and at the conclusion of his introductory remarks read a cablegram of congratulation which had been sent to Professor Virchow by his American friends. Before the formal toasts of the evening were given, the guests arose and sang in German a verse of "Long May He Live." The responses to toasts were as follows: "The Pathological Work of Virchow," Dr. William H. Welch; "Virchow the Ar-

chæologist," Dr. William Osler; "Virchow the Citizen," Dr. Abraham Jacobi; "Personal Reminiscences," Dr. Andrew H. Smith. Among those at the guests' table were Professors Frederick C. Shattuck and T. M. Rotch of Harvard; Professor Carmalt of Yale; Professors Wilson, Dercum and Flexner of Philadelphia; Prof. Henry Hun of Albany; and Drs. E. G. Janeway, C. L. Dana, Bernard Sachs, George F. Shady and John A. Wyeth of New York.

VITAL STATISTICS FOR SEPTEMBER.—The reports of the Health Department show that during the month of September the mortality in the city represented an annual death-rate of 19.64, against 20.82 for the month of August and 18.46 for September, 1900. Among the diseases in which there was a reduction of mortality were the following: The weekly average of deaths from scarlet fever declined from 9.25 in August to 5.5 in September; the weekly average of deaths from measles, from 7.25 to 2.75; of deaths from whooping cough, from 8.75 to 5.5; from smallpox, from 7.75 to 2.5; from pneumonia, from 62.5 to 56.25; from diarrheal diseases, from 401.5 to 302; and from diarrheal diseases in children under 5 years of age from 363.5 to 279.25. Among the diseases in which the mortality was increased are the following: The weekly average of deaths from diphtheria and croup increased from 19.75 to 23; from typhoid fever, from 17 to 23.75; from bronchitis, from 18.25 to 21.25; from cancer, from 39.25 to 41.25, and from diseases of the urinary system, from 93.75 to 98.75. The weekly average of deaths from phthisis in September (143) was one less than in August (144). During the month 2 deaths were reported from influenza; 2 from leucocythemia; and 2 from hydrophobia. In the week ending Sept. 21 there was but a single death from smallpox, and in the week ending Sept. 28 but 2 deaths.

A FATAL CASE OF TETANUS NOTWITHSTANDING ANTITOXIN.—The case of tetanus at St. Catherine's Hospital, borough of Brooklyn, which was recently reported as practically cured by the cerebral injection of antitoxin, has proved fatal after all. After the operation, which was performed on Sept. 25, there was an immediate alleviation of the patient's condition, which previously was exceedingly critical, and a few days afterwards he was reported as apparently out of danger. He continued to improve until Oct. 9, when, just two weeks from the time of the operation, he suddenly became worse, and died at 2 A.M. on the following day.

PRESCRIBED PHYSICAL EXERCISE.—In announcing a list of comparative statistics in regard to the physical development of the students under

the system of prescribed physical exercise, Dr. Watson L. Savage, director of the Columbia University Gymnasium, remarks: "The statistics show a healthy development in all the measurements, while the marked gain in the strength test is a most graphic evidence of the results accomplished in the work of the gymnasium." The averages of the class of 1902, both college and applied science, are given in detail, the figures indicating points according to the system adopted for intercollegiate tests by the Society of College Gymnasium Directors.

Correspondence.

WORK AT A STATE HOSPITAL FOR CONSUMPTIVES IN NEW ENGLAND.

[We are asked by Dr. S. G. Bonney of Denver, Colo., to publish the following letter from him addressed to Dr. V. V. Bowditch. The letter is a copy of a previous letter from Dr. Bowditch, which appeared in the issue of the JOURNAL of Oct. 3 last.—ED.]

DENVER, COLO., OCT. 7, 1901.

MY DEAR DR. BOWDITCH: Upon the receipt of your letter a few days ago I immediately wired you as follows: "Please accept my sincere thanks for very kind letter. Will write immediately." I regret that urgent demands upon my time, together with an absence from town, has prevented an earlier reply.

I wish first to confirm my telegram in thanking you once more for the very kind spirit which has prompted you in writing me. I should feel especially disturbed were there any possibility of the slightest ill feeling between you and me arising as result of our individual opinions with reference to the sanatorium treatment of consumption *versus* the climatic. As a matter of fact, I fail to see how there is actually any radical difference of opinion between us. I was much impressed, as were all of the Colorado men, by the eminent fairness and conservative position taken by you in the discussion at the last meeting of the Climatological Association. This has also been in line with all of your writings which I have read upon the subject in the last few years.

It had not occurred to me that any possible friction could result from my own paper, and should such be the case I should be most sincerely sorry, as certainly nothing was intended that could give offence. If any serious difference of opinion or any possible ill feeling could exist between you or Dr. Otis (who took part with you in the discussion) and myself, I trust it may be entirely removed. Such is certainly my most sincere desire, and my efforts will surely be directed to this end.

As to the paragraph in point in my discussion, to which you refer, I will state that you were present at the time my paper was read, and it was read precisely as it was printed, except that I used the words "The Massachusetts State Hospital for Consumptives at Rutland" in place of "At a state hospital for consumptives in New England," as it appears in print. After the paper had been read, you spoke with me in words to this effect: "Are you quite sure that your figures with reference to the Rutland institution are correct?" And I replied that they were taken from your report of 1899, and I felt quite sure of their correctness. In reviewing the paper for publication it occurred to me that perhaps it might be better to omit the paragraph alluding to the results obtained at the Rutland sanatorium. I did not feel, however, that it would be quite right or consistent with the position I had taken in defence of climate to do this. I, therefore, decided to include the paragraph precisely as it was written, except to change the part referring to the name of the institution, thinking that perhaps this would be less personal, and for this reason only.

Now as to my statements made, I wish to state explicitly that there was no intention whatever of criticizing adversely. Reference was made to the matter wholly for the sake of comparison, in order that as just and impartial conclusions could be formed as possible. In collaborating statistics with reference to my own work in Colorado I have invariably been compelled to take the cases as they come, and have not been permitted to base my conclusions as to results obtained upon any series of selected cases. It therefore seemed just to take your cases also precisely as they were admitted rather than select any class therefrom. This seemed all the more necessary, inasmuch as it was my impression that your cases would not have been admitted to the institution had they not been appropriate cases upon which to base conclusions as to results obtained. In other words it seemed that the requirements for admission were such as to render all cases suitable for analysis. In Colorado all cases were included, taken as they come, although it was evident that a large class were unsuited for the purpose of comparison on account of the advanced nature of the cases. It did not occur to me that there could be any error or anything misleading in quoting from your report and taking the percentage of results from the number discharged as arrested out of the total number of admissions. It also was explicitly stated in my paper that this was the method employed in arriving at the computation of results. My statement was: "In 1 year, out of 214 admissions, 35, or 16%, were discharged as arrested." It therefore would appear quite evident that there could have been no intention of giving rise to any misconstruction of the statements made. However, inasmuch as exception has been taken to the quotation I will state that if there is any error in computing the results upon the basis of those discharged as arrested during 1 year and the admissions for the same year, it is manifestly equally unfair upon the other hand to compute the results upon the number of cases discharged as arrested for the year in comparison solely with the total number discharged for that year, and thus establishing a relatively larger percentage of arrested cases. Does it not appear to you that this latter method is hardly fair? I am impressed that what the profession wants is a statement of the actual results obtained from the total number of cases under consideration for the year. If a considerable number of cases were admitted, and a much smaller number discharged at the end of the year, with over 50% of these as arrested, what becomes of the balance, who are not discharged and are not considered in these results? I can readily see that the 11 of whom you write as leaving under 2 weeks should not be considered in the results, also the 1 case that you describe as bronchitis. I should not have included these few cases had I noted sufficiently the conditions, but I fail to see why the considerable balance should not be properly included as forming a basis for reliable comparisons. Furthermore, until more detailed information is given, must it not be a matter of conjecture with those interested in the profession just when these 126 cases reported as discharged, including the 35 as arrested, were admitted to the institution, whether during the year in question, and all therefore included under the 214 admissions, or whether some had been admitted during previous years? Is it not true in your own mind that the fairest and most accurate results can only be secured by comparing the number discharged as arrested with either the total number of admissions of appropriate cases for the year or with the total number of admissions during the time those reported as discharged and arrested resided in the institution. In other words, is it not more accurate to report the number of arrested cases in comparison with the total number under treatment and observation during the period of their stay, rather than to report the percentage of arrested cases among the number discharged for the year? If the former be impracticable, it has occurred to me that the only alternative was to report the number discharged as arrested in a given arbitrary time in proportion to the total number admitted for the same period.

I am conscious, however, that it is extremely difficult to collaborate statistics and draw therefrom perfectly reliable conclusions, and this I think is particularly the case when comparisons are made with the results of others. I certainly had no desire to reflect in the slightest upon the most excellent results that you had obtained, but simply to call attention for the purpose of comparison, to results secured in favorable climates with a more advanced class of cases. I have long been convinced of the noble purpose of the Rutland institution and its most excellent results, as well as the vast good you have accomplished personally at Sharon. I am very glad to be informed that, while you desire, "if possible to adhere to the strictly incipient cases, as a matter of fact, you have during the past year taken others in a more advanced state of the disease." This would compel me to modify my statement that the "heralded satisfactory results in such institutions are very largely due to the fact that only the most incipient cases are admitted."

I note that you are about to make a statement to the *Boston Medical and Surgical Journal* apropos of this matter, and that you desire me to corroborate the statement which you will make. I have not yet seen the statement you are about to make, but feel perfectly sure that you will not give expression to any thought or sentiment to which I cannot heartily subscribe. However, in view of the importance of the subject, I would suggest that if such should meet your approval that a copy of our correspondence be submitted to the *Journal* for publication.

With renewed expressions of the highest esteem, respect and confidence, believe me,

Most sincerely yours,

S. G. BONNEY, M.D.

THE STAINING REACTION OF LEUCOCYTES.

THE SANITARIUM,

LAKE GENEVA, WIS., Oct. 7, 1901.

MR. EDITOR: Some recent observations of mine on the staining reactions of leucocytes seem to me worthy of being recorded. While preparing the eosinate of methylene-blue, according to the formula given by Simon, quoted from the *Maryland Medical Journal*, in "Gould's Yearbook" for 1901, vol. xi, p. 389, I found that the filtrate, obtained when yellow (water soluble) eosin is used for making his stain, has the power of staining the "neutrophile" granules in about 2 hours, though the staining may be continued indefinitely without danger of overstaining. The nuclei are not stained, but may be readily stained with hematoxylin (I have used a strong solution of alum hematoxylin), either before or after the other stain is applied. The appearance of the filtrate, which apparently contains a mere trace of both eosin and methylene-blue, led me to try the effect of very dilute solutions of eosin alone. To my surprise I found that a solution of eosin containing 5 or 6 drops of a 1% aqueous solution of yellow eosin, in about 15 cc. of water, stains, in from 2 to 8 hours (the longer the staining is continued the better), the neutrophile and eosinophile granules as perfectly as any stain I have ever seen. Hematoxylin or methylene may be used as a counter stain, and the nuclei stained to any desired degree of intensity. Results, so far as my experience has gone, are absolutely uniform. We thus have a stain of the utmost possible simplicity of preparation and application, and which affords, as the ordinary eosin and hematoxylin staining method does not, a perfect means of distinguishing from one another all those forms of leucocytes which differ only in the presence or absence of the "neutrophile" granulation. Also, it shows that the "neutrophile granulation" is not neutrophile but oxyphile, and should be called so.

I might add that Simon's eosinate of methylene-blue has given excellent results in my hands, when yellow eosin is used to prepare it. I have, however, found it

better to stain for 1 to 2 hours, though Simon recommends staining for 3 to 5 minutes. With my specimen of the stain, roughly made by myself, the nuclei are not stained, but I have found it readily practicable to stain the latter with hematoxylin.

I regret that I am not in a position to assure myself that others have not already made the same observation. After a search as complete as the means at command will permit, I am unable to find any reference to it.

Very truly yours,

R. C. WHITMAN, M.D.

SOUND ARGUMENTS FOR THE PROPOSED BOSTON HOSPITAL FOR CONSUMPTIVES.

BOSTON, Oct. 12, 1901.

MR. EDITOR: The letter of your Denver correspondent is such a jumble of popular and medical fallacies and Utopian impossibilities, that it would need no answer beyond its own perusal were it not that a certain unthinking prejudice might be created against the Boston Hospital for Consumptives. It is intended by those who have been most interested in securing the appropriation for the new hospital of the city of Boston to have it devoted to the treatment of advanced cases of phthisis and incidentally to render efficient aid to the City Board of Health in its strife against tuberculosis. It is believed that patients will receive better care than would be possible at their homes, that their families will be saved from infection, and in many cases that the wage-earner will be set free, and the family thus permitted to maintain its independence. Many cases will doubtless be so improved that they will become suitable for further climatic and sanatorial treatment.

Professor Koch said truly, in his famous address before the British Congress on Tuberculosis, that sanatoria and climates could do little to eradicate the disease. They will save individual cases, but the disease itself must be combated in the centres of population where men must live and work and die. Certainly the expenditure of \$150,000, or treble that sum, here in Boston, will do more good to the community of Boston, from the preventative and educational points of view alone, than would the expenditure of many times that amount in the arid desert which your correspondent so graphically describes.

Very truly yours,

ARTHUR K. STONE, M.D.

METEOROLOGICAL RECORD

For the week ending Oct. 5, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer		Relative humidity		Direction of wind.		Velocity of wind.		Wet bulb		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum. Minimum.	8:00 A.M.	8:00 P.M.	Daily mean.	8:00 A.M.	8:00 P.M.	8:00 A.M.	8:00 P.M.	8:00 P.M.	
S...29.29	56	74	59	66	69	68	S	S	9	12	R. R.	.50
M...30.29	56	80	52	62	65	64	W	W	14	10	C. C.	.09
T...1.30	52	60	48	51	52	52	N	N	6	13	C. C.	
W...2.29	54	73	56	60	67	68	S	S	10	15	O. O.	
T...3.26	58	63	49	52	74	78	N	W	14	4	O. C.	.76
F...4.29	52	61	44	53	73	73	N	W	12	6	C. C.	
S...5.30	52	61	43	56	74	75	N	W	12	10	C. C.	
Σ 29.92		69	51			75						1.35

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall.
Σ = Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCT. 5, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Scarlet fever.	Diarrhœa and dysentery.	Diphtheria and croup.	
New York	3,437,202	1,229	482	31.56	6.20	1.06	14.52	2.52	
Chicago	1,098,575	—	—	—	—	—	—	—	
Philadelphia	1,293,697	792	74	26.00	6.37	2.30	4.84	3.07	
St. Louis	575,238	—	—	—	—	—	—	—	
Baltimore	508,305	195	79	30.25	9.23	2.56	11.80	2.06	
Cleveland	351,768	—	—	—	—	—	—	—	
Buffalo	352,387	—	—	—	—	—	—	—	
Cincinnati	325,902	—	—	—	—	—	—	—	
Pittsburg	321,016	—	—	—	—	—	—	—	
Washington	325,718	—	—	—	—	—	—	—	
Milwaukee	285,315	—	—	—	—	—	—	—	
Providence	175,997	74	31	40.56	6.75	1.35	29.70	—	
Boston	560,892	213	80	28.47	10.34	2.35	9.87	1.88	
Worcester	118,421	30	12	20.06	6.67	2.33	3.33	—	
Fall River	104,863	30	21	59.00	3.33	3.33	36.47	6.67	
Lowell	94,969	46	18	19.06	13.04	—	4.34	6.52	
Cambridge	91,886	28	10	35.71	3.57	3.57	10.71	—	
Lynn	68,513	24	11	14.28	7.14	—	—	—	
Lawrence	62,559	20	9	15.00	10.00	—	—	—	
New Bedford	62,442	20	5	50.00	5.00	—	25.00	—	
Springfield	62,059	21	1	23.81	—	4.72	4.72	4.72	
Somerville	61,643	19	5	50.00	—	5.00	10.00	5.00	
Holyoke	45,712	14	6	35.70	7.14	—	21.42	7.14	
Brookton	40,063	12	4	16.67	—	8.33	—	—	
Haverhill	37,175	3	3	33.33	—	—	—	—	
Salem	35,856	9	—	—	—	—	—	—	
Chelsea	34,672	15	5	6.67	6.67	—	—	—	
Malden	33,664	7	2	—	28.60	—	—	—	
Newton	33,587	10	3	30.00	—	—	30.00	—	
Pittsburg	31,531	6	2	16.67	16.67	—	—	—	
Taunton	31,036	6	2	33.33	—	—	—	—	
Glooucester	26,121	6	1	16.67	16.67	—	—	—	
Everett	24,336	7	4	33.33	—	—	—	—	
North Adams	24,200	9	3	33.33	—	—	11.11	—	
Quincy	23,889	7	3	21.43	—	—	—	—	
Waltham	23,481	5	2	20.00	—	—	20.00	—	
Pittsfield	21,766	4	1	25.00	—	—	—	—	
Brookline	19,465	3	—	—	—	—	—	—	
Chicopee	19,167	6	2	16.67	—	—	—	—	
Medford	18,214	3	—	33.33	—	—	—	—	
Newburyport	14,478	2	1	50.00	—	—	50.00	—	
Melrose	12,962	8	5	12.50	—	—	—	—	

Deaths reported 2,588; under five years of age, 439; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrhœal diseases, whooping cough, erysipelas, fevers and consumption) 767; acute lung diseases 173; consumption 280; scarlet fever 19; erysipelas 5; typhoid fever 16; whooping cough 16; cerebrospinal meningitis 13; smallpox 9; measles 7; diarrhœal diseases 396.

From whooping cough, New York 6, Philadelphia 4, Baltimore 2, Pittsburg 1, Boston 2, Lawrence 1. From cerebrospinal meningitis, New York 6, Providence 1, Boston 3, Worcester 1, New Bedford 2. From scarlet fever, New York 5, Philadelphia 3, Pittsburg 5, Boston 3, Cambridge, Taunton and Marlboro 1 each. From typhoid fever, New York 13, Philadelphia 9, Baltimore 5, Pittsburg 6, Providence 1, Boston 3, Worcester, Fall River, Cambridge, Springfield, Somerville, Brockton and Pittsfield 1 each. From erysipelas, New York 3. From measles, New York 6, Boston 1. From smallpox, New York 2, Philadelphia 6, Boston 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,163,026, for the week ending Sept. 21 the death-rate was 16.8. Deaths reported 3,704; acute diseases of the respiratory organs (London) 121; whooping cough 41; diphtheria 19; measles 40; fever 70; scarlet fever 39.

The death-rate ranged from 11.2 in Bristol to 25.6 in Sunderland; Birkenhead 12.2, Birmingham 17.3, Blackburn 15.9, Bolton 20.7, Brighton 11.8, Burnley 25.2, Cardiff 13.6, Derby 11.8, Halifax 17.1, Hull 15.1, Leeds 16.6, Leicester 15.9, Liverpool 19.1, London 15.6, Manchester 19.2, Nottingham 18.9, Plymouth 15.9, Portsmouth 17.6, Salford 20.9, Swansea 11.6, West Ham 18.6, Wolverhampton 13.8.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING OCT. 5, 1901.

P. LEACH, surgeon. Ordered to recruiting duty at Port Royal, S. C.

P. LEACH, surgeon. Ordered to recruiting duty at Port Royal, S. C., revoked.

E. J. GROW, assistant surgeon. Ordered to proceed home, upon detachment from the "Castine," modified; ordered to the New York Navy Yard.

J. C. AYERS, medical director. Detached from the Naval Hospital, Chelsea, Mass., Oct. 15, and ordered home and to wait orders.

E. DICKINSON, medical director. Detached from duty on medical examining board at Washington, D. C., Oct. 10, and ordered to duty in charge of the Naval Hospital, Chelsea, Mass., Oct. 15.

S. H. GUNNING, surgeon. Detached from duty at the Pan-American Exposition, Buffalo, N. Y., Oct. 9, and ordered to duty as a member of the medical examining board Washington, Oct. 10.

H. C. LAW, surgeon, retired. Ordered to duty at Buffalo, N. Y., in charge of the exhibit of the Bureau of Medicine and Surgery at the Pan-American Exposition, and as attending medical officer at the naval recruiting rendezvous, Oct. 9.

D. S. KERR, assistant surgeon. Detached from the "Culgoa," when put out of commission, and ordered home and to wait orders.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The first regular meeting of the society for the season of 1901-1902 will be held in Sprague Hall, Medical Library Building, Fenway, on Monday, Oct. 21, 1901, at 8.15 P. M.

Dr. L. A. EIGEL of Rochester, N. Y., will present the topic of "The Present Status of the X-ray in Medicine and Surgery," and also give a "Demonstration of the Advantages of Stereoscopic Radiography, with an Exhibition of an X-ray Stereoscope."

ARTHUR K. STONE, M.D., Secretary.

SUFFOLK DISTRICT MEDICAL SOCIETY.—There will be a stated meeting at the Medical Library, 8 The Fenway, in John Ware Hall, on Saturday evening, Oct. 26, at 8 P. M.

Papers: "Primary Tubercular Infection Through the Alimentary Tract," Dr. A. D. Blackader of Montreal; "The Necessity for Special Study and Experience in the Treatment of Children," Dr. Frederick A. Packard of Philadelphia. Discussions by Dr. C. J. Blake, Dr. C. P. Putnam, Dr. R. W. Lovett.

Business: Election of a committee of five to prepare a list of candidates for officers of the society. Supper after the meeting.

T. M. ROTCH, M.D., President.

F. J. COTTON, M.D., Secretary, 416 Marlboro Street.

RECENT DEATH.

SAMUEL EDWARD STYLES of Brooklyn, N. Y., a graduate of the Long Island College Hospital in 1870, died on Oct. 9, at the age of 37 years.

BOOKS AND PAMPHLETS RECEIVED.

The Medical Directory of New York, New Jersey and Connecticut, published by the New York State Medical Association. Vol. III. 1901.

Stimulants in Forensic Medicine. A Review of Drug Consumption in Vermont. By Dr. A. P. Grinnell, Burlington, Vt. Reprint. 1901.

A Study of Burns, with a Plea for Their More Rational Treatment. By Frederic Griffith, M.D., of New York. Reprint. 1901.

A Textbook of Bacteriology. By George M. Sternberg, M.D., LL.D. Second revised edition. Awarded Grand Prize, Paris Exposition. Illustrated. New York; Wm. Wood & Co. 1901.

A Practical Treatise on Diseases of the Skin. By John V. Shoemaker, M.D., LL.D. Fourth edition, revised and enlarged. Illustrated. New York: D. Appleton & Co. 1901.

Fracture of the Carpal End of the Radius, with Fissure or Fracture of the Lower End of the Ulna, and other Associated Injuries. By Carl Beck, M.D., of New York. Illustrated. Reprint. 1901.

Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Textbook specially adapted for Students of Medicine, Pharmacy and Dentistry. By W. Simon, Ph.D., M.D. Seventh edition, thoroughly revised. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Original Articles.

THE CASE OF PRESIDENT MCKINLEY.¹

The following report has received the approval of, and is issued by, the undersigned, the medical staff attending the late President, William McKinley.

P. M. RIXEY.
MATTHEW D. MANN.
HERMAN MYNTER.
ROSWELL PARK.
EUGENE WARDIN.
CHARLES MCBURNEY.
CHARLES G. STOCKTON.

Oct. 12, 1901.

SURGICAL HISTORY.

President William McKinley was shot by Leon F. Czolgosz, in the Temple of Music, at the Pan-American Exposition, Buffalo, N. Y., at about 7 minutes past 4 on the afternoon of Friday, Sept. 6, 1901. Two shots were fired. One bullet struck near the upper part of the sternum, and the other in the left hypochondriac region. The President was immediately conveyed to the Emergency Hospital on the Exposition grounds by the motor ambulance, where he arrived at 4.18. Dr. G. McK. Hall and Mr. Edward C. Mann, medical student, of the house staff were in charge of the ambulance, Medical Student T. F. Ellis being the driver.

On arriving at the hospital, President McKinley was at once placed upon the table in the operating-room and undressed. During the removal of his clothing a bullet fell out and was picked up by Mr. Ellis. Dr. Hall placed a temporary antiseptic dressing over the wounds, and Mr. Mann ordered a nurse to administer .01 gm. of morphine and .002 gm. of strychnine, hypodermically.

Dr. Herman Mynter, who had been telephoned from police headquarters to report immediately at the Exposition hospital, was the first surgeon to arrive, at 4.45 o'clock. At that time Drs. P. W. Van Peyma and Joseph Fowler of Buffalo, and Dr. Edward Wallace Lee of St. Louis, were present. Dr. Mynter brought with him Dr. Eugene Wasdin of the United States Marine Hospital Service.

Dr. Mynter inspected the President's wounds, and immediately saw their serious nature. He told the President that it would be necessary to operate, and at once set about making preparations, aided by the house staff and nurses and Dr. Nelson W. Wilson, sanitary officer of the Exposition, who at that time assumed charge of the hospital in the absence of Dr. Roswell Park, the medical director of the Exposition. The President's pulse on the arrival of Dr. Mynter was 84; he had no particular pain in the abdomen, and no apparent loss of liver dulness. He was evidently slightly under the influence of the morphine.

Dr. Matthew D. Mann arrived at the hospital at 5.10 P.M., having been telephoned for by Mr.

John C. Milburn. He was followed 5 minutes later by Dr. John Parmenter.

An examination was at once made, followed by a short consultation between Drs. Mann, Mynter and Wasdin, which resulted in the decision to operate at once. The necessity for the operation was explained to President McKinley, and he gave his full consent. Immediate operation was decided upon, because of the danger of possible continued internal hemorrhage and of the escape of gastric or intestinal contents into the peritoneal cavity, and because the President's pulse was getting weaker. Moreover, the daylight was rapidly failing. Dr. Roswell Park, who, by virtue of his office, had been present, would have performed the operation, was at Niagara Falls, and although a special train had been sent for him, it was uncertain when he would arrive.

Mr. Mann was selected to do the operation, with Dr. Mynter as his associate, by the common consent of the physicians present and at the request of Mr. Milburn, president of the Pan-American Exposition, who stated that he had been requested by President McKinley to select his medical attendants. Dr. Mann selected Drs. Lee and Parmenter as assistants.

At 5.20 Dr. Mann directed the administration of ether to President McKinley, and requested Dr. Wasdin to administer it. Ether was chosen as being, on the whole, the safer anesthetic. While the anesthetic was being given, the surgeons who were to take part in the operation prepared their hands and arms by thoroughly scrubbing with soap and water and immersing them in a solution of bichloride of mercury.

The operation began at 5.29. Dr. Mann stood upon the right-hand side of the patient, with Dr. Parmenter on his right-hand side. Dr. Mynter stood upon the left-hand side of the patient, and on his right was Dr. Lee. To Drs. Parmenter and Lee were assigned the duties of sponging and the care of the instruments. Dr. P. M. Rixey, U. S. Navy, President McKinley's family physician, having been detailed by the President to accompany Mrs. McKinley to the Milburn home, did not arrive until 5.30, when he gave very efficient service by guiding the rays of the sun to the seat of the operation by aid of a hand-mirror, and later by arranging an electric light. Dr. Roswell Park arrived just as the operation on the stomach was completed, and gave his aid as consultant. Mr. E. C. Mann had charge of the needles, sutures and ligatures. Mr. Simpson, medical student, was at the instrument tray.

The nurses, under the charge of Miss A. C. Walters, superintendent of the hospital, were Miss M. E. Morris and Miss A. D. Barnes, with hands sterilized; Miss Rose Baron, Miss M. A. Shannon and Miss L. C. Dorchester, assistants, and Miss Katharine Simmons attending the anesthetic.

Besides those immediately engaged in the operation, there were present Drs. P. W. Van Peyma, Joseph Fowler, D. W. Harrington and Charles G. Stockton of Buffalo, and Dr. W. D. Storer of Chicago.

¹ This report was received last week, too late for the issue of the Journal, Thursday, Oct. 17.—[Ed.]

THE OPERATION.

President McKinley took the ether well, and was entirely under its influence in 9 minutes after the beginning of the anesthetization. The abdomen was carefully shaved and scrubbed with green soap, and then washed with alcohol and ether and the bichloride solution.

Inspection showed 2 wounds made by the bullets. The upper one was between the second and third ribs, a little to the right of the sternum. The use of a probe showed that the skin had not been penetrated, but that the bullet had probably struck a button or some object in the clothing, which had deflected it. The lower wound made by the other bullet — a 32 calibre — was on a line drawn from the nipple to the umbilicus. It was about half-way between these points, and about 5 cm. to the left of the median line. A probe showed that this wound extended deeply into the abdominal walls, and that the direction was somewhat downward and outward.

An incision was made from the edge of the ribs downward, passing through the bullet wound and nearly parallel with the long axis of the body. A deep layer of fat was opened, and followed by incision of the fascia and muscles to the peritoneum. After cutting through the skin, a piece of cloth, undoubtedly a bit of the President's clothing, was removed from the track of the bullet, a short distance below the skin.

On opening the peritoneum, the finger was introduced, and the anterior wall of the stomach palpated. An opening was discovered, which would not quite admit the index finger. This opening was located near the greater curvature of the stomach, and about 2 cm. from the attachment of the omentum; its edges were clean cut, and did not appear to be much injured.

The stomach was drawn up into the operation wound, and the perforation very slightly enlarged. The finger was then introduced, and the contents of the stomach palpated. This was done to see if the stomach contained food, and also with the hope that possibly the bullet might be in the stomach. The stomach was found to be half full of liquid food, but no evidence of the ball was discovered. In pulling up the stomach, a small amount of liquid contents escaped, together with a good deal of gas. The tissues around the wound were carefully irrigated with hot salt solution and dried with gauze pads. The perforation in the anterior stomach wall was then closed with a double row of silk suture (Czerny-Lembert). The sutures were not interrupted with each stitch, but 4 stitches were introduced before the ends were tied. The loop was then cut off, and the suture continued. About 8 stitches were used in each row. The silk used was fine black silk, the needle being a straight, round sewing-needle.

In order to examine the posterior wall of the stomach, it was necessary to enlarge the incision, which now reached about 15 cm. in length. The omentum and transverse colon were pulled well

out of the abdomen. The omentum was enormously thickened with fat and very rigid. In order to reach the back wall of the stomach, it was necessary to divide about 4 inches of the gastrocolic omentum, the cut ends being tied with strong black silk in 2 masses on each side. In this way the stomach could be drawn up in the operation wound, and the bullet wound in its posterior wall reached. This opening was somewhat larger than that in the anterior wall of the stomach, and had frayed and blood-infiltrated edges. Its exact location was impossible to determine, but it appeared to be near the larger curvature.

This opening was closed in the same way as the anterior wound, but with great difficulty, as the opening was down at the bottom of a deep pocket. A short, curved, surgical needle was necessary here. Little or no gastric contents appeared around this opening, but after it had been closed, the parts were carefully irrigated with hot salt solution.

The operation on the stomach being now finished, Dr. Mann introduced his arm, so as to palpate carefully all the deep structures behind the stomach. No trace of the bullet, or of the further track of the bullet, could be found. As the introduction of the hand in this way seemed to have a bad influence on the President's pulse, prolonged search for further injury done by the bullet, or for the bullet itself, was desisted from. The folds of the intestine which had been below the stomach were inspected for injury, but none was found. The entire gut was not removed from the abdomen for inspection, as the location of the wound seemed to exclude its injury. To have made a satisfactory search for wounds in the President's back, it would have been necessary to have entirely eviscerated him. As he was already suffering from shock, this was not considered justifiable, and might have caused his death on the operating-table.

Before closing the abdominal wound, Dr. Mann asked each of the surgeons present whether he was entirely satisfied that everything had been done which should be done, and whether he had any further suggestions to make. Each replied that he was satisfied. The question of drainage was also discussed. Dr. Mynter was in favor of a Mikulicz drain being placed down behind the stomach wall. Dr. Mann, with the concurrence of the other surgeons, decided against this, as being unnecessary.

As the last step in the operation, the tissues around the bullet track in the abdominal wall were trimmed, in order to remove any tissue which might be infected. The abdominal wound was then closed with 7 through-and-through silk-worm gut sutures, drawn only moderately tight, the superior layer of the fascia of the rectus muscle being joined with buried catgut. The edges of the skin were brought together by fine catgut sutures. Where the bullet had entered, there was slight gaping of the tissues, but it was not thought advisable to close this tightly, as it

might allow of some drainage. The wound was then washed with hydrogen dioxide and covered with aristol powder and dressed with sterilized gauze and cotton, which were held in place with adhesive straps. Over all was put an abdominal bandage.

The President bore the operation very well. The time from the beginning of the administration of the anesthetic until its discontinuance was exactly an hour and thirty-one minutes; the operation was completed at 6.50 p.m., having lasted from the time of the first incision, an hour and twenty-one minutes. At the beginning of the operation President McKinley's pulse was 84. At 5.38, .002 gm. of strychnine was administered hypodermically. At 5.55, the respiration was 32 and the pulse 84—both good in character. At 6.09, the pulse was 88. At 6.20, it was 102, fair in character; respiration 39. At 6.22, 1.50 gm. of brandy was administered hypodermically. At 6.48, the pulse was 124, the tension good, but quick; respiration 36. At 7.01, after the bandage was applied, the pulse was 122 and the respiration 32. At 7.17, .004 gm. of morphine was administered hypodermically.

At 7.32 the patient was removed from the hospital in the ambulance. Dr. Rixey asked Drs. Park and Wasdin to go in the ambulance, as his duty called him to go at once to inform Mrs. McKinley of her husband's condition and to prepare a room for his reception. Drs. Mann and Mynter, with friends of the President, followed in carriages immediately after. President McKinley had not then recovered from the anesthetic. He bore the journey to Mr. Milburn's house exceedingly well, but it was found necessary to give him a small hypodermic injection of morphine during the transit, as he was becoming very restless. On arrival at the house of Mr. Milburn, 1168 Delaware Avenue, he was removed from the ambulance on the stretcher, and carried to a room in the northwest corner of the house, where a hospital bed had been prepared for him.

REMARKS ON THE OPERATION, BY MATTHEW D. MANN, M.D.

The difficulties of the operation were very great, owing partly to the want of retractors and to the failing light. The setting sun shone directly into the room, but not into the wound. The windows were low and covered with awnings. After Dr. Rixey aided us with a hand-mirror, the light was better. Toward the end of the time a movable electric light with reflector was put in use. The greatest difficulty was the great size of President McKinley's abdomen and the amount of fat present. This necessitated working at the bottom of a deep hole, especially when suturing the posterior wall of the stomach.

The operation was rendered possible and greatly facilitated by a good operating-table and the other appliances of a hospital, and by the presence of many trained nurses and assistants. Still, the hospital was only equipped for minor emergency work, and had but a moderate supply of instru-

ments. Unfortunately, when called, I was not told what I was wanted for, and went to the Exposition grounds entirely unprepared. Dr. Mynter had his large pocket-case, the contents of which were of great use.

As has already been noted, further search for the bullet was rendered inadvisable by the President's condition. The autopsy shows that it could not have been found, and that the injuries inflicted by the bullet after it passed through the stomach, were of such a nature as to render impossible and unnecessary any further surgical procedure. A bullet after it ceases to move does little harm. We were often asked why, after the operation, we did not use the x-ray to find the bullet. There were several reasons for this. In the first place, there were at no time any signs that the bullet was doing harm. To have used the x-ray simply to have satisfied our curiosity would not have been warrantable, as it would have greatly disturbed and annoyed the patient, and would have subjected him also to a certain risk. Had there been signs of abscess formation, then the rays could and would have been used.

My reason for not draining was that there was nothing to drain. There had been no bleeding nor oozing; there was nothing to make any discharge or secretion; the parts were presumably free from infection, and were carefully washed with salt solution. As there was no peritonitis, and the abdomen was found post-mortem to be sterile, we may safely conclude that no drainage could have been provided which would have accomplished anything. My experience teaches me never to drain unless there is a very decided indication for it, as a drain may do harm as well as good.

In conclusion, I wish to thank all the gentlemen who so kindly and skilfully assisted me. They all were surgeons of large experience in abdominal surgery, and their aid and advice were most valuable. Especially, I wish to acknowledge my great obligation to my associate, Dr. Mynter. Not only was he an assistant, but he was much more, and helped me greatly by his skill, and, as a consultant, with his good judgment and extensive knowledge of abdominal work. Although called first, he waived his claim, and generously placed the case in my hands, willingly assuming his share of the responsibility.

The anesthetic was most carefully administered by Dr. Wasdin, and the knowledge that he had charge of this very important duty relieved me of any anxiety on that score.

In the eventful week that followed the operation, Dr. Park and Dr. McBurney were towers of strength in helping to decide the many difficult questions which came up.

Dr. Rixey was in constant charge of the sick-room, aided later by Dr. Wasdin, who was detailed for this special duty. Both were unremitting in their care, and faithful to the end.

Dr. Stockton helped us in the last 3 days with the highest skill and best judgment.

Never, I am sure, under like circumstances, was there a more harmonious or better-agreed band of

consultants. That our best endeavors failed was, I believe, no fault of ours; but it must be an ever-living and keen regret to each one of us, that we were not allowed the privilege of saving so noble a man, so attractive a patient, and so useful a life.

THE AFTER-TREATMENT.

When put to bed, the President was in fair condition: Pulse, 127; temperature, 100.6°; respiration, 30. The nurses on duty were Miss K. R. Simmons and Miss A. D. Barnes, from the Emergency Hospital. Soon after his arrival, at 8.25, he was given morphine, .016 gm., hypodermically. There was slight nausea. The pulse soon improved. During the evening the patient slept at intervals, vomiting occasionally, but rallied satisfactorily. A slight discoloration of the dressings was noted at 10.45. There was occasional and slight pain. Ninety cc. of urine was voided, and an enema of salt solution given and retained.

SECOND DAY, SATURDAY, SEPT. 7.

After midnight the patient slept a good deal; he was free from pain and quite comfortable.

At 6 a.m., the temperature was 102°; pulse, 110; respiration, 24.

Gas in large quantities was expelled from the bowels. A saline enema was given as before. Miss Simmons and Miss Barnes were replaced by Miss Maud Mohan and Miss Jane Connolly; Miss E. Hunt of San Francisco, Cal., Mrs. McKinley's nurse, also rendered assistance, and Miss Grace Mackenzie of Baltimore, Md., arrived Sept. 9, and was detailed for regular duty. P. A. Eliot, J. Hodgins and Ernest Vollmeyer of the U. S. Army Hospital Corps were detailed as orderlies.

During the forenoon .01 gm. of morphine was administered hypodermically.

At 4.15 p.m., a saline enema of 500 cc. was given. As the pulse was rising, .06 gm. of fluid extract of digitalis was injected hypodermically.

The President rested quietly until 6.30 p.m., when he complained of intense pain in the pit of the stomach, and was given .008 gm. morphine sulphate hypodermically. He was very restless, but after being sponged rested again.

At 6.30 p.m., the pulse was 130; temperature, 102.5°; respiration, 29.

During the day the digitalis, morphine and saline enemata were kept up at regular intervals; 4 gm. of somatose was added to the water at 10.30 p.m. At 11.15 p.m. the President passed from the bowels 210 cc. of a greenish-colored fluid and some particles of fecal matter.

The total amount of urine for 24 hours was 270 cc.

FIRST URINALYSIS, BY DR. H. O. MATZINGER.

Quantity	.....30 cc.
Color	.....dark amber.
Reaction	.....strongly acid.
Urea	.....0.628 gm. per 1 cc. of urine.
Albumin	.....a trace.
Phosphates and chlorides	.....normal.
Sugar	.....none.
Indican	.....very small amount.

Microscopic examination.—The sediment obtained by centrifuge shows a large amount of large and small epithelial cells, with some leucocytes and occasional

red cells. There is a comparatively large number of hyaline casts, principally small, with some finely granular ones; also an occasional fibrinous one. The amount of sediment is large for the quantity of urine submitted. There were no crystals in the sediment.

THIRD DAY, SUNDAY, SEPT. 8.

During the early morning the President slept a good deal, but was restless, and at times confused and a little chilly. On the whole, he passed a fairly good night.

He expelled a little gas and brown fluid from the rectum. The digitalis was continued, and at 7.45 a.m., .002 gm. of strychnine were given hypodermically. At 8.20 a.m., he was clear and bright, with the pulse strong and of good character.

The wound was dressed at 8.30, and found in a very satisfactory condition. There was no indication of peritonitis. Pulse, 132; temperature, 102.8°; respiration, 24.

The dressing on the wound was changed, because there was some exudation. The bullet track was syringed out with hydrogen dioxide. There was very little foaming, and there were no signs of pus.

At 10.40 a.m., following an enema of epsom salts, glycerine and water, he had a small stool with gas, and another at noon. He was less restless and slept a good deal.

At noon, Dr. Charles McBurney joined the medical staff in consultation, having been summoned by Dr. Rixey.

Bulletin 14, 12 m.—The improvement in the President's condition has continued since the last bulletin. Pulse, 128; temperature, 101°; respiration, 27.

During the day he continued to improve; he slept 4 or 5 hours, and his condition was satisfactory.

At 4.45 p.m., he was given a teaspoonful of water by the mouth; also an enema of sweet oil, soap and water. He passed slightly-colored fluid with some little fecal matter and mucus. After this a small quantity of water was given by the mouth, and at 6.20 p.m. a nutritive enema of egg, whisky and water, which was partly retained. Digitalis and strychnine were both given during the evening.

At 9 p.m., the President was resting comfortably. The pulse was 130; temperature, 101.6°; respiration, 30.

Four hundred and twenty cc. of urine was passed during the day.

SECOND URINALYSIS.

Quantity	.....450 cc.
Color	.....amber, slightly turbid.
Reaction	.....strongly acid.
Specific gravity	.....1.026.
Urea	.....0.638 gm. per 1 cc. of urine.
Albumin	.....mere trace.
Sugar	.....none.
Indican	.....abundant.
Sulphates	.....increased.
Phosphates	.....somewhat increased.
Chlorides	.....somewhat increased.

Microscopic examination.—Microscopic examination of sediment obtained by centrifuge shows fewer organic elements. Some large and small epithelial cells and some leucocytes. Casts are not so abundant as yesterday, and are principally of the small, finely granular

variety. There is a marked diminution in small renal epithelial cells.

Quite a quantity of large crystals of uric acid and bacteria are present.

FOURTH DAY, MONDAY, SEPT. 9.

The bulletins tell the story of the fourth day.

Bulletin 17, 6 a.m.—The President passed a somewhat restless night, sleeping fairly well. General condition unchanged. Pulse, 120; temperature, 101°; respiration, 28.

Bulletin 18, 9.20 a.m.—The President's condition is becoming more and more satisfactory. Upward movements are less likely to occur. Pulse, 122; temperature, 100.8°; respiration, 28.

Bulletin 19, 3 p.m.—The President's condition steadily improves, and he is comfortable, without pain or unfavorable symptoms. Bowel and kidney functions normally performed. Pulse, 113; temperature, 101°; respiration, 26.

Bulletin 20, 9.30 p.m.—The President's condition continues favorable. Pulse, 112; temperature, 101°; respiration, 27.

Coclea was substituted for morphia, as the pain was less. Digitalis and strychnine were stopped. Nutritive enemata were given at 3.20 a.m., at 4.30 and 10 p.m. Hot water was taken quite freely by the mouth.

Attempts to get a good movement of the bowels were successful at noon, when he had a large, light-brown, partly formed stool. This followed a small dose of calomel and a high enema of ox-gall.

On the whole, the President's condition improved steadily during the day. He slept a good deal and was fairly comfortable. There was no pain on pressure over the abdomen.

THIRD URINALYSIS.

Quantity received.....	540 cc.
Color.....	amber, slightly turbid.
Specific gravity.....	1.026.
Albumin.....	—a trace.
Indican.....	not so abundant as yesterday.
Urea.....	0.047 gm. per cc. of urine.
Chlorides and phosphates.....	about normal.
Sulphates.....	still somewhat high.
Sugar.....	none.

Microscopic examination.—Microscopic examination of sediment obtained by centrifuge shows a decrease in the amount of organic elements and an increase of amorphous urates, but fewer crystals of uric acid. Casts are fewer, and only the small granular and large hyaline varieties. The proportion of casts is greater. There are very few epithelial cells, mostly of renal type. A large number of cylindroids are found.

FIFTH DAY, TUESDAY, SEPT. 10.

Soon after midnight the President had a high enema of soap and water, which was expelled, together with some fecal matter. He took hot water frequently, and slept a good deal.

Bulletin 21, 5.20 a.m.—The President has passed the most comfortable night since the attempt on his life. Pulse, 118; temperature, 100.4°; respiration, 28.

On awakening, he felt very comfortable, and his mind was clear and cheerful. The nutritive enemata were kept up, and water given by the mouth. Had 2 small stools during the day. The only medicine given was one hypodermic of coclea phosphate, .015 gm.

In the evening the dressings were examined, and, as there was considerable staining from the discharge, it was thought best to remove 4 stitches and separate the edges of the wound. A little slough was observed near the bullet track, covering a space nearly an inch wide, the thickness of the flaps. The separation seemed to extend down to the muscle. The surfaces, except those mentioned, looked healthy, but not granulating. It was supposed that the infection of the wound occurred either from the bullet or from the piece of clothing carried into the wound at the time of the shooting. The parts were thoroughly washed with hydrogen dioxide, and packed lightly with gauze, and held together with adhesive straps.

SIXTH DAY, WEDNESDAY, SEPT. 11.

Bulletin 26, 9 a.m.—The President rested comfortably during the night. Decided benefit has followed the dressing of the wound made last night. His stomach tolerates the beef juice well, and it is taken with great satisfaction. His condition this morning is excellent. Pulse, 116; temperature, 100.2°.

Bulletin 27, 3.30 p.m.—The President continues to gain, and the wound is becoming more healthy. The nourishment taken into the stomach is being gradually increased. Pulse, 120; temperature, 100.2°.

Bulletin 28, 10 p.m.—The President's condition continues favorable. Blood count corroborates clinical evidence of the absence of any blood poisoning. He is able to take more nourishment and relish it. Pulse, 120; temperature, 100.4°.

The blood count made by Dr. Wasdin in the evening was as follows:

Leucocytes	6,752
Red cells.....	3,920,000

A little after midnight, Wednesday morning, the patient was given 4 cc. of beef juice, the first food taken by the stomach. It seemed to be very acceptable. Nutritive enema was given at 2 a.m.; later there was a yellow stool.

From 4 to 8 cc. of beef juice was given every 1 to 2 hours during the day. The rectum was becoming irritable, and did not retain the nutritive enemata well.

At 10 a.m. the remaining stitches were removed, the wound separated and dressed. It seemed to be doing well. Most of the sloughing tissue had separated.

The patient slept much during the day, and expressed himself as feeling very comfortable. The only medicine administered was one hypodermic of strychnine.

In the evening he was changed to a fresh bed. Nutritive enemata were continued.

Urine was passed much more freely—750 cc. in 24 hours.

FOURTH URINALYSIS.

Quantity.....	82 cc.
Color.....	amber, clear.
Specific gravity.....	1.027.
Reaction.....	strongly acid.
Albumin.....	—a trace.
Indican.....	abundant.
Urea.....	0.04 gm. per 1 cc. of urine.
E. phosphates and chlorides.....	normal.
Sulphates.....	still a little high.

Microscopic examination.—Microscopic examination of sediment obtained by centrifuge shows a marked

Bulletin 33, 12 m.—All unfavorable symptoms in the President's condition have improved since the last bulletin. Pulse, 120; temperature, 100.2°.

FIFTH URINALYSIS.

Quantity	.....132 cc.
Color	.....light amber, very turbid.
Specific gravity	.....1.025.
Reaction	.....acid.
Albumin	.....mere trace, if any.
Indican	.....less.
Urea	.....0.44 gm. per 1 cc. of urine.
Sulphates	.....about normal.
E. phosphates	.....much increased.
Chlorides	.....normal.

Microscopic examination.—Microscopic examination of sediment obtained by centrifuge shows fewer organic elements than the last examination. There is less uric acid and a large amount of amorphous phosphates. Renal casts about as in the last examination, with very few cylindroids.

EIGHTH DAY, FRIDAY, SEPT. 13.

At midnight the pulse was fairly good, 132. Strychnine and whisky were given at intervals, and hypodermics of camphorated oil.

Bulletin 34, 2.50 a.m.—The President's condition is very serious, and gives rise to the gravest apprehension. His bowels have moved well, but his heart does not respond properly to stimulation. He is conscious. The skin is warm, and the pulse small, regular, easily compressible, 126; respiration, 30; temperature, 100°.

The wound had been dressed regularly in the manner described 3 times a day. At 9 A.M. the dressing was changed, and a mixture of balsam of Peru and glycerine put in on gauze after the douching.

Stimulants were continued as before, but more freely. Coffee, 45 cc., and clam broth, 60 cc., were given; also liquid peptonoids.

At 8.30, 1.50 gm. of adrenalin was given hypodermically, and repeated at 9.40.

At 10 A.M., nearly 2 pints of normal salt solution were given under the skin, and a pint containing adrenalin at 6 P.M. Nitroglycerin and camphor were also injected at various times, together with brandy and strychnine.

Stimulants as detailed above were used freely all day.

3.30 P.M. Pulse growing weaker.

5.00 P.M. Oxygen given and continued for some hours.

6.30 P.M. Last bulletin, No. 39:

Bulletin 39, 6.30 p.m.—The President's physicians report that his condition is most serious in spite of vigorous stimulation. The depression continues, and is profound. Unless it can be relieved, the end is only a question of time.

At 6.35 P.M., and again at 7.40, morphine was given hypodermically, as he was very restless and seemed to be suffering.

9.00 P.M. Heart sounds very feeble.

The President continued to sink, becoming weaker and weaker.

At 10.00 P.M., the oxygen was discontinued. The heart sounds were very feeble and consciousness lost.

The President died at 2.15 A.M., Sept. 14.

Drs. E. J. Janeway and W. W. Johnston, who, at the request of Dr. Rixey, had been summoned

in consultation, arrived too late, but were present at the autopsy. Dr. McBurney also returned on Friday afternoon.

SIXTH URINALYSIS.

Color	.....amber, turbid, with phosphates.
Quantity	.....252 cc.
Reaction	.....acid.
Specific gravity	.....1.023.
Albumin	.....mere trace, if any.
Urea	.....0.047 gm. per 1 cc. urine.
Indican	.....a trace.
E. phosphates	.....increased.
Chlorides	.....normal.
Sulphates	.....a little high.

Microscopic examination.—Microscopic examination of sediment obtained by centrifuge, before and after clearing, shows no change from yesterday's sample. Casts, hyaline and granular, both large and small, comparatively few. Cylindroids, a few. Crystals, large amount of uric acid, some sodium urate, and in the untreated specimen a large amount of amorphous deposit, principally of phosphates. There are a few epithelial cells, small, granular. Occasional red cells and leucocytes.

REPORT ON THE AUTOPSY.²

BY HARVEY R. GAYLORD, M.D.,

Pathologist to the New York State Pathological Laboratory.

Ordinary signs of death: ecchymosis in dependent portions of the body. Rigor mortis well marked. Upon the surface of the chest, to the right of the mid-sternal line, a spot 1 cm. in diameter, dark red in color, with a slight crust formation covering it, 5.5 cm. from the suprasternal notch; from the right nipple 10 cm.; from the line of the right nipple, 8.25 cm. Surrounding this spot, at which point there is an evident dissolution of the continuity of the skin, is a discolored area of oval shape extending upward and to the right. In its greatest length it is 11 cm., and in its greatest width, 6 cm. It extends upward in the direction of the right shoulder. The skin within this area is discolored, greenish-yellow and mottled.

The surface of the abdomen is covered with a surgical dressing, which extends down to the umbilicus and upward to just below the nipples. The innermost layer of cotton is covered or stained with balsam of Peru and blood. On removing this dressing, a wound, parallel to, and somewhat to the left of, the median line is exposed, inserted in which are 2 layers of gauze, likewise impregnated with balsam of Peru. The wound is 14.5 cm. in length, and is open down to the abdominal muscles. The layer of abdominal fat is 3.75 cm. in thickness. The appearance of the fat is good, a bright yellow in color. No evidence of necrosis or sloughing. In the left margin of the surgical wound, lying 1 cm. to the right of a line drawn from the umbilicus to the left nipple, 15.5 cm. from the nipple and 16.5 cm. from the umbilicus, is a partly healed indentation of the skin, and an excavation of the fat immediately beneath it (this is the site of the entry of the bullet), extending down to the peritoneal surface. On making the median incision, starting from the suprasternal notch and extending to a point just below the symphysis, the subcutaneous fat is exposed, which is of bright yellow color and normal appearance, except in an area which corresponds superficially to the area of discoloration described as surrounding the wound upon the chest wall. This area marks the site of a hemorrhage into the subcutaneous fat. The remainder of the subcutaneous fat is firm and measures 4.75 cm. in thickness on the abdominal wall. On opening the sheath of the right rectus muscle, it is seen to be of dark red color. (Cultures taken from ecchymotic tissue under the upper bullet hole and from between the folds of the small intestine. Three tubes from each locality on agar and gelatin.)

On opening the abdominal cavity, the parietal surface of the peritoneum is exposed, and is found to be covered with a slight amount of bloody fluid; is per-

²The autopsy was performed by Drs. Gaylord and Matzinger.

fectly smooth and not injected. The great omentum extends downward to a point midway between the umbilicus and the symphysis. It is thick, firm; its inferior border is discolored by coming in contact with the intestines. Below the umbilicus a few folds of intestines are exposed. These are likewise covered with discolored blood, after the removal of which the peritoneal surface is found to be shiny. On the inner aspect of the abdominal wound the omentum is found to be slightly adherent to the parietal peritoneum, and can be readily separated with the hand from the edge of the wound. At this point the omentum is somewhat injected. This adhesion to the omentum is found to extend entirely around the abdominal wound. The parietal peritoneum immediately adjacent to the inner aspect of the abdominal wound is ecchymotic.

On removing the subcutaneous fat and muscles from the thoracic wall, the point which marks the dissolution of continuity of the skin upon the surface is found to lie directly over the margin of the sternum and to the right side between the second and third ribs. There is no evidence of ecchymosis or injury to the tissues or muscles beneath the subcutaneous fat. On making an incision through the subcutaneous fat, directly through the wound upon the chest, a small cavity is exposed, about the size of a pea, just beneath the skin, which is filled with fluid blood. The subcutaneous tissue underlying the area of discoloration on the surface of the chest wall shows hemorrhagic infiltration.

On removing the sternum, the lungs are exposed, and do not extend far forward. A large amount of pericardial fat is exposed. Pleural surface on both sides is smooth. There are no adhesions on either side within the pleural cavities. The diaphragm on the right side extends upward to a point opposite the third rib in the mammary line. No perceptible amount of fluid in either pleural cavity. On opening the pericardial cavity, the surface of the pericardium is found to be smooth and pale. The pericardium contains approximately 6 cc. of straw-colored, slightly turbid fluid (Some taken for examination).

On exposing the heart, it is found covered with a well-developed panniculus. The heart measures, from the base to the apex, on the superficial aspect, 10.5 cm. The right ventricle is apparently empty. The heart feels soft and flaccid. On opening the left ventricle, a small amount of dark red blood is found. The muscle of the left ventricular wall is 1.5 cm. in thickness; dark reddish-brown in color; presents a shiny surface. The average thickness of the pericardial fat is 3.5 mm. (Cultures made from the auricle.) The left auricle contains but a small amount of dark currant-colored blood. The mitral valve admits 3 fingers. The right ventricle, when incised in the anterior line, is found to be extremely soft, the muscular structure is 2 mm. in thickness. The panniculus measures 7 mm. The muscle is dark red in color, very shiny, and the pericardial fat invades the muscular wall at many points.

On opening the right auricle, it is found to be filled and distended by a large, currant-colored clot, which extends into the vessels. The tricuspid orifice admits readily 3 fingers. The coronary arteries are patulous and soft; no evidence of thickening.

Lungs are gray color, and contain a moderate amount of coal-dust pigment. Slight amount of frothy fluid escapes from the bronchi, but the pulmonary tissue is crepitant and free from exudate.

On unfolding the folds of intestine, there is no evidence of adhesions until a point just beneath the mesocolon is reached, when, on removing a fold of small intestine, a few spoonfuls of greenish-gray, thick fluid flows into the peritoneal cavity.

On the anterior gastric wall is an area to which a fold of the gastrocolic omentum is lightly adherent. On breaking the adhesion, there is found a wound about midway between the gastric orifices, 3.5 cm. in length, parallel with the greater curvature of the stomach, 1.5 cm. from the line of omental attachment. This wound is held intact by silk sutures. There is no evidence of adhesion at any other point on the ante-

rior wall. The gastric wall surrounding the wound just mentioned for a distance of 2 cm. to 3 cm. is discolored, dark greenish-gray in appearance, and easily torn. On exposing the posterior wall of the stomach from above, along its greater curvature, the omentum is found to be slightly adherent, a line of silk ligatures along the greater curvature of the stomach marking the site where the omentum had been removed. On throwing the omentum downward, the posterior gastric wall is exposed. On the posterior wall, a distance of 2 cm. from the line of omental attachment, is a wound approximately 2 cm. long, held intact by silk sutures. The gastric wall surrounding this wound is discolored. On the surface of the mesocolon, which is posterior to the gastric wall at this point, is a corresponding area of discoloration, the portion coming directly in contact with the wound in the gastric wall being of dull gray color. The remainder of the surface of the posterior wall of the stomach is smooth and shiny. Beyond the surgical wound in the posterior wall of the stomach is found an opening in the retroperitoneal fat, large enough to admit 2 fingers. This opening communicates with a track which extends downward and backward as far as the finger can reach. The tissues surrounding this track are necrotic. On removing the descending portion of the colon, a large irregular cavity is exposed, the walls of which are covered with gray, slimy material, and in which are found fragments of necrotic tissue. Just at the superior margin of the kidney is located a definite opening, which forms the bottom of the track traced from the stomach. On stripping the left kidney from its capsule, it is found that the superior portion of the capsule is continuous with the cavity. The weight of the left kidney is 5 oz., 1 gm. The kidney is readily stripped from its capsule; is dark red; the stellate veins are prominent, and along its greater curvature are numerous dark red depressions. On the superior aspect of the kidney is a protrusion of the cortex, dark red in color, and in this protrusion is a laceration 2 cm. long, extending across the superior border, approximately at right angles to the periphery of the kidney and from before backward. On incising the kidney, the cortex and medulla are not easily distinguishable from one another; both are of rose-red color, the cortex measuring approximately 6 mm. in thickness. The vessels in the pyramids of Ferrein are very prominent. Beneath the protruding portion of the surface, the cortex is dark red in color. This discoloration extends downward in pyramidal form into the medulla. The laceration of the surface marks the apex of the protrusion of the kidney substance. Between the spleen and the superior aspect of the kidney is a necrotic tract which extends down and backward, and ends in a blind pocket. The tract, which included the superior aspect of the kidney, can be traced into the perinephritic fat to a point just above the surface of the muscles of the back.

The necrotic cavity, which connects the wound on the posterior wall of the stomach and the opening adjacent to the kidney capsule, is walled off by the mesocolon, and is found to involve an area of the pancreas, approximately 45 mm. in diameter and extending about half through the organ. This organ at its centre forms part of the necrotic cavity. Through its body are found numerous minute hemorrhages and areas of gray softening, the size of a pea or smaller. These are less frequent in the head portion of the pancreas.

A careful examination of the track leading down toward the dorsal muscles fails to reveal the presence of any foreign body. After passing into the fat, the direct character of the track ceases; and its direction can be traced no further. The adjoining fat and the muscles of the back were carefully palpated and incised, without disclosing a wound or the presence of a foreign body. The diaphragm was carefully dissected away, and the posterior portion of the thoracic wall likewise carefully examined. All fat and organs which were removed, including the intestine, were likewise examined and palpated, without result.

The great amount of fat in the abdominal cavity and surrounding the kidney rendered the search extremely difficult.

The right kidney is embedded in a dense mass of fat; capsule strips freely; it weighs 5 oz.; measures 11.5 cm.; substance is soft; cortex is 6 mm. in thickness; rose-red in color; cut surface slightly dulled. There are a few depressions of the surface, and the stellate veins are prominent.

The liver is dark red in color; the gall bladder distended. The organ was not removed.

The autopsy continued for a longer period than was anticipated by those who had charge of the President's body, and we were requested to desist seeking for the bullet and terminate the autopsy. As we were satisfied that nothing could be gained by locating the bullet, which had apparently set up no reaction, search for it was discontinued.

Anatomical diagnosis.—Gunshot wound of both walls of the stomach and the superior aspect of the left kidney; extensive necrosis of the substance of the pancreas; necrosis of the gastric wall in the neighborhood of both wounds; fatty degeneration, infiltration and brown atrophy of the heart muscle; slight cloudy swelling of the epithelium of the kidneys.

A matter of no inconsiderable embarrassment to us arose in the objection to our removing sufficient portions of the tissues for examination. We were able to secure only 2 small fragments of the stomach wall; tissue from around the wound upon the chest wall; a portion of fat from the wall of the necrotic cavity; a small piece of each kidney, that of the left kidney including the portion involved by the original wound; and pieces of heart muscle from the right and left ventricles. The microscopic examination of these tissues follows:

The piece of retroperitoneal fat, where it forms part of the necrotic cavity, is seen on section to be covered with a thick gray deposit, which has an average thickness of from 4 mm. to 6 mm. Beneath this, and separating it from the fat, is a well-defined area of hemorrhage from 1 mm. to 2 mm. in thickness. The appearance of this piece of tissue is characteristic of the fat tissue surrounding the entire cavity. A section made perpendicular to the surface, and stained with hematoxylin-eosin, shows the following characteristics: Under low power there is no evidence of round-celled infiltration between the fat cells, or of fat necrosis. The surface of the tissue, which in the microscopic specimen was covered by a layer of grayish material, proves, under low power, to consist of a partly organized fibrinous deposit. At the base of this deposit is evidence of an extensive hemorrhage, marked by deposits of pigment. The surface of the membrane is of rough and irregular appearance, and contains a large number of round cells with deeply stained nuclei. Under high power the organization of the membrane may be traced from the base toward the surface. The portion immediately adjacent to the fat tissue consists of a network of fibrin enclosing large numbers of partly preserved red blood corpuscles. In many areas the red blood corpuscles are broken down, and extensive deposits of pigment are found.

Extending into the fibrin structure of the membrane are numerous typical fibroblasts and round cells. In some regions pigment is evidently deposited in the bodies of large branching and spindle cells. Here and there, included in the membrane, are the remains of fat cells, and toward the surface of the membrane a large number of round cells scattered through the interstices of the membrane. There are but few polymorphonuclear leucocytes. Here and there in the membrane are fragments of isolated fibrous connective tissue with irregular contours and an appearance suggesting that they are fragments of tissue which have been displaced by violence and included in the fibrin deposit. The fibrin in the superficial layers of the membrane is formed in hyaline clumps. The organization along the base of the deposit is comparatively uniform.

Sections stained with methylene-blue, carbol-thionin and Gram's method were carefully examined for the presence of bacteria, with negative results. Even upon the surface of the membrane there are no evidences of bacteria.

The section of the left kidney, including the triangular area of hemorrhage described in the macroscopic specimen, reveals the following appearances. (Section hardened in formalin, stained with hematoxylin-eosin.) Examined macroscopically, section represents a portion of a kidney cortex made perpendicular to the surface of the cortex, and including an area of hemorrhage into the substance of the cortex 1 cm. in length, measured from the capsular surface downward, and presenting a width of from 5 mm. to 6 mm. The capsular surface has apparently been torn.

Under low power the margins of the preparation are found to consist of well-preserved kidney structure. There is a slight amount of thickening of the interstitial tissue, and occasional groups of tubules are affected by beginning cloudy swelling. The glomeruli are large and present a perfectly normal appearance. As we approach toward the centre of the preparation, occasional glomeruli are met with, in which the capillary loops are engorged and the adjacent tubules contain red blood corpuscles. A short distance further the kidney structure becomes entirely necrotic. Here and there the remains of tubules may be made out, and these are infiltrated with cells. The necrotic area presents a rough, net-like structure. As we approach toward the surface of the kidney, we find that the necrosis becomes more marked. There is the merest suggestion of kidney structure, its place being taken by disintegrated red blood cells and leucocytes, embedded in a well-defined fibrinous network. There is great distortion of the kidney structure about the periphery of the necrotic area. In this region a considerable amount of pigment is also found in the necrotic tissues.

Under high power the characteristics of the necrotic tissues may be better observed. The kidney structure is broken up and torn into irregular fragments, infiltrated by red blood corpuscles and leucocytes. In the portion of the necrotic mass beneath the capsule, the kidney structure is practically obliterated and is replaced by a network of fibrin, which includes large numbers of red blood cells and leucocytes. Scattered through the entire necrotic area are frequent deposits of pigment. In the deeper portions of the necrotic area the margins of the fibrin deposit are invaded by fibroblasts from the connective tissue structure of the kidney. The organization in these areas is, however, slight.

Sections stained with methylene-blue and Gram's method and carefully examined under oil immersion, fail to reveal the presence of any organisms. In preparations stained with methylene-blue, the deposits of pigment may be readily observed. Section of the same tissue hardened in Hermann's solution, and examined for fat, shows the presence of numerous fat droplets within the epithelium of the tubules which are adjacent to the area of necrosis. In the portion of the preparation more widely distant from the area of necrosis, no fat is present.

Section of the right kidney, hardened in formalin and stained with hematoxylin-eosin, reveals the presence of areas in which slight parenchymatous degeneration of the epithelium in the uriniferous tubules may be noted. These areas are not extensive, and are confined to single groups of tubules. The interstitial connective tissue of the organ seems to be slightly increased in amount, but there is no well-defined, round-celled infiltration. An occasional hyaline glomerulus is to be met with in these cases surrounded by increased connective tissue. The epithelium of the kidney tubules, aside from those in which the parenchymatous degeneration is present, is well preserved. The nuclei are well stained; protoplasm, finely granular.

A fragment of the stomach wall taken from the immediate neighborhood of the anterior wound is in a condition of complete necrosis. The nuclei of the cells are scarcely demonstrable. The epithelial surface is

recognized with difficulty. At its base are apparently a few round cells. Examination of the blood vessels reveals nothing characteristic. There is apparently no evidence of thrombosis. A section made through the gastric wall at some distance from the wound, reveals the well-preserved muscular structure of the gastric wall, which presents no characteristic alterations. Superficial portions of the epithelium have apparently been affected by post-mortem digestion. However, in one portion of the preparation, the epithelium is intact, and shows distinct evidence of marked round-celled infiltration between the glandular structures. The blood vessels contained blood corpuscles with the usual number of leucocytes.

The fragments of heart muscle which were removed from the right and left ventricular walls, were examined in the fresh state, and exhibited a well-defined fatty degeneration of the muscle fibres, and in the case of the right ventricular wall an extensive infiltration between the muscle fibres of fat was apparent. Sections from these fragments of muscle, hardened in Hermann's solution, are taken for examination. A fragment of muscle from the right ventricular wall was removed at a point where the fat penetrated deeply into the muscular structure, the ventricular wall at this point showing an average thickness of 2.5 mm. Under low power the muscle fibres are separated into bundles by masses and rows of deeply stained fat cells. The muscle fibres are seen to contain groups of dark brown granules lying in the long axes of the cells. Under high power these are resolved into extensive groups of dark brown pigment arranged around the nuclei. The muscle fibres are slender, the cross and longitudinal striation is well defined. Examined near the margin of the preparation, where the osmic-acid fixation has been successful, all of the muscle fibres are found to contain minute black spherical bodies, extending diffusely through all the muscle fibres about the entire margin of the preparation. These fine fat droplets are present in sufficient amount to speak of an extensive diffuse fatty degeneration of the muscle fibres. Where the large fat cells have separated the muscle fibres, these are found to be more atrophic than those in the central portions of the larger bundles.

The examination of the section through the healed bullet wound on the chest walls reveals nothing of importance. The dissolution of continuity is filled in by granulation tissue, and there is evidence of beginning restoration of the epithelium from the margins. Stains for bacteria give negative results.

In summing up the macroscopic and microscopic findings of the autopsy, the following may be stated: The original injuries to the stomach wall had been repaired by suture, and this repair seems to have been effective. The stitches were in place, and the openings in the stomach wall effectually closed. Firm adhesions were formed both upon the anterior and posterior walls of the stomach, which reinforced these sutures. The necroses surrounding the wounds in the stomach do not seem to be the result of any well-defined cause. It is highly probable that they were practically terminal in their nature, and that the condition developed as a result of lowered vitality. In this connection there is no evidence to indicate that the removal of the omentum from the greater curvature, and the close proximity of both of these wounds to this point, had any effect in bringing about the necrosis of the gastric wall, although circulatory disturbances may have been a factor. The fact that the necrotic tissue had not been affected by digestion, strongly indicates that the necrosis was developed but shortly before death. The excavation in the fat behind the stomach

must be largely attributed to the action of the missile. This may have been the result of unusual rotation of a nearly spent ball, or the result of simple concussion from the ball passing into a mass of soft tissues. Such effects are not unknown. The fact that the ball grazed the superior aspect of the left kidney, shown by the microscopic investigation of that organ, indicates the direction of the missile, which passed in a line from the inferior border of the stomach to the tract in the fat immediately superior to the kidney. There was evidence that the left adrenal gland was injured.

The injury to the pancreas must be attributed to indirect, rather than direct, action of the missile. The fact that the wall of the cavity is lined by fibrin, well advanced in organization, indicates that the injury to the tissues was produced at the time of the shooting. The absence of bacteria from the tissues indicates that the wound was not infected at the time of the shooting, and that the closure of the posterior gastric wound was effectual. The necrosis of the pancreas seems to us of great importance. The fact that there were no fat necroses in the neighborhood of this organ, indicates that there was no leakage of pancreatic fluid into the surrounding tissues. It is possible that there was a leakage of pancreatic fluid into the cavity behind the stomach, as the contents of this cavity consisted of a thick, grayish fluid, containing fragments of connective tissue. In this case the wall of fibrin would have been sufficient to prevent the pancreatic fluid from coming in contact with the adjacent fat. The extensive necrosis of the pancreas would seem to be an important factor in the cause of death, although it has never been definitely shown how much destruction of this organ is necessary to produce death. There are experiments upon animals upon record, in which the animals seem to have died as a result of not very extensive lesions of this organ. One experiment of this nature reported by Flexner³ is of interest. The fact that concussion and slight injuries of the pancreas may be a factor in the development of necrosis, is indicated by the researches of Chiari,⁴ who has observed (although a comparatively rare condition) extensive areas of softening and necrosis of the pancreas, especially of the posterior central portion which lies directly over the bodies of the vertebrae, where the organ is most exposed to pressure or the effects of concussion. The wound in the kidney is of slight importance, except as indicating the direction taken by the missile. The changes in the heart, as shown by the macroscopic inspection and the microscopic examination, indicate that the condition of this organ was an important factor. The extensive brown atrophy and diffuse fatty degeneration of the muscle, but especially the extent to which the pericardial fat had invaded the atrophic muscle fibres of the right ventricular wall, sufficiently explain the rapid pulse and lack

³Journal of Experimental Medicine, vol. II.

⁴Zeitschrift für Heilkunde, vol. xvii, 1896, and Prager Med. Wochenschr., 1900, No. 14.

of response of this organ to stimulation during life.

REPORT ON THE BACTERIOLOGICAL EXAMINATION.

BY HERMAN G. MATZINGER, M.D.,

Bacteriologist to the New York State Pathological Laboratory.

It is obvious that the short space of time which has elapsed since the death of the President has hardly been sufficient to prepare a complete and thorough bacteriological report. This report contains all the observations which have been made up to this time.

On Sept. 11, during the life of the President, cultures were made by Dr. Wasdin from the base of the abdominal wound and from dressings removed at the same time. These were submitted to me for examination, and showed the presence of the ordinary pus organisms: *Staphylococcus pyogenes aureus* and *S. cereus albus*, with a gas-forming bacillus which, in pure anaerobic culture on glucose gelatin, forms small, pearly, translucent colonies, with no liquefaction. In litmus milk it produces acid, but no coagulation. Morphologically, it is apparently a capsulated, short bacillus, which takes stains poorly, and which does not stain by Gram's method. Inoculated into the ear vein of a rabbit, which was killed immediately afterward, it produced, after 24 hours in the body of the rabbit, a marked accumulation of gas in the organs, and again grew out in pure culture. As yet the organism is not fully identified.

None of these cultures showed streptococci. A bacterium which appears to be one of the proteus group was, however, isolated, which does not stain by Gram, and appears in varying forms, sometimes small oval, and again quite rod-shaped and in short chains. Sometimes it is surrounded with a slimy covering, which remains clear like a capsule when the organism is stained. On slanting agar it produces a whitish, slimy growth, which gradually runs to the bottom of the slant and produces an odor of decomposition. On gelatin it grows very slowly, with slight and slow indication of liquefaction. In litmus milk it produces acid and rapid coagulation.

At the time of the autopsy, Sept. 14, inoculations were made by myself. From the base of the wound there was again obtained a number of pus organisms, principally a white staphylococcus and the bacterium described above, but no streptococci. Cultures made from the peritoneal surface of the intestines were entirely negative. Cultures made from the under surface of the omentum near the colon, were entirely negative, both with and without oxygen. Cultures from the blood of the right auricle were likewise negative. A very careful and extensive search for microorganisms in the contents of the necrotic cavity, behind the stomach, reveals nothing but a short, stumpy bacterium, which, as far as the work has been carried at present, appears to belong to the proteus group, and is very like proteus hominis capsulatus, described by Bordoni and Uffreduzzi.

Morphologically, it is not uniform, and sometimes appears almost encapsulated, being surrounded by material that does not stain; is quite refractory to Gram, and produces an odor of decomposition as it grows. It does not liquefy gelatin rapidly and grows slowly, as a glistening white elevated surface growth which slowly sinks, but on agar in the thermostat it grows very rapidly, as a moist, grayish-white translucent mass. Colonies on gelatin plates have a clean circumference, are granular and quite refractive. In litmus milk it produces acid and rapid coagulation. Animal experiments are still incomplete and cannot be published at this time.

It must be stated that there is occasion for suspecting that this may be a contamination, either from the

outer wound or elsewhere, because, quite unavoidably, the technique of obtaining the material and cultures from the necrotic cavity was not absolutely correct.

Cultures made from the small area of broken-down tissue under the chest wound at the time of the autopsy, grew what appears to be staphylococcus epidermidis albus, described by Dr. Welch.

The slimy, gray, necrotic material from the cavity above the transverse mesocolon behind the stomach was carefully examined microscopically, with the result that very few micro-organisms were found in the fresh state, and no recognizable tissue elements of any kind, no leucocytes or pus corpuscles, but an abundance of crystals which appeared more like fatty acid than fat crystals. It contained no free hydrochloric acid, and was alkaline in reaction. Experiments as to its digestive power were negative. About 2 cc. of this material was injected into the space behind the stomach of a dog (still living), with no results except quite an elevated temperature for 3 or 4 days. Other animal experiments are also still incomplete.

It might be well to state here that the bacteriological examination of the chambers and barrel of the weapon used, as well as the empty shells and cartridges, ordered by the district attorney, was entirely negative, except that from a loaded cartridge there was grown an ordinary staphylococcus and a mould. The chemical examination of the balance of the loaded cartridges, made by Dr. Hill, chemist, was also negative.

The absence of known pathogenic bacteria, particularly in the necrotic cavity, warrants the conclusion that bacterial infection was not a factor in the production of the conditions found at the autopsy.

ASSOCIATION OF ANEMIA WITH CHRONIC ENLARGEMENT OF THE SPLEEN.*

BY ARTHUR H. WENTWORTH, M.D., BOSTON.

(Continued from No. 16, p. 438.)

FEDE's share of the article refers to the etiology, pathological anatomy and pathogenesis. He says that it occurs usually in the first year of life, and that males are more often affected than females. He refers to 64 collected cases, of which 35 occurred between 1 and 11 months; 19 between 13 and 24 months; and 10 were several years old. Of this number 46 were males and 18 were females. He refers to the circumstance noted by Cardarelli that in a number of cases several children in the same family were affected. He admits that rickets has been observed to some extent in some cases, but believes that rickets, syphilis and bad hygienic surroundings only act as favoring elements to assist the specific organism that produces the disease.

Fede says "the only characteristic lesions are found in the spleen, liver and blood. The glands are normal or slightly enlarged. The liver is often enlarged from congestion and from a slight increase in connective tissue together with cloudy swelling. There may be fatty degeneration and atrophy of liver cells in some cases."

* Read before the Massachusetts Medical Society, June 11, 1901, as a part of the general topic, "The Diseases of Nutrition of Infants."

"The spleen is especially affected. It is very large and firm; dark red on section; there is hypertrophy of the connective tissue; the pulp is rich in lymphatic cells; the follicles are hyperplastic."

Fede maintains that it is a *special infection* and not pseudoleukemia. The organism has not been discovered.

He describes the lesions which Armanni found in the liver and spleen in Cardarelli's case. Fede says the signs of pseudoleukemia were shown in the liver and spleen of this case. Fede refers to Von Jaksch, and says that he has described the same disease under the title of "anemia infantum pseudoleukemica." The blood changes in anemia splenica infettiva are diminution in the number of red corpuscles. The number may be between 1,000,000 and 3,000,000 in a cmm.; diminished hemoglobin may vary between 25 and 45%. Contrary to Von Jaksch, he never found a marked increase in the number of leucocytes; the eosinophiles are diminished in number.

The remaining references to anemia splenica infettiva consist for the most part of descriptions of cases. I shall refer to them as briefly as possible.

In 1885⁵⁵ Porter showed 2 cases of anemia with enlarged spleens before a medical society. One of the cases had rickets, and the other had tuberculosis of the spine.

In 1891-2⁵⁶ Carr reported personal observations on 30 cases of "splenic anemia" in children. Seven cases were autopsied, and the report states that "microscopic examinations showed the enlargement to be due to simple hypertrophy with some increase in fibrous tissue. The liver was not found distinctly enlarged. There were no noteworthy changes in the other organs."

In 14 of the cases there was either admitted or probable evidence of congenital syphilis, and 7 of these cases died. In 27 cases there was rickets, more or less severe. The blood examinations were incomplete. (If one may judge from the character of the article, the writer appears to believe that any chronic enlargement of the spleen justifies the diagnosis of splenic anemia.)

In 1892 Giantureo and Pianese⁵⁷ gave a histological and bacteriological report on the organs from a case seen by Fede.

The spleen showed no increase in interstitial tissue; follicles little developed; pulp very rich in blood; reticulum normal; cells of pulp mostly large mononuclear; small mononuclear cells scarce; endothelial cells prominent in veins and blood spaces.

The liver showed increased connective tissue in Glisson's capsule; vessels dilated; some degeneration of liver cells. Bacteriological examinations and inoculation experiments negative.

In 1891 Mensi⁵⁸ described a case which he called anemia splenica infantile. The child was 19 months old, and at autopsy there were evidences of rickets, noma and tuberculosis. No microscopic report of the organs was given. The author believed it to be a primary disease of the spleen,

and did not even refer to the possibility of the anemia and splenic enlargement being due to tuberculosis. And yet he described lesions in the spleen that suggest miliary tubercles; "abundant pulp; numerous scattered white points the size of a pin's head surrounded by a red areola."

Another case described by Mensi in 1892⁵⁹ is referred to by Fink in Schmidt's Jahrbuch. This was a child 16 months old; hereditary tuberculosis; "scrofulous" lesions previously; large liver; palpable spleen; red corpuscles pale and degenerated (no count reported).

Autopsy report: Marked anemia; enlarged heart; enlarged spleen and liver; anemic kidneys.

In 1892 Mya and Trambusti⁶⁰ reported 2 cases of anemia splenica in infants. They regarded anemia splenica infantile of Henoch, anemia splenica infettiva, and anemia infantum pseudoleukemica as synonymous. They reviewed the lesions found in the spleen and liver by various observers, and called attention to the fact that they were more or less diverse.

CASE I. Fifteen months old; male; 1 child in the family died of tuberculosis, and 2 others died of measles and bronchitis; this child had measles followed by attacks of epistaxis which recurred every 15 or 20 days; child became very pale and spleen enlarged; at 1 year child weighed about 12 pounds and had rickets; liver slightly enlarged; spleen very large and firm; moderate fever; blood examination showed 1,688,000 red corpuscles; leucocytes 16,000; hemoglobin 30%; microscopic examination of stained specimens of blood showed the changes described as characteristic of anemia infantum pseudoleukemica; namely, nucleated reds; variation in size, etc. Child died after 5 days' observation.

Autopsy report: The lesions in the spleen were similar to those described by Banti in cases of adult splenic anemia; marked increase in fibrous tissue; follicles atrophied; cells diminished; trabeculae thick. The lesions in the liver showed increase in the connective tissue in the periphery of lobules; evidences in the cells of a return to embryonic type as described by Luzet.

CASE II. Female; 14 months old; history of fever, cough and digestive disturbance from eleventh month; rickets present; no syphilis or malaria; weight at 14 months 13½ pounds; moderate enlargement of spleen; liver negative; blood showed 784,000 red corpuscles; 26,849 leucocytes; 20% hemoglobin; dried and stained blood showed same character as first case.

Autopsy report: Same lesions as described in first case. It is worthy of remark that these cases are the only ones among the Italian references in which a careful examination of the blood was reported.

Hoek and Schlesinger⁶¹ appear to be the only German observers who believe that anemia splenica infettiva and anemia infantum pseudoleukemica are different diseases. They described a case of splenic anemia in 1892 in an infant 14 months old; the child had rickets; anemia and enlarged spleen; the blood showed 2,100,000 red corpuscles; 11,600 leucocytes; hemoglobin 35%. There was no autopsy. They differentiate anemia splenica from anemia infantum pseudoleukemica by the clinical appearances, the absence of nucleated red corpuscles, and absence of leucocytosis.

In 1895 Gossage⁶² reported clinical observations on 2 cases of anemia with enlarged spleens.

One case, 3 years old, with rickets, fontanelle still open. The observations were incomplete.

In 1896 Mya⁶³ reported the case of a child 4 years old who weighed 27 pounds. It had had frequent attacks of epistaxis and was profoundly anemic. The blood showed 2,275,000 red corpuscles; leucocytes not increased; hemoglobin 42%. The spleen was palpable. After treatment with iron the hemoglobin increased to 75%, and the child gained in weight.

In 1899 Thistle⁶⁴ reported the case of a child with an enlarged spleen and anemia. The red corpuscles numbered 3,000,000; the leucocytes 20,000. He states that it was not a case of pseudoleukemia, because the lymph-nodes were not enlarged.

ANEMIA INFANTUM PSEUDOLEUKEMIA.

This name was used by Von Jaksch to denote a peculiar type of anemia which occurred in infants. Similar cases had been described previously by Italians under the title of "Anemia Splenica Infettiva dei bambini." Von Jaksch believed it to be a primary disease of the blood.

At about the same time Hayem described cases in which more careful examinations of the blood had been made. Within the next few years a limited number of cases were reported by different observers. It was considered by the majority to be a primary anemia. The disease was described as a severe, progressive anemia of infancy, associated with a marked enlargement of the spleen and with a moderate enlargement of the liver and of the superficial lymph-nodes. The blood showed great diminution in the number of red corpuscles and in the hemoglobin; marked variations were noted in the size and shape of the red corpuscles. Nucleated red corpuscles were abundant, most of them of the normoblast type. Evidences of subdivision could be found in some of the nuclei; there was marked leucocytosis, and in some cases the number of eosinophiles was increased.

Most of the cases ended fatally. In a number of instances the patients were observed for a short time only.

The pathological appearances of the organs were reported in but few cases, and in these the descriptions were more or less diverse and incomplete. It is evident, however, that the lesions were *not* those of pseudoleukemia, and one wonders why the name of pseudoleukemia was selected. Von Jaksch explained that this name was chosen by him to distinguish these cases from cases of leukemia and from other severe anemias. It seems an unfortunate choice, because it tends to add to the confusion which exists in connection with the disease pseudoleukemia.

The lesions in the spleen in cases of anemia infantum pseudoleukemia appeared to be those of chronic hyperplasia, which affected all parts of the organ, but in different degrees. The liver showed slight increase in the connective tissue between the acini and in places accumulation of a limited number of lymphoid cells, such as one

expects to find in connection with interstitial processes. The bone marrow was not examined carefully. At this age the red marrow is normal.

Hayem and Luzet considered the large number of nucleated red corpuscles with evidences of karyokinesis in some of the nuclei to be of great diagnostic value.

I shall describe very briefly the cases of anemia infantum pseudoleukemia that have been reported.

In 1882 Senator⁶⁵ reported 2 cases, 18 months old; twins; rickets present in both cases; spleens much enlarged; lymph-nodes enlarged; a blood count in 1 case showed 3,266,000 red corpuscles; 43,300 leucocytes. In the other case the blood examination showed 3,860,000 red corpuscles; 23,000 leucocytes.

The first case was under observation for 3 months without any marked change in condition. The second case died of bronchopneumonia. No autopsy report given.

In 1888 Von Jaksch⁶⁶ reported the case of a boy 14 months old with marked enlargement of the spleen; glands in neck, axillæ and groins enlarged and hard; considerable anemia; blood counts at different times showed variation in red corpuscles between 2,310,000 and 4,500,000; leucocytes 84,000 to 192,000. The liver was somewhat enlarged; fever was present at times; child under observation for 6 months; toward the last he became edematous; petechiæ appeared in the skin; and the spleen increased in size still more; death occurred after 6 months. Autopsy report by Professor Eppinger showed typical lesions of leukemia in the liver, spleen, glands and the kidneys.

In 1890 Von Jaksch⁶⁷ published 2 more observations. The first one was that of a child 11 months old; grave anemia; rickets; enlargement of the spleen and lymph-nodes; no enlargement of the liver; a blood examination showed 820,000 red corpuscles; 54,000 leucocytes; 15% hemoglobin. Autopsy report: Spleen large and firm; liver hard; mesenteric lymph-nodes enlarged, pale and firm; fatty degeneration of heart; chronic splenic tumor, no trace of leukemia in the organs.

The second case was that of a child 19 months old; skin very pale and a trifle edematous; moderate rickets; general enlargement of lymph-nodes; liver not enlarged; spleen enlarged; under observation 2½ months; blood examination at first showed 1,380,000 red corpuscles; 114,500 leucocytes. One year later the blood examination showed 6,043,750 red corpuscles and 50,000 leucocytes. The child was perfectly well. (Luzet refers to this case as doubtful.)

It was upon these 3 cases that Von Jaksch based the description of anemia infantum pseudoleukemia. One case had rickets and chronic hyperplasia of the spleen; another recovered, and the third showed typical lesions of leukemia in the organs.

In 1891 Luzet⁶⁸ published a thesis on the anemias of infancy. Under the title of "anémies

pseudoleucémiques" he described a case observed by Hayem, one which he had observed himself, and the 3 cases of Von Jaksch which I have referred to. Hayem's case was that of an infant of 10 months; very anemic and feeble; slight edema of legs; no enlargement of lymph-nodes; liver somewhat enlarged; spleen very large; no evidence of rickets; blood examination showed 1,356,250 red corpuscles; 33,000 leucocytes; dried and stained preparations of blood showed variations in size; poikilocytosis and evidences of degeneration in the red corpuscles; also numerous nucleated red corpuscles of various types; many of the nuclei undergoing subdivision; nothing characteristic in the leucocytes.

Luzet's case was 1 year old; digestive disturbances for several months; emaciated; anemic; no teeth; fontanelle open; marked enlargement of the spleen; lymph-nodes not enlarged; liver not enlarged; under observation for 4 days; blood examination showed 1,498,416 red corpuscles; 15,000 leucocytes.

Autopsy report: Spleen very large; thickening of the capsule in places; section red; nothing abnormal in reticulum; vessels normal; rudimentary follicles; increased pulp; liver showed evidences of return to embryonal type; dried and stained specimens of blood showed numerous nucleated red corpuscles, in many of which the nuclei were undergoing subdivision.

In 1891 Baginsky⁶⁰ reported 5 cases very incompletely. One of the cases was autopsied, and showed chronic hyperplasia of the spleen. The cervical and mesenteric lymph-nodes were also enlarged. There was no tuberculosis. No blood examination reported. The clinical symptoms were anemia; enlarged spleen and liver; enlarged lymph-nodes.

The second case was that of a child 22 months old; nutrition was good, but the appearance was cachectic; there was marked rickets; large, firm spleen; enlarged liver; several examinations of the blood were made and showed variations in the number of red corpuscles between 3,995,000 and 4,005,600; the leucocyte count varied between 21,000 and 65,000; hemoglobin 35 to 39%; a small number of nucleated red corpuscles reported.

The third case was that of a boy 11 months old; very much emaciated; marked rickets; very large spleen; liver enlarged; the red corpuscles varied in number at different times between 3,277,980 and 4,350,000; the leucocytes varied in number between 40,000 and 122,222; hemoglobin 35 to 40%. Dried specimens of blood showed poikilocytes; nucleated red corpuscles in considerable numbers.

The fourth case had rickets; anemia; enlarged spleen; moderate diminution of red corpuscles and hemoglobin (32%); leucocytes 44,800.

The fifth case had enlarged liver and spleen; cervical, axillary and inguinal lymph-nodes enlarged; spleen not very large; no blood examination reported.

(To be continued.)

A BRIEF RÉSUMÉ OF THE LIFE AND WORK OF AMBROISE PARÉ.

WITH BIOGRAPHICAL NOTES ON MEN OF HIS TIME.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

(Concluded from No. 16, p. 435.)

In the beginning of the year 1572 Paré published a new work almost immediately after Malezien's translation, entitled *Cinq livres de chirurgie*, in which he treated among other things tumors in general and in particular, as well as wounds and dislocations. Malgaigne has said that the effect of the work was so great that neither the original Latin nor the French translation of Gourmelen's publication came to a second edition, and this so infuriated its author that he lost no opportunity to revenge himself upon Ambroise Paré. Directly or indirectly Gourmelen was the author or the conspirer of all the attacks directed against Paré.

In 1569 another member of the Faculty of Paris, Lepaulmier by name, had published a small work on the nature and treatment of pistol wounds. He copied both Paré and Maggi (Note 6) without giving credit to either of them, but when he came to the question of treatment he most severely criticised the practice that Paré advised. The latter replied by publishing with his *Cinq livres de chirurgie*, an *Apologie touchant les playes faites par harquebuses*.

Lepaulmier replied, mixing his arguments with the grossest insults, but all in vain. Paré was in the right, and Lepaulmier fell into disrepute.

Shortly after the publication of his new work Paré found himself again in the midst of a civil war, in that great tragedy of the world's history, the Massacre of St. Bartholomew, through the terrors of which he passed unscathed. Much has been said in history of Paré in this direful event, and it has been supposed by some that he was a Protestant, and that his life was only saved by the protection of his patron, Charles IX, but on this point we will not insist.

In 1573 he published two works, one on generation, the other on monsters. He had been a widower for some little time when he again married, and Charles IX being dead, he continued his functions with Henry III, who appointed him a councillor and his valet de chambre. In 1575 he published his complete works in one very magnificent volume.

Now it happened that Gourmelen had just been elected dean of the faculty, and he seized upon this occasion to bring into effect a law which had been issued in 1535, prohibiting the publication of any medical work without first submitting it to the approbation of the Faculty of Medicine of Paris, and he tried to oppose the sale of Paré's work. The pretext that he put forward was that Paré had touched upon the high points of philosophy and medicine; as, for example, questions relating to the elements, humors, faculties, the spirits, etc. He was also reproached for his work on generation, which treated questions which were

essentially medical. The affair went as far as Parliament, but it got no further, because Paré was far too well thought of by the king, and finally the work was put on sale without opposition. Gourmelen was defeated, but he intended to take his revenge later. This he expected would be an easy thing for him, because just then the faculty was again commencing a conflict with the surgeons of Saint-Côme, but Paré took no part whatever in these quarrels and gave himself up to the correction and editing of the second edition of his complete works, which appeared in 1579.

Three years later Paré published another new work which furnished new arms to his adversaries. It was entitled *Le livre de la licorne* (Note 7),

IN EFFIGIEM AMBROSII PARÆI.



FIG. 5.—Reproduced from Paré's "*Opera Chirurgica*," published in 1612, in possession of the writer.

and contained a very judicious and courageous criticism of a superstition of this epoch which was deeply rooted in the minds of the people; namely, their belief in the virtues of the horn of the unicorn. This substance was sold at a higher price than gold, and it was customary to dip a piece of the horn into the king's cup as an antidote for every poison. In 1583, a few months after the appearance of this book, an anonymous author, upon the strength of the approbation of Grangier, dean of the faculty, attacked Paré's work in terms a little less than indecent.

All had not ended; Gourmelen again entered upon the scene by publishing in Latin three new books on surgery, in which Paré was directly attacked regarding the application of his ligature of

vessels sectioned during amputations. It was a most unfortunate idea for his adversary, because Paré had no difficulty in replying to him and to give the last blow to Gourmelen.

This was his last writing. Gourmelen's attack had excited the zeal of the most obscure adversaries, and the pamphlets multiplied in number. Paré did not reply to any of them, and in 1582 a Latin translation of his complete works appeared. He counted it as his third edition, and the following, which was published in French in 1585, was the fourth.

Years were overtaking Paré, and when Henry III left the capital, which later on he returned to besiege, he did not take his head surgeon with him because he was not sufficiently strong to undergo the fatigue of the campaign.

Shortly after that Henry III was killed by the dagger of Jacques Clément. Paris, where the league caused terror to reign, was again attacked by Henry IV, and this siege was the cause of all the horrors of famine and misery. Ambroise Paré who did not fear to publicly oppose the orders of the league, died 4 months after the siege had been raised, and it is in the following terms that a contemporary, by name Pierre de l'Estoile, announced the death of the famous surgeon.

"Le jeudi, 20 de décembre 1590, mourut à Paris en sa maison, maître Ambroise Paré, chirurgien du roy, âgé de quatrevingts ans, homme docte, et des premiers de son art; qui nonobstant les temps, avoit tousiours parlé et parloit librement pour la paix et le bien du peuple, ce qui le faisoit tant aimer des bons, comme mal vouloir et haïr des meschans, le nombre desquels surpassait de beaucoup l'autre, principalement à Paris, où les mutins avoient toute l'autorité: nonobstant lesquels ce bonhomme, se fiant possible à ses vieux ans comme Solon, ne laissoit à dire la vérité."

I have been unable to ascertain upon what authority Dezeimeris fixes Paré's death on April 25, 1592, and believe that this must be erroneous.

NOTE 1.

The following passages from the writings of Ambroise Paré relating to this particular circumstance are well worth quoting:

"J'étois en ce temps-là bien doux de sel, parce que je n'avois encore vu traiter les playes faites par barquebuses; il est vrai que j'avois leu en Jean de Vigo, livre premier des *Playes en general*, chapitre 8, que les playes faites par bastions à feu participent de venenosité, à cause de la poudre: et pour leur curacion commande les cauteriser avec huile de sambuc, en laquelle soit meslé un peu de theriaque. Et, pour ne faillir, paravant qu'user de ladite huile fervente, sachant que telle chose pourroit apporter au malade extreme douleur je voulus sçavoir, premièrement que d'en appliquer, comme les autres chirurgiens faisoient pour le premier appareil, qui estoit d'appliquer ladite huile la plus bouillante qu'il leur estoit possible dedans les playes, avec tentes et setons, dont je prins hardiesse de faire comme eux.

"En fin mon huile me manqua, et fus contraint d'appliquer en son lieu un digestif fait de jaune d'œuf, huile rosat et terebenthine. La nuit je ne peu bien dormir à mon aise, pensant que par faute d'avoir cauterisé, je trouvasse les blessés ou j'avois failli à mettre de ladite huile, morts empoisonnés: qui me fit lever de grand matin pour les visiter, où, outre mon esper-

ance, trouvaux ceux auxquels j'avois mis le medicament digestif, sentir peu de douleur à leur playes, sans inflammation et tumeur, ayans assez bien reposé la nuit: les autres ou l'on avoit appliqué l'adite huile, les trouvaux febricitans, avec grande douleur, tumeur et inflammation aux environs de leurs playes. Adonc je me délibéray de ne jamais plus brusler ainsi cruellement les pauvres blessés de harquebusades."

C. G. C.

NOTE 2.

Jean Sylvius (who must not be confounded with Sylvius de le Boe) was born at Amiens in Picardy in 1478; went through a course of classical learning under his elder brother, Francis Sylvius, who was principal of the college of Tournay at Paris; and was a great promoter of letters in that age of barbarism. There he learned the Latin tongue in much greater purity than it had been taught for a long time; and hence it was that his writings are distinguished to such advantage by the elegance of the style. He acquired a perfect mastery of the Latin and Greek tongues, and some little knowledge of the Hebrew; and applied himself also to mathematics and mechanics so successfully as to invent machines which deserve public notice. When the time was come of giving himself entirely up to physic, to which study his inclination had always led him, he traced it to its sources, and engaged so deeply in the reading of Hippocrates and Galen, that he scarcely did anything but examine and translate those two authors. He discovered from these the importance of anatomy, and applied himself to it so ardently, that he became as great a master as that age would permit. He studied pharmacy with no less care, and took several journeys to see upon the place the medicines which different countries produce. Upon his return to Paris he read lectures, and explained in two years a course of physic from Hippocrates and Galen, which spread his reputation so extensively that scholars from all parts of Europe resorted to him.

But before he became so famous, he met with great opposition from the physicians of Paris, who were extremely displeased that a man who had nowhere taken a degree in physic, should presume to teach that science in the metropolis of the kingdom. These murmurs induced him to go to Montpellier in 1520, to take his degrees there; but he returned without them, his avarice, of which we shall speak by and by, not permitting him to be at the necessary expense. He endeavored at his return to reconcile the physicians to him, and was admitted bachelor of physic in June, 1531. In 1535 he taught in the College of Tricquet, while Fernelius taught in that of Cornouaille; but the latter had few scholars, while the former had a great number. The reason of this difference was, that Sylvius dissected bodies, and read lectures upon botany and the preparation of medicines, which Fernelius did not. The professorship of physic in the royal college becoming vacant in 1548, Sylvius was pitched upon to fill it, which he did, after hesitating about it two years. He continued in it till his death, which happened in 1555.

He was never married, and showed even an aversion to women. His behavior was rude and barbarous. He seldom jested or departed from his gravity; and when he was inclined to become more sociable he did it awkwardly. The only merry saying related to him is, that "he had parted with three beasts,—his cat, his mule and his maid." His avarice was extreme, and he lived in the most sordid manner; he allowed his servant nothing but dry bread, and had no fire all winter. Two things served him as a remedy against cold; he played at football, and carried a great log upon his shoulders; he said that the heat which he gained by this exercise was more beneficial to his health than that of a fire. In short, this passion for money obscured the lustre of all his great qualities.

He was upon very ill terms with Vesalius, who occasioned him the greatest vexation he ever suffered. Sylvius's excellency lay in anatomy, and he prepared a work upon that subject, which he considered as a

masterpiece. Upon this, Vesalius published his "Opus Anatomicum," which was so well written, and illustrated with so many beautiful plates, that it was universally admired. Two circumstances aggravated this grievance; Vesalius had been Sylvius's pupil, and he attacked Galen, whom Sylvius had defended even to his errors. The works of Sylvius have gone through many editions.

C. G. C.

NOTE 3.

Jean Riolan, one of the most celebrated anatomists that France has ever produced, was born at Paris in 1577. His father was a well-known physician and the author of a number of works which had a great reputation in his time but are now forgotten. He studied in the French capital and was received doctor in medicine in 1604.

From the time that he received his baccalaureate, he rose in the esteem of the faculty on account of his work, and the latter body promoted him to the position of demonstrator, which position he fulfilled in the most distinguished manner. On account of his many merits, and the services that his father had rendered, the faculty gave back to him part of the money received for his reception into that body.

Riolan was physician in ordinary to Henry IV and Louis XIII. He became physician in ordinary to the queen mother, whom he followed when she was exiled and in disgrace.

A new royal chair of anatomy, botany and pharmacy having been created, Riolan was given this professorship upon the request of Andre Du Laurens. His teaching, which sparkled with a vast amount of knowledge, always drew a large number of pupils, and he understood the necessity of uniting anatomy to practical medicine and was the first who united the most essential notions of pathological anatomy with descriptive anatomy. He was an enthusiastic partisan of the glory of the ancients, or perhaps envious of that of moderns, he fought with ardor against the great discoveries of his time, such as the circulation of the blood by Harvey, and that of Pecquet on the lymphatic system. He was an ardent defender of the Faculty of Medicine and defended zealously its privileges against the invasion of Renaudot and the Royal Chamber.

In his old age he suffered severely from vesical calculus and underwent an operation in 1641, but during the extraction the stone was broken, and a portion remained which formed another, so that a year later cystotomy was again performed. Riolan died on Feb. 19, 1657, from a retention of urine, at the age of 77.

C. G. C.

NOTE 4.

Thierry de Hery was a barber surgeon and studied at Paris, where he was born, under Jacques Houllier and Antoine Saillard (who were physicians of the Faculty of Paris) because at this time the barber surgeons were obliged, according to their statutes, to take a four years' course in surgery in the faculty before they received their degree of master. He followed the army into Italy in 1537. He visited Rome, as is proven by the mention that he makes of the Hospital for incurables, in which there was a large number of patients afflicted with the various forms of syphilis. It is not known just at what time he returned to France, but it must have been considerably before 1552. If one may be able to judge by his work on syphilis. The copy of this rare work that I have in my library has the following title: *La Methode curatoire de la maladie venereenneul oultrement appellee grosse rairole, et de la diversite, de ses symptomes, composee par Thierry de Hery, lieutenant general du premier barber Chirurgien du Roy, a Paris.* Chez Gilles Goubin demeurant devant le college de Cambray rue S. Jean de Latran à l'enseigne de l'Espérance. 1559. The first edition of his work was published by Mathieu David in 1552.

The theories advanced in this work are really remarkable, considering the time at which it was published, and some of his observations regarding the diagnosis of syphilis are most judicious and show in

him the qualities of a shrewd diagnostician. He upheld that the disease could only be cured by mercury, either in the form of ointment or plasters, and by the use of fumigations.

De Hery died at an advanced age in 1599.

It is said on good authority that he had a very large and very lucrative practice in this particular branch of medicine, and a very good anecdote which bears the stamp of authenticity is told of him. He went one day to Saint-Denis, where he knelt before the statue of Charles VIII, but a monk having told him that he had made a mistake and that he was not kneeling before the statue of a saint, de Hery replied, "Keep still, my father: I know very well what I am doing; and he is a saint for me, because he has been the means of my making thirty thousand pounds in income by bringing the pox into France." C. G. C.

NOTE 5.

Etienne Gourmelen was born in Brittany and went through his early studies with success. The progress that he made in physics, and perhaps still more his natural inclination, caused him to choose the study of medicine in spite of the desire of his parents, who were not well to do, to do otherwise.

He came to Paris and studied with great perseverance and determination the best ancient and modern works on medicine, and he was received bachelor on April 2, 1558. He was received doctor of medicine on March 5, 1561, and was made dean of the Faculty of Medicine in 1574 and was renominated in 1575. In 1567 and 1568 he was made professor and explained the works of Galen and Hippocrates; his disciples were numerous and enthusiastic.

The large number of students who came to his lectures and his reputation followed Gourmelen to the Royal College, when in 1558 he was appointed professor of surgery by Henry III. The manner in which he distinguished himself in this post caused him to be considered one of the greatest professors of his century. He died on Aug. 12, 1593, having given his life principally to the study of surgery, having published several works. C. G. C.

NOTE 6.

Bartholomew Maggi of Bologna was a physician, philosopher and professor of surgery in his native city. He was one of the most celebrated practitioners of his day and was an intimate friend of Jean Marie del Monte, who was cardinal and then pope under the name of Julius III. When the latter had attained this dignity, he immediately appointed Maggi his physician and ordered him to come to Rome, where he received him with all possible marks of confidence and esteem. Maggi is to be particularly remembered for establishing the true principles of treating wounds by firearms and combating the reigning opinion of the poisonousness of these wounds. He was one of the first to establish the practice of amputating in healthy tissue when removing a limb for gangrene. In 1550 he published a small work on syphilis and venereal disease which was for a long time unknown, but the work which made his reputation is the following: *De scolopetorum et bombardarum vulnerum curatione liber*, the first edition of which was published at Bologna in 1552. C. G. C.

NOTE 7.

Throughout antiquity it was believed that there existed an animal having a fabulous shape and bearing a horn of enormous size, growing from the centre of its forehead. Aristotle and Pliny give most learned and grave descriptions of this animal, although they admit that they had never seen it. During the middle age this belief became more and more rooted in the minds of the people, and was the pretext for the performance of a great many superstitious practices. The unicorn was considered the emblem of purity; all writers on animals of the epoch pretended that this animal, that was regarded as invincible, could only be conquered by a virgin. As soon as this animal saw one, he came and

reposed his head upon her breast and then lost all his ferociousness.

The horn of the unicorn was used as a proof against poisoned foods and drink, because it was believed that it not only preserved human beings from malice of others, but also when put in contact with toxic substances it immediately annihilated the poison, and the horn of this animal was employed as an antidote during the fourteenth, fifteenth and sixteenth centuries.

Now, since the unicorn is quite as unknown as many other fabulous beings, and since no one ever captured the beast who, Petrarc believed, drew the chariot of chastity, how was it that the human race came in possession of its much-looked-for horn? It may be that this beautiful animal made a present of it to the virgins that it had the happiness of meeting (?), but this is only an hypothesis of my own, that I will not further investigate.

It has been thought that the horn employed under the name of that of the unicorn might have been procured from the rhinoceros, but in a very interesting zoological and paleontological study on the Cetacea by Raoul Guerin it is stated that the so-called horn of the unicorn was nothing less than the tooth of the monodon monoceros. It seems, however, a little difficult to conciliate this creature with the unicorn, because the former has the shape of a fish while the latter that of a horse, and I here extract a sentence describing this charming beast taken from the Roman d'Alexandre published in 1512: "La licorne est grant et grosse comme un cheval, mais plus courte de jambes; elle est de couleur tannée. Il est trois manieres de ces bestes ci-nommées licornes. Aucunes ont corps de cheval et teste de cerf et queue de sanglier, et si ont cornes noires plus brunes que les autres. Ceux-ci ont la corne de deux coudées de long. Aucuns ne nomment pas ces licornes, dont nous venons de parler, licornes, mais monoceros et monocerons. L'autre maniere de licorne est appelée églisson, qui est à dire, chèvre cornu. Ceste cy est grant et haulte comme ung grand cheval et semblable à ung chevreuil et a sa grande corne très ague. L'autre maniere de licorne est semblable à ung bœuf et tachée de taches blanches. Ceste cy a sa corne entre noire et brune, comme la première maniere de licorne dont nous avons parlé. Ceste cy est fureuse comme un thoreau quant elle voit son ennemy."

But whether this creature was a horse or a cetacea, it is none the less true that its horn was greatly sought after and entered into the most reputed pharmaceutical compositions of the time. It was sold by various merchants at an astonishingly high price and even to the seventeenth century. Water in which a maceration of bits of this horn had been made was sold to the public for its curative virtues. As both singular and instructive I here append a prescription from an apothecary for the Abbesse de Jouarre in 1530, and which was known under the title of the "*electuaire de Madame*."

Powdered pearls, 1 oz.
Powdered unicorn's horn, 8 gr.
Powdered coral, 1 scruple.
Stag's heart, 2 gr.
The whole to be gilded with fine gold.

This singular medicine, which was intended to mineralize and polypify the body of the Abbess, cost four pounds. The great commercial value of the horn of the unicorn has been spoken of by many ancient writers whose names I will not mention, but I will insert a passage translated from Paul Gove relating to the unicorn: "Barthelemy d'Alviano, capitaine de la faction des Orsini, prit Viterbe et ruina la faction des Gatteschi en faveur des Maganzesi, en distant que ceux-la etaient le poison pestilential de la ville. Et leur chef Jean Gatto ete tue, d'Alviano fit mettre sur son etendard l'animal appelle licorne, la propriete duquel est contraire a tout poison, representant une source entouree d'aspides, de crapauds ou de serpents qui etaient venus y boire, et la licorne avant d'y boire aussi plongeait sa corne pour la purifier du poison, comme c'est son habitude; et elle avait au cou la legende *Venera pello*.

From this time the unicorn has remained the emblem of the city of Viterbe, and it has the same significance on the mosaic pavement at the cathedral of Sienna.

C. G. C.

TUBERCULAR PERITONITIS.*

BY HENRI T. FONTAINE, M.D., CONCORD, N. H.

[Concluded from No. 16, p. 430.]

Treatment.—In discussing the treatment of tubercular peritonitis it will appear that the various methods employed are still in process of being tested, and that the merits and demerits of each have not yet been fully established. Much has been accomplished in the past 10 years, but a longer and closer observation of reported cases is necessary to establish facts on a firm basis.

The statistics of reported cases are misleading for various reasons:

(1) The question "what constitutes a cure" is variously interpreted by operators. Some report all their cases as cures which have survived the laparotomy for 3 months. Others extend the period to 6 months, a year, or a year and a half. Naturally this produces a discrepancy in the statistics and robs them of much value, unless each explains what he means by a cure, and gives the exact number of cases surviving 3 months, 6 months or a year.

(2) Surgeons have not in all cases taken the trouble to make an absolute diagnosis, but have frequently depended on macroscopic appearances alone, thus leaving us to question whether some instances of chronic granular peritonitis have not been mistaken for a peritonitis of the tubercular variety.

(3) Neither have the medical cases been subjected to a conclusive diagnosis, even when this was possible by inoculation experiments.

(4) The cases which have progressed slowly to a spontaneous cure, or that have been given an impetus in that direction by simple remedial measures, have not been sufficiently watched and reported to afford us a just means of comparison with the results, immediate and ultimate, of those treated by laparotomy.

Since the famous case of Spencer Wells in 1862, followed by equally brilliant cures in cases where the abdominal cavity was opened through a mistaken diagnosis of ovarian cyst or appendicitis, the attention of the profession has been gradually centered on the surgical treatment of this disease. The impetus given to this mode of treatment was so great that within the last 10 years a large percentage of all cases of tubercular peritonitis have been treated by laparotomy.

A little digression here will not be inappropriate, in order to discuss the means which bring about improvement or recovery in a case of tubercular peritonitis. As is well known, many cases get well without treatment of any kind. Others recover after removal of the ascitic fluid by tapping. But why do so many get well after a

laparotomy? What is the factor, or combination of factors, that produces the cure? Some have opened the abdomen, evacuated the serum, flushed the cavity with saline solution, or brushed the peritoneum with campho-naphthol, or treated it with iodoform, and have obtained good results. Others—and surgery inclines to the simpler method today—simply incise, evacuate the fluid, if any, and immediately close up the abdomen. Their results are equally good. Cures are reported after operation for hernia, where the general peritoneal cavity was not opened. It also follows after opening Douglas' cul-de-sac through the vagina. To what, then, is due the improvement which follows?

H. T. Byford⁶ thinks it is due to something connected with abdominal section that is not connected with tapping or other forms of treatment. That same thing causes improvement in almost all cases treated by abdominal section, even when pathological conditions in the peritoneal cavity are not removed or are not found. Thus cases of neurasthenia, hysteria, epilepsy, pelvic pain, etc., are usually temporarily benefited by abdominal section, although they may lose the benefit later. This something, in his opinion, is the preparatory and after-treatment that belongs to abdominal section.

Verf⁷ considers that the influence of laparotomy lies in the fact that after evacuation of the serum, with the consequent changes in circulation in the peritoneal cavity, the tissues have become improved, and it is possible that the tubercular virus has become changed. The first change is to be sought in the incision itself, which increases the amount of blood that flows to the peritoneum. The result is a free drinking up by the tissues of a serum rich in bactericidal properties. An analogy to this exists in the lack of resisting power to septic infection in patients who, through loss of blood, have died. Another is Biers' well-known blood stasis in the treatment of joint tuberculosis, and the immunity against tuberculous of hyperemic lungs in mitral insufficiency.

G. Naumann⁸ adds that another factor in the cure is the leucocytosis, which brings about the degeneration of the tubercles. Stehgeoleff⁹ says that, following laparotomy, the tissues around the tubercles become infiltrated with embryonic cells, which constitute a barrier to the extension of the focus and attack the bacilli. Undergoing organization, they are transformed into fibrous tissue, and the specific germs are eventually destroyed and absorbed. The experiments of Gatti and Vassilevsky¹⁰ show that retrograde changes take place by degeneration of the epithelioid cells rather than by phagocytosis. The mode of action is through a reparative inflammation, embedding the bacilli, and forcing retrograde metamorphosis. According to Jaffe,¹¹ the influence of the removal of the ascites on the general system is to facilitate the work of the heart and lungs, to improve the activity of the abdominal glands, and consequently to improve nutrition. The local influences are the removal of pressure from the lymph spaces, and the hyperemia caused by the

* Read before the Saranac Lake Medical Society, Saranac Lake, N. Y., February, 1901.

diminished pressure. In this connection the observations of Hildebrandt¹² in laparotomies performed on animals are of interest. In each case the laparotomy was followed by: (1) A short arterial hyperemia, most marked in the serous coat of the small intestines. (2) By a venous hyperemia, lasting from 4 to 7 days in the healthy animals and longer in the diseased ones. (3) By more or less paresis of the gut.

When the air of the room was heated to the temperature of the body, less reaction was noted. When the air was excluded altogether, by operating with the body of the animal submerged in a normal saline solution, heated to the temperature of the body, there was much less vasomotor disturbance, and little paresis. Laparotomy was of no use in the early stages of the disease. This he explains by the fact that cultures taken from the abdomen early in the disease are more virulent than those taken later on, and that there is a tendency to spontaneous recovery. Laparotomy merely aided this tendency. The degree of improvement depended largely on the degree of venous hyperemia induced. This was an inflammatory phenomenon due chiefly to the irritating effects of air on the peritoneum. When the air was excluded during the operation, there was less improvement, although the animal recovered more readily from the immediate effects of the operation.

Statistics.—Turning now to the statistics of surgical cases, Treves¹³ puts the percentage of recoveries at 35%, Parker Syme¹⁴ at 30%, Koenig cures in 25% of his cases. Of 19 cases, Verf reports 13 cured, 70%. Koenig, Mairange, Pic, Aldibert, taken together, report 287 cases, with 71% of cures. Herzfeld¹⁵ reports 29 cases, with 62% of recoveries. They were seen from 3 months to 6 years after operation. Bottomley¹⁶ reviews 28 cases, of which 19 were of the ascitic variety, 7 of the fibrous, and 2 ulcerative. Forty-two per cent. of the first variety and 42.8% of the second variety were observed cured at least 1 year after operation. Frank¹⁷ collects 63 cases, of which 41 were of the ascitic variety, with 40% to 50% of cures, and 19 were of the adhesive form, with 25% of cures. The 3 ulcerative cases he reports as unfavorable. Fres¹⁸ has 18 cases, with 6 cures, 33%. Wunderlich¹⁹ collects 500 cases of tubercular peritonitis. Of these 344, or 68.8%, were of the exudative variety; 136, or 27%, were of the serofibrinous variety; 20, or 4%, were of the suppurative variety.

A study of this report will enable us to form an opinion in regard to the value of the statistics already in our possession. Of the 344 ascitic cases, 176, or 50%, were observed 3 years. Now those operators who claim as cured the cases observed 6 months, or even only 3 months, would surely claim as cures these 50% observed at least 3 years. But how easily their high percentages can be whittled down by more thorough observation will be shown by Wunderlich's report. Out of his 50% long observed, 41 had a return of the ascites, in 33 very soon indeed. Besides, in 6 more the tubercular process in the peritoneum

spread, but no ascites was formed. So we have 47 which, although observed for more than 3 years, were either worse or no better than before the operation. Putting aside these 47 cases, there remains but 129, or 37% of the original 344 ascitic cases, which we can consider as cured. But the author is not satisfied with this percentage, for he further reports that out of the 176 cases observed 3 years, only 41, or 23%, can be confirmed; that is, 11.9% only of the original 344 ascitic cases, which are considered by all surgeons as the most favorable class on which to operate. Only 4 remained well longer than 10 years.

If we consider as fatal cases all which do not survive the operation 6 months, the mortality from these 344 cases was 78, or 22.6%. In the 2 remaining forms the results are much worse. Of 136 serofibrinous cases, there died, sooner or later, 56, or 41%. Clinical healing of at least 3 years' duration was observed in only 8 cases.

It will be of interest to compare with the statistics given above those of the cases treated by medicinal means. Marfan²⁰ reports 7 cases treated by medical means. Schroeder²¹ in the medical clinic at Bonn, reports 24 cases, with 33% of deaths, 20% unimproved, and 41% discharged about cured. Frank had 8 cases, of which 3 died, 1 was a cure after 10 months, 1 after 1½ years, and 3 after 3 years. Oehler reports 39 cases, seen at the clinic Carolinum, between 1895 and 1899; 18 died, mostly of meningitis; 21 are alive and well; percentage of cures, 51. He does not insist on the percentage, because of the possibility of mistaken diagnosis in some cases. Comby reports 2 cases, both cured. Of tapping, followed by insufflation, Nolen²² reports 2 cures out of 3 cases; Folet²³ 1 case; Von Mosetig, 1 case; Duran,²⁴ 1 case. Senn²⁵ reports 2 cases cured after tapping and injection of iodoform in glycerin.

In view of the above considerations, it becomes apparent that the treatment of tubercular peritonitis is far from being settled. Medical measures are so limited that surgery is frequently called upon to aid in the effort to obtain a cure. On the other hand, there are so many contra-indications to laparotomy that surgery becomes more and more limited, both as to the choice of cases and as to permanency of results. Where surgery finds its best field, there also does medicine obtain its greatest percentage of cures. Thus it becomes difficult, at the start, to decide whether a case will receive the most benefit from medical or from surgical treatment. We may, however, arrive at a safe, conservative view of the matter, by considering the results obtained in the past 10 years.

Taking Aldibert's classification as a basis, it is safe to say that in the third variety of cases — the stage called fibrous, or caseous, or ulcerative, or purulent — surgery reports only bad results; so it stands to reason that only medical means can be employed. Surgery has no business here, except as a palliative measure for the relief of constriction of the bowels or other grave complication.

In the first and second varieties—those of ascites and encystment—medicine and surgery both have strong claims. Only longer and more thorough observation of results will decide in favor of which the balance lies. We are not, however, without some light for our guidance in choosing the best method of treatment in a given case.

Let us first consider the cases which have grave tubercular complications in other parts of the body. If the kidneys are diseased, Verf considers it the strongest contra-indication to laparotomy. The same may be said in cases where the lungs are extensively involved. In the uncomplicated cases it would seem the part of wisdom to give the medical treatment a thorough trial, and this for the following reasons: (1) Because there is already a tendency to spontaneous recovery, and medical measures may suffice to influence it in that direction; (2) the statistics of medical cures seem almost as good as the statistics of surgical cures; (3) because the surgical results will be fully as good a little later on in the disease, provided medical measures do not suffice.

If the patient does not quickly improve, then laparotomy should be resorted to before the stage of encystment has progressed too far.

When the patient first comes under observation during the second, or stage of encystment, the more reasonable plan would seem to be to advise immediate laparotomy. Unless the patient responds quickly to medical treatment at this stage, it is unjustifiable to temporize, for the disease will soon have progressed beyond the point where surgical means will avail. When there is reason to suspect the female generative organs as the primary focus of the disease, laparotomy should be strongly advised, for it is in just such cases, when the offending organ could be easily removed, that surgery has achieved its most brilliant results.

The nodular form of tubercular peritonitis is also regarded as a most favorable one for operation. Many authors consider this as only a transition form, one in which the peritoneum is in the process of healing.

Ultimate results.—The ultimate results of treatment in this disease are very interesting. In some of his cases Jaffe was able to demonstrate that even when the ascites completely disappears after an operation, the peritoneum does not necessarily heal. In others he found at autopsy, or during a second laparotomy, undertaken for some other reason, that the tubercular lesions had not disappeared, but were quiescent. In a case which came to autopsy 8 months after the first laparotomy, for tubercular peritonitis, Herzfeld observed isolated small black nodules. Microscopically they proved to be tuberculous lymphatic glands under the serosa. Otherwise the peritoneum was quite normal. Autopsies on such cases have frequently revealed complete anatomical cures. In a second laparotomy, undertaken for the removal of the uterine adnexa,

Nelaton found the peritoneum completely healed, although the original focus, the tubes, were still tuberculous. Oehler speaks of cases in which the tubercular peritonitis heals in places, while in the intestines, mesentery and omentum there remain tubercular swellings and nodules. These dry nodular forms are not the result of cachexia, but are forms in the process of healing. Jaffe observed after a second laparotomy, that in spite of seeming improvement the tubercular process had advanced. Gatti and Hildebrandt believe that a laparotomy is entirely successful when the power of restitution to normal, as regards the tubercular nodes, is already pre-existent in the nature of the tubercle. Caille²⁶ is skeptical as to complete cure, because of the persistence of mild abdominal symptoms, of irritative catarrh, or inflammation in the bronchi, lungs, pleuræ and intestines, in many cases even 2 years after operation. Oehler says that in childhood many cases are cured without operation, in which the duration of the cure is from 1 to 2 years.

Medical treatment.—When it comes to the medical treatment of tubercular peritonitis, the ordinary textbooks are very deficient. For a long time the only thing recommended was inunction of the abdomen with mercurial ointment. Thomson²⁷ still recommends it, believing that the massage of inunction is tonic to the tissues, allowing them the better to grapple with the disease. Marfan recommends rest, proper diet, mild counter irritation by painting the abdomen with tincture of iodine, then covering it over with a coat of collodion. This serves as a splint to keep the bowels more at rest. For drugs he uses the "Syrop iodotannique," cod liver oil, creosote, phosphates and hypophosphites and arsenic. As a laxative he prefers castor oil. For diarrhæa, antiseptics of the alimentary canal, and paregoric for colic. Frank reports that in his ascitic cases puncture alone was sufficient. Byford, who bases his medical treatment on the preparatory and after-treatment of laparotomy, gives the following details: The medical treatment of subacute and chronic tubercular peritonitis, as ordinarily used, lays more stress on nourishment and tonics, and less on intestinal rest, intestinal depletion and disinfection, which are the essential points. Make the supporting treatment subservient to that of the inflammation. The treatment of the alimentary canal, in addition to the use of tonics and stimulants, is one on which we should depend. Destroy the sources of local irritation, and nature will often do the rest. Keep the alimentary canal as aseptic as during and after an abdominal section. This applies as well to the prodromic stage. Give salines to produce 2 or 3 liquid stools daily; 8 or 10 gr. of salol, guaiacol or an equivalent, 3 or 4 times daily, to aid in disinfecting the alimentary canal, and possibly producing some effect on the bacilli. The diet should be entirely liquid and such as to produce a minimum of gas or solid residuum. If it is thought wise to affect the disease by mercurials, calomel or blue mass are better than inunction, because they stimulate

the action of the liver, and aid in disinfecting the alimentary canal. The same rest in bed as in abdominal section in all cases. In the subacute and chronic cases no opium should be used, except to check diarrhea. Proper diet, with hot fomentations or the use of the ice bag, will relieve the pain, while bismuth and soda, with salol and guaiacol, will check the tendency to diarrhea. If rapid improvement is thus obtained, incision will be indicated only in severe or neglected cases, in which the fluid cannot be made to disappear by absorption. Even then tapping can be substituted.

In acute cases, for the first few days, treat like an acute peritonitis. After that no opium, but hot fomentations for pain if necessary. Give enough calomel to turn the stools dark green. As soon as the stomach will tolerate it, give salines in divided doses to produce 2 or 3 soft or liquid stools daily. The diet should be fluid and in regulated quantities, so as to produce no intestinal gas, until the subacute symptoms have passed. Then give only such solids as will produce no residuum nor gas in stomach or bowels. Salol, guaiacol or creosote may be used. Keep the patient quiet in bed until all the abdominal tenderness has disappeared, and the afternoon temperature becomes normal. Let him be more quiet whenever there is a rise of temperature, or indications of abdominal tenderness or pain. Tonics, stimulants and such general remedies as may be found curative of tubercular infection, should not be neglected. Keep the patient under systematic treatment for several months, with carefully regulated diet.

Whatever mode of treatment is adopted, whether medical or surgical, we should not forget to add the tonic of fresh, pure air, which does so much for patients in other forms of tuberculosis. It will increase the nutrition and resistance of the patient, thereby placing him in the most favorable condition possible for overcoming the disease.

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Clinical Department.

THE REPORT OF A UNIQUE CASE OF CHLOROSIS.

BY WM. EDGAR DARNALL, A.B., M.D., ATLANTIC CITY, N. J.,

Physician to the Atlantic City Hospital; the Mercer House for Invalid Women; late physician to St. Michael's Baby Hospital; Fellow of the American Academy of Medicine, etc.

CHLOROSIS, or "green sickness," is a disease always interesting because not yet thoroughly understood. It is rarely seen in men, and scarcely ever in young children. Virchow suggested as its cause a defect in the circulatory organs. Cabot thought that the disease, being so readily cured by iron, could be hardly more than a functional defective homogenesis. It has been regarded also by certain writers of some authority as a neurosis. Since it occurs so often near the period of puberty, and is frequently associated with disturbances of menstruation, it has been charged to some fault of development or function of the sexual organs. Osler's view, however, that menstrual disturbances are "a sequence, not a cause, of chlorosis," is no doubt more nearly correct, as far as the influence of menstruation is concerned. The unique case reported below, however, would seem to substantiate the view advanced by Sir Andrew Clark, and later urged by Forchheimer, that prolonged constipation plays an important rôle in the etiology of the disease, the result of constipation being a copremia, due to the absorption of poisons—leucomaines and ptomaines—from the large bowel. This is also in line with the accepted ideas of the influence of constipation and copremia in neurasthenia, and would account for some of the neurotic manifestations of chlorosis.

Dr. F. L. Katherman, the resident physician of the Atlantic City Hospital, has kindly furnished the following clinical notes in the case:

Julia D., admitted to the hospital Aug. 6, age 22, domestic, brunette, born in Ireland. Has never had any menstrual difficulty since puberty; sexual organs normal. Both parents dead from causes unknown. She had the usual diseases of childhood—measles, mumps, chickenpox and whooping cough. Twelve years ago had spinal meningitis, which was treated in Ireland and New York. In April of the present year she felt run down, had constant headache and backache. About three weeks before admission complained of lassitude, drowsiness, capricious appetite, anorexia, palpitation, faintness, dyspnea and cold feet. She has had chronic constipation for a long time, and the day before admission had an attack of vomiting.

On examination she presented the greenish hue of the skin that has given the disease its name. The sclerotic of the eyes were bluish white. The

tongue, lips and conjunctival mucous membranes were very pale, almost white; the hands seem bloodless as those of a corpse; tongue coated. The patient perspires readily. The body is very well nourished and even stout. The blood examination shows reduction of hemoglobin to 20%, poikilocytes and slight leucocytosis. The drop of blood drawn is pale, thin and watery.

On Aug. 11, on account of the peculiar temperature curve, a Widal test was ordered, and an examination for the plasmodium malaria. The Widal reaction was negative, and the plasmodium could not be found. The urine was normal.

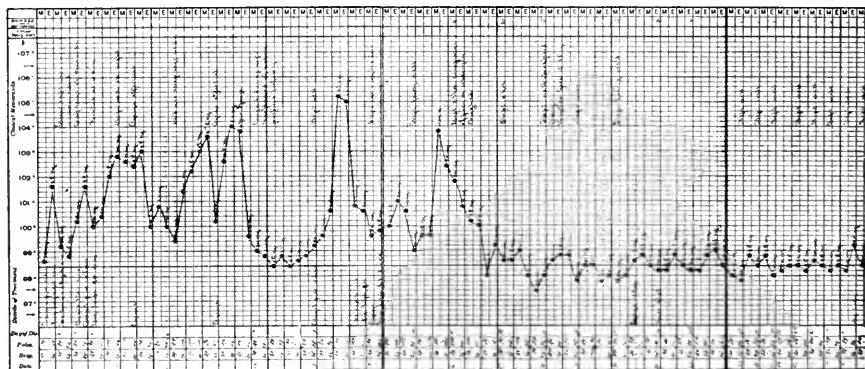
At this period, when the report of the blood examination was found to be negative as regards typhoid and malaria, the field was again gone over to see if the cause of this peculiar course of the temperature could be discovered. From a study of the chart constipation was suspected to be at the bottom of it. It will be noted that a fall of temperature occurred after admission as soon as the bowels were opened. No movement then occurred for

rosis responsible for the high temperature, but this doubt was soon cleared up by the effect of the treatment in overcoming all tendency to constipation and destroying all chance of copremia. Bland's pill, Fowler's solution and some strychnia were administered throughout the attack; calomel and salines were used for catharsis.

Recent Literature.

The Principles and Practice of Medicine. Designed for the Use of Practitioners and Students of Medicine. By WILLIAM OSLER, M.D., etc., etc. Fourth edition. New York: D. Appleton & Co. 1901.

In this last edition Professor Osler's "Practice of Medicine" has grown to a volume of 1,200 pages. Clinical and laboratory activity make imperative the constant revision of even the best and most acceptable books on the theory and



two days, and the temperature steadily rose to 103°. Again there was a drop when an evacuation took place. This was followed by a rise to 104°, from a day of inactivity. On the seventh day the normal point was reached, after a movement from the bowels, but jumped to 105.2° again, from another day without a movement. The resident physician was therefore given instructions to see that an evacuation of the bowels occurred *every day* without fail. Following this order the temperature immediately came down and remained normal until the discharge of the patient from the hospital.

It is not unusual to have a slight febrile disturbance of 100° to 101° in chlorosis, but the extraordinary course of the temperature in this case was rather puzzling, from the fact that it suggested a severe systemic infection such as seen in the zymotic fevers, and yet being associated with no other definite symptoms or characteristics of those diseases, seemed to obscure the diagnosis for a few days. It was feared there might be some other undiscovered condition back of the chlo-

practice of medicine; and among these best and most acceptable books Osler's has, from the first appearance of the first edition, taken a foremost place. The author has rewritten the article on typhoid fever, and has naturally found much to recast and revise in regard to malaria, dysentery, yellow fever and plague. On diphtheria, acknowledgment is made of use of the work of Councilman, McCollum and his assistants at the Boston City Hospital.

Practitioners who have learned to lean upon Dr. Osler's book will certainly require this new edition, which contains numerous other revisions besides the more important ones here alluded to.

WITHIN the limits of the city of Battle Creek, Mich., comprising 20,000 inhabitants, there are 15 companies organized for manufacturing health foods. The total capital stock represented is \$10,575,000, and much of it comes from wealthy guests at the Battle Creek and Phelps Sanitariums.—*American Medicine*.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, OCTOBER 24, 1901

*A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.**Subscription Terms: \$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; \$6.50 per year for all foreign countries belonging to the Postal Union.**All communications for the Editor, and all books for review should be addressed to the Editor of the Boston Medical and Surgical Journal, 283 Washington Street, Boston.**All letters containing business communications, or referring to the publication, subscription or advertising department of this Journal should be addressed to the undersigned.**Remittance should be made by money-order, draft or registered letter, payable to*DANRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.**THE OFFICIAL REPORT OF THE CASE OF
PRESIDENT MCKINLEY.**

In calling attention to the official report of the case of President McKinley, published in this issue of the JOURNAL, we wish to remind our readers that now for the first time is the evidence presented which permits an intelligent opinion to be formed by others than those immediately concerned in the treatment of the distinguished patient,—and especially with regard to the cause of death.

The statement presented is so complete, from all points of view, even to the minutest details, that it carries conviction that nothing has been kept back, and exhibits an evident desire that the reader should be possessed of every possible source of information.

We have no hesitation in stating our firm belief that the patient received the best possible care from the outset, and that the bullet took such a course as was likely to prove inevitably fatal. At the same time, we realize that the questions concerning the expediency of drainage and the immediate cause of death, which were raised by those directly concerned with the case, will also be discussed by physicians throughout the world to whom this report is submitted.

It seems to us probable that the immediate cause of death was acute pancreatitis. The bullet apparently lacerated this organ, tore the pancreatic and paranephric fat tissue, and caused not only the necrotic inflammation of the pancreas but also the gangrene of the adjoining fat tissue. Clinically, the sudden collapse ending in death, in spite of stimulation, is thoroughly characteristic of the fatal termination of the cases of acute pancreatitis; in addition, the appearances described in the report of the autopsy are well known to those familiar with the lesions of the pancreas and acquainted with the history of affections of this organ. Had such extensive

destruction of the retroperitoneal fat tissue been the immediate result of the passage of the bullet, it is likely that Dr. Mann would have recognized the condition at the time of the exploration.

The gangrenous cavity contained not only necrotic tissue, but from its contents was obtained a bacterium, the growth of which produced an odor of decomposition. Although frequently the escape of the pancreatic secretion into the neighboring fat tissue occasions at first disseminated fat necrosis, such necrotic fat tissue, in part at least, eventually becomes detached and forms a portion of the contents of a gangrenous cavity. Disseminated fat necrosis, however, is not an invariable result of acute pancreatitis, but a diffuse putrefactive necrosis also may follow. Of all the recorded cases of hemorrhagic and gangrenous pancreatitis with extensive sloughing, there are but two which recovered. These two are the cases reported by Chiari, in which the necrotic and sequestered pancreas was discharged from the bowels. In President McKinley's case the pancreas is stated to have been necrotic, although unfortunately the conditions of the autopsy were such that no microscopic examination of this organ was made. In the favorable cases above mentioned, weeks and months elapsed before recovery took place.

Some of those who have followed the President's case may take the view that the gangrenous cavity was due to infection of the track of the bullet by the bacterium above mentioned. It must be remembered that occasionally lesions and symptoms are produced by organisms not commonly found in pathological processes or by organisms which ordinarily are not pathogenic. This may be one of these rare cases.

As to drainage, it may be presumed that, if the course of the bullet could have been foreknown, some form of drainage of the cavity of the omental bursa, perhaps with gauze wicks, would have been established. For, although such a procedure could have afforded, under the circumstances, no more than a slender hope of favorably affecting the progress of the disturbances, the actual outcome could not have been more disappointing. The surgeons were almost unanimous in considering drainage unnecessary, but the fact that there was nothing to drain immediately after the operation did not preclude the possibility of the subsequent formation of something calling for drainage.

This seems to be the main question to be decided in the future, should a similar situation again present itself. Without drainage death occurred; with drainage can it be prevented?

We presume that those who saw the condition of the retroperitoneal fat tissue at the autopsy, could not but have wished that some form of drain

had connected the gangrenous cavity with the surface of the body, however firmly convinced they may be that the issue would have been the same.

A PIONEER IN PSYCHIATRY.

To those interested in the care of the insane and the study of mental diseases, it was a notable series of papers that were read at the meeting of the Middlesex South District Society of the Massachusetts Medical Society on the 9th of October. This meeting was held at the McLean Hospital at Waverley, and in the papers read the results of the 22 years' growth of the hospital under its present administration were set forth. The work now doing at the hospital was traced in its germination, its present development described and its future forecast, not boastfully (though there is much of which to be proud), but modestly of the past, hopefully for the future. The story of its growth, which it is interesting to trace year by year in the successive annual reports, is the story of the development of the hospital idea as distinguished from the custodial idea in institutions for the insane. This idea is the keynote of all the changes that have taken place, and its significance for psychiatry cannot be overestimated or overstated,—it means healthy growth and unlimited progress instead of stagnation. It involved the solutions of problems of the *housing* of patients, the *care* of them, the *treatment* of them, and the *study* of them. The ground had already been prepared for some of the changes by his predecessors when Dr. Cowles took charge of the asylum in 1879, and the task was made easier by the then recent changes in the commitment laws, whereby patients were sent to the asylum only on the order of the court, not merely by the certificate of two physicians, as previously, thus changing the attitude of the patient toward the hospital physicians. In 1881 voluntary self-commitments were allowed, giving a marked impetus to the hospital idea, which was accentuated in 1892 by the change in name (which had been under consideration for three years) from asylum to hospital.

In the matter of *housing* the patients not much could be done with the old buildings at Somerville, though some improvements were made. But the project of new ones had already been formed, and the new buildings at Waverley, arranged on the cottage plan, relieved of an institutional character by their separation and different yet harmonious architecture, with sunny rooms and home-like parlors, thus adapting them to the clinical needs of the patients, the buildings and grounds so arranged as to hide as far as possible the restraining walls where such are necessary, and the specially

constructed houses for special classes of patients, mark the advance in the solution of this problem.

The *care* of patients, according to the hospital idea, calls for skilful trained attendants; for the insane are regarded as patients, not boarders, as they were called in former years. The only way to secure suitable persons for this purpose was to offer them a profession by training them in general nursing, and as early as 1882 a training school was opened which has been in continuous operation ever since,—the first successfully organized school in any institution of this kind. The nurses are not only taught the principles of general nursing, medical gymnastics, massage and the application of hydrotherapeutic measures, but are trained in the close observation of patients, and thus become valuable assistants in the clinical studies that are part of the work of the hospital.

The problems of *treatment* were on the one hand partly those which the general practitioner meets, partly more specialized ones of the relations between nutrition and exercise, and on the other hand the special problems of what may be called mental therapeutics. No mental disease destroys all normal mental action, and the latter problems are to encourage all normal mental activity while correcting or discouraging all morbid activity. Beginning as early as 1882 with small gymnasia partly equipped with apparatus for graded exercise, there are now two well-equipped gymnasia with a resident trained director for each, whose work is not confined to the gymnasium alone, but who also supervises the various out-of-door games and exercises of the patient under medical direction when needed, and encourages them in various activities. A complete system of hydrotherapeutic apparatus has recently been added to the means of treating the bodily conditions of the patients. The daily life of the patient is made as nearly normal as possible through the home-like surroundings in the houses, while in connection with the gymnasia are sitting-rooms and parlors for social intercourse, and workshops in which patients are encouraged to occupy themselves productively. Much is done for their entertainment in many other ways, and a general library is open to them. Since 1881 doors have been left unlocked as much as possible, and patients are given the largest amount of liberty compatible with safety, many having parole of the grounds, which are not fenced in, some even having full parole to go where they please. This condition contrasts very strongly with the former seclusion and isolation which extended even to the prohibition of correspondence and all other means of communication with friends.

Great as are these changes, the greatest and most significant has been in the *study* of pa-

tients. Bringing from the superintendency of a general hospital the conception of clinical study as an essential element in the work of a hospital, Dr. Cowles in 1882 increased the staff by the addition of two house officers, who should do clerical and other work which had previously devolved upon the physicians, in order that the latter might have more time for the observation of patients and the study of their conditions. Convinced that, just as physiology is the basis of general medicine, so psychology must be the basis of psychiatry, he studied the psycho-physical methods that Wundt had been teaching since 1879; in 1888 steps were taken for the establishment of a small laboratory with psycho-physical apparatus, and a physician familiar with this line of work was added to the staff to carry on investigations. In 1894 Delabarre, writing in the *Année Psychologique* concerning psychological laboratories in America, said of this at the McLean Hospital, "It is the only one in America which combines psychiatry and physiological psychology. In Germany there is but one such; namely, that of Professor Kræpelin at Heidelberg." It was in the same year in which that was written, that the work of the laboratory had reached such a point that it required more advanced training, and a neurologist was engaged and sent abroad to study in the laboratories of Wundt, Mosso and Kræpelin. A few years later he again went to Europe for a like purpose. Yet with so young a science, and with all its applications to the problems of psychiatry still to be developed, immediate and startling results have not been expected. As early as 1887 the idea that auto-intoxication, as the result of faulty metabolism, was the underlying cause of some of the clinical phenomena observed in patients, involving the common problems of nutrition in the insane, gave rise to the hope that pathological chemistry might throw some light upon these questions; the beginning of work along this line by the equipment of a chemical laboratory was made at the same time, and a few years later a special house officer was appointed to carry on this work. Such great advances have been made in recent years in physiological and pathological chemistry, that a specialist in these fields became necessary, and a year ago such a chemist, trained in the laboratories of Hammarsten, Salkowski and Kossel supplanted the house officer, and the laboratory was furnished with apparatus for this work. The only laboratory in Great Britain where chemical investigations in connection with the insane are carried on, is that of the London County Council at Claybury, where this work was begun in 1897; on the continent of Europe there is no hospital for the insane which has such a laboratory. General pathology was not neg-

lected; from 1881 until 1888 this department was under the charge of one of the pathologists of the Harvard Medical School, and included courses of instruction to the medical staff, while in the laboratory advantage was taken of what pathological material the hospital afforded. At that time there were in this country but few general hospitals even that had their own pathological laboratories. The one at the McLean Hospital has developed with the rest of the work, a special laboratory assistant working in this department. Meanwhile improved methods of clinical observation of patients were developed, and fuller and more detailed records were kept; for it was a fundamental element in the general conception of the hospital plan that the laboratory work should be correlated with definite clinical groups, and the earlier records did not give sufficient data to establish these groups. So close has been the relation between this work and the laboratories that it has been at the solution of problems suggested by clinical observations that the laboratory work has been directed. With the opening of the new hospital in 1895, enlarged laboratories were provided and equipped with special apparatus and special libraries for pathological anatomy, for psycho-physical investigation, and for chemical studies. Here, then, are to be found in harmonious and mutually helpful co-operation, careful clinical, psycho-physical, chemical and pathological studies of the insane, thus at last attaining the fulfillment of the ideas conceived in 1887, and putting into more complete operation the work begun even at that early date. Dr. Cowles has sown the seeds of a work which has already developed into a thrifty plant of vigorous and healthy growth. If published products of all this work are asked for, it may be said that they are still in the making, and it has always been a part of the policy of the hospital not to put forth partly finished products. It will not be long, however, before some results can be shown of this careful and, in its best sense, conservative work.

The effects of this development of the hospital idea are many. In the public mind it creates a greater confidence in hospitals for the insane, lessens the dread and feeling of disgrace in sending relatives to them, and hence leads patients to come earlier under care, thus presumably increasing their chances of recovery. In the patient it engenders confidence and co-operation and promotes a more rapid recovery. On the welfare of the hospital its effect is to increase the cost of maintenance, but to increase correspondingly its earning capacity; and the movement of population is remarkably increased,—for example, last year there were 169 admissions on a basis of a daily average population of 164, while in most

hospitals the proportion is as one admission to three or four daily average population. On the staff it exerts a stimulating influence, arousing and maintaining a keener interest in all patients, and it attracts a better class of assistants. Such an example could not fail to be stimulating to others who were striving for progress in the same direction. Within the last six years other hospitals in this Commonwealth have entered efficiently upon like methods of work, which should be encouraged by public interest and legislative support, upon which they are more dependent than is the McLean Hospital.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Oct. 23, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 34, scarlatina 17, measles 23, typhoid fever 21, smallpox 14.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending Oct. 19, was 194, as against 200 the corresponding week last year, showing a decrease of 6 deaths, and making the death-rate for the week 17.6. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 41 cases, 3 deaths; scarlatina, 26 cases, no deaths; typhoid fever, 23 cases, 7 deaths; measles, 15 cases, no deaths. The deaths from consumption were 26; pneumonia, 14; whooping cough, none; heart disease, 23; bronchitis, 3; marasmus, 11. There were 11 deaths from violent causes. The number of children who died under 1 year was 44; under 5 years, 55; more than 60 years, 45; deaths in public institutions, 52.

RESEARCH FUND FOR THE HARVARD MEDICAL SCHOOL.—Through the will of the late Miss Harriet Lowell of Boston, the Harvard Medical School will ultimately receive her entire property, the amount of which is not at present stated. The property is to be held in trust. After the payment of several private legacies, the income of the estate is to be divided yearly into two equal parts. One of the parts is to be paid over to the president and fellows of Harvard College, and is to be used under the direction of the medical department for scientific study and investigation in any department of surgery, and into the cause, treatment, prevention and cure of disease, including dental surgery and pathology, either in this country or abroad. A portion of the income of the other half of the estate goes to a beneficiary. Upon his death the entire estate goes to

the president and fellows of Harvard, is to be known as the Harriet Lowell Fund, and is to be used for the purposes given above. Such a bequest, being of the nature of an endowment fund, cannot fail to be of the greatest service in the development of the best interests of the school.

PATHOLOGICAL CHEMISTRY AT THE McLEAN HOSPITAL.—The work in the chemical laboratory at the McLean Hospital, Waverley, Mass., is now conducted by Dr. Otto Folin. He graduated at the University of Minnesota, with the degree of B.S., in 1892; he took the degree of Ph.D. at the University of Chicago in 1896, under Professors Nef and Stieglitz. He afterwards spent two years in European universities as a student of physiological chemistry,—at Upsala, Berlin and Marburg, as a pupil of Hammarsten, Salkowski and Kossel. His subsequent studies have been especially directed to pathological chemistry, and during the year preceding his appointment at the McLean Hospital he had charge of the department of physiological and analytical chemistry in the University of West Virginia, where he also pursued some special investigations. He is assisted by Mr. Phil. A. Shaffer, A.B., of the University of West Virginia, who is continuing some research work begun at that university.

HARVARD UNIVERSITY REGISTRATION FOR 1901-1902.—The registration at Harvard University for the present academic year shows in general no material loss or gain. The higher requirements for admission to the medical school have, however, had the effect of reducing the number of students in the entering class about 50%. The figures are: Harvard College, 1,971 (Seniors, 337; Juniors, 413; Sophomores, 527; Freshmen, 552, Specials, 142); Lawrence Scientific School, 538; Graduate School, 291; Divinity School, 31; Law School, 584; Bussey Institution, 26; Medical School, 498; Dental School, 104; Total 4,043.

SMALLPOX.—At the end of last week there were 24 cases of smallpox under hospital treatment. Two deaths occurred during the week.

BEQUEST TO A HOSPITAL.—By the will of the late George N. Cate of Marlboro, Mass., the Marlboro Hospital fund receives \$5,000.

NEW YORK.

MEETING OF MEDICAL SOCIETY OF STATE OF NEW YORK.—The first semi-annual meeting (for scientific purposes only) of the Medical Society of the State of New York was held at the New York Academy of Medicine on Oct. 15 and 16, about 50 papers being presented at the various sessions. A special feature of the meeting was verbal reports on the case of President McKinley

by Drs. Matthew D. Mann and Herman Mynter of Buffalo, who were given a vote of thanks by the society. Among the guests from other states were Dr. James C. Wilson of Philadelphia, who read a paper on the Treatment of Croupous Pneumonia, and Dr. Richard C. Cabot of Boston, who in a symposium on diseases of the liver and bile passages offered a contribution on Courvoisier's law. On the evening of Oct. 16 a reception was given to members and guests.

MEDICAL AND LEGAL INSANITY.—At a meeting of the Society of Medical Jurisprudence, held Oct. 14, Dr. William B. Noyes read a paper on, "A Case of Moral Insanity," in which he showed that there is a wide difference between medical and legal insanity. He classed all anarchists as more or less insane, through the cultivation of one idea. "Between the ordinary criminal and lunatic," he said, "come the anarchists of the type of Czolgosz. The anarchist is a specimen of modern society standing near the criminal on the one side and the lunatic on the other. He is morally insane, yet legally responsible."

APPLICATIONS TO ATTEND EXECUTION OF CZOLGOSZ.—A dispatch from Albany, dated Oct. 14, states that the warden of Auburn Prison had sent to the state superintendent of prisons, who has the decision of the matter in his hands, over one thousand requests to attend the execution of Czolgosz. The actual number of witnesses allowed to be present is twenty-six.

DR. JAMES W. MCLEAN REPRESENTATIVE OF COLUMBIA AT YALE.—The representative of the medical department of Columbia University at the Yale bi-centennial celebration on Oct. 23 was Dr. James W. McLean, Dean of the Medical Faculty.

AWARDS AT THE PAN-AMERICAN EXPOSITION.

The following is a partial list of awards made at the Pan-American Exposition, Buffalo, N. Y., on classes of exhibits relating to matters of interest to the medical profession. A number of medical men have themselves received recognition in these awards, either directly as exhibitors, or indirectly as collaborators, through the institution or association in whose name the exhibit was made.

The following are some of the gold medals awarded: Abbott, Dr. Samuel W., Boston, collective exhibit on public hygiene. Bath Department, City of Boston, public hygiene. Chicago Department of Health, municipal sanitation. Health Officers' Department, Quarantine, Staten Island, N. Y., sanitation. Massachusetts State Board of Health, Boston, public hygiene. Tenement-House Committee of the Charity Organization Society, New York City, models, photographs

and plans. Johns Hopkins Hospital, Baltimore, Md., plans, photographs, reports and publications. McLean Hospital for Insane, Waverley, Mass., photographs, etc. McGarr, Thos. E., Albany, N. Y., services in relation to collective exhibit relating to hospitals for the insane. Presbyterian Hospital, New York City, model, plans and reports. Among others, the following institutions were awarded silver medals: Boston City Hospital, Boston, Mass., photographs, plans and reports. Municipal Hospital for Insane, Pierce Farm, Boston, Mass., photographs, etc.

The exhibits of the various branches of the United States Government were not entered in competition for award, but a special jury was appointed by the Board of Directors of the Exposition to examine these exhibits, report upon their character and importance, and submit recommendations upon which suitable recognition might be made to the departments making display, and to those assisting in the collaboration of their exhibits. With regard to the exhibits made by the medical departments of the Army, Navy and Marine Hospital Service, this jury made the following remarks and recommendations:

"The Medical Department of the Army has established immediately south of the Government Building a model brigade field hospital. Seldom has the public been able to inspect such an exhibit. It is especially interesting, since it represents the new equipment of the medical department in the field—scarcely an important article of which but has been adapted since the outbreak of the war with Spain, and has never been shown previously. A detail of enlisted Hospital Corps men give daily exhibition drills in first aid to the wounded, litter drills, demonstrations of various means of transporting the wounded, tent pitching, and hospital establishment. The drills are very popular, and in connection with them the hospital forms a most complete and creditable exhibit of the medical service of the army." In the grading by this jury of the exhibits of the various bureaus of the War Department in respect to their importance, that of the Medical Department was placed above all others.

With respect to the exhibit made by the Medical Department of the Navy, the jury reported that "The Bureau of Medicine and Surgery (shows) a complete sick-bay as constructed and equipped on a man-o'-war, and a model of the hospital ship *Solace*." The display was placed second among the exhibits made by the various bureaus of the Navy Department.

With respect to the exhibit of the Marine Hospital Service, the jury reported that "(there is) a model of a fully equipped marine hospital ward, models of different quarantine stations established by the government, and other exhibits illustrating the great care the Marine Hospital Service is taking to prevent the introduction and spread of contagious diseases and epidemics." This exhibit was graded by the jury fourth in relative importance of the exhibits made by various bureaus of the Treasury Department.

METEOROLOGICAL RECORD

For the week ending Oct. 12, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer daily mean.	Thermometer daily mean.	Relative humidity.	Direction of wind.	Velocity of wind.	Weather.	Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	
S... 6.30.10	46	50	43	82	75	78	
M... 7.30.45	50	60	40	79	70	74	
W... 8.30.26	57	70	44	74	69	72	
Th... 9.30.24	62	72	52	77	69	72	
T... 10.30.30	64	73	56	84	79	72	
F... 11.30.20	68	63	54	90	94	92	
S... 12.30.14	66	59	52	97	97	97	
Oct. 30.26	64	49		81			

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; N., snow; — indicates trace of rainfall.
 ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCT. 12, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria and croup.	
New York	3,487,292	1,251	452	33.33	8.55	2.15	12.72	3.20	
Chicago	1,698,575	—	—	—	—	—	—	—	
Philadelphia	1,293,697	404	103	22.76	7.18	2.47	.99	4.45	
St. Louis	575,238	—	—	—	—	—	—	—	
Baltimore	508,955	—	—	—	—	—	—	—	
Cleveland	378,758	160	64	35.62	6.25	3.75	11.77	1.87	
Buffalo	352,387	—	—	—	—	—	—	—	
Cincinnati	325,902	—	—	—	—	—	—	—	
Pittsburgh	321,616	107	26	33.64	8.40	13.27	7.47	2.80	
Washington	275,715	—	—	—	—	—	—	—	
Milwaukee	285,315	—	—	—	—	—	—	—	
Providence	175,597	64	24	43.73	3.12	—	26.55	1.56	
Boston	560,892	222	65	27.92	8.55	6.30	6.30	.99	
Worcester	119,421	34	15	39.47	5.88	2.94	14.70	2.94	
Fall River	104,863	38	16	44.72	2.63	—	28.94	—	
Lowell	94,969	35	—	22.86	11.43	—	2.85	14.28	
Cambridge	91,886	—	—	—	—	—	—	—	
Lynn	68,513	23	5	21.74	—	—	8.69	—	
Lawrence	62,559	26	9	19.25	—	3.85	7.50	—	
New Bedford	62,442	17	7	41.17	5.88	11.76	17.64	—	
Springfield	62,059	8	2	14.28	12.50	—	—	—	
Somerville	61,643	14	3	14.28	7.14	—	7.14	—	
Holyoke	45,712	14	2	21.42	14.28	7.14	—	7.14	
Brookton	40,963	10	5	26.64	—	6.66	6.66	6.66	
Haverhill	37,175	8	1	37.50	12.50	—	—	—	
Salem	35,950	10	3	60.00	—	—	12.50	50.00	
Chelsea	34,072	9	5	33.33	—	11.11	11.11	11.11	
Malden	33,654	12	3	16.67	—	—	—	—	
Newton	33,667	8	3	25.00	—	—	12.50	—	
Fitchburg	31,537	6	3	16.67	—	—	—	—	
Taunton	31,036	10	3	30.00	10.00	—	10.00	10.00	
Gloucester	26,121	4	3	33.33	—	—	—	—	
Everett	24,336	6	3	33.33	—	16.67	—	—	
North Adams	24,290	8	2	25.00	25.00	—	—	—	
Quincy	23,909	8	—	50.00	—	12.50	12.50	—	
Waltham	23,481	7	2	28.60	—	—	14.30	—	
Pittsfield	21,706	5	4	—	—	—	—	—	
Brookline	19,335	—	—	—	—	—	—	—	
Chelsea	19,167	4	2	25.00	50.00	—	—	25.00	
Medford	18,244	3	—	—	—	—	—	—	
Newburyport	14,758	5	—	—	—	—	—	—	
Melrose	12,962	4	1	—	—	—	—	—	

Deaths reported 2,595; under five years of age, 847; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 791; acute lung diseases 194; consumption 310; scarlet fever 17; erysipelas 5; typhoid fever 84; whooping cough 18; cerebrospinal meningitis 8; smallpox 4; measles 3; diarrheal diseases 255.

From whooping cough, New York 9, Philadelphia 3, Baltimore 2, Providence 1, Boston 1, Quincy 2. From cerebrospinal meningitis, Pittsburgh 1, Boston 3, Worcester 1, Lynn 2, Marlboro 1. From scarlet fever, New York 9, Philadelphia 1, Baltimore 1, Pittsburgh 3, Boston 2, Salem 1. From typhoid fever, New York 27, Philadelphia 10, Baltimore 6, Pittsburgh 14, Boston 14, New Bedford 2, North Adams 2, Worcester, Lawrence, Holyoke, Brockton, Haverhill, Chelsea, Everett, Quincy and Northampton 1 each. From erysipelas, New York 3, Philadelphia 1, Baltimore 1. From measles, New York, Philadelphia and Lowell 1 each. From smallpox, New York and Philadelphia 2 each.

In the thirty-five greater towns of England and Wales, with an estimated population of 13,483,026, for the week ending Sept. 28, the death-rate was 16.7. Deaths reported 3,676; acute diseases of the respiratory organs (London) 137, whooping cough 37, diphtheria 32, measles 34, fever 65, scarlet fever 33.

The death-rate ranged from 9.6 in Leicester to 27.3 in Sunderland; Birkenhead 15.0, Birmingham 21.6, Blackburn 17.1, Bolton 16.1, Bristol 13.3, Burnley 17.7, Cardiff 12.9, Croydon 10.5, Derby 12.8, Gateshead 22.7, Huddersfield 15.9, Hull 20.3, Leeds 19.1, Liverpool 18.3, London 15.0, Manchester 21.5, Newcastle-on-Tyne 25.6, Norwich 19.1, Nottingham 13.2, Oldham 16.7, Plymouth 13.5, Portsmouth 16.5, Salford 17.9, Sheffield 20.6, Swansea 19.8, West Ham 17.6, Wolverhampton 17.7.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U.S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCT. 3, 1901.

AUSTIN, H. W., surgeon. Granted leave of absence for 1 month from Oct. 7. Sept. 28, 1901.

THOMAS, A. R., passed assistant surgeon. To proceed to Naples, Italy, and report to Passed Assistant Surgeon J. M. Eager for duty. Sept. 27, 1901.

BILLINGS, W. C., assistant surgeon. Relieved from duty at Los Angeles, Cal., and directed to proceed to Chicago, Ill., and report to the medical officer in command for duty and assignment to quarters. Oct. 2, 1901.

WILE, C. V., assistant surgeon. Granted leave of absence for 7 days from Oct. 17. Oct. 3, 1901.

WARREN, B. S., assistant surgeon. Granted 2 days' extension of leave of absence. Sept. 28, 1901.

RODMAN, J. C., acting assistant surgeon. Granted leave of absence for 5 days. Oct. 3, 1901.

STEARNS, H. H., acting assistant surgeon. Granted leave of absence for 14 days from Oct. 10. Sept. 25, 1901.

WALKER, R. T., acting assistant surgeon. Granted leave of absence for 3 days. Sept. 27, 1901.

HUME, LEA, sanitary inspector. Granted leave of absence for the month of October. Sept. 23, 1901.

RECENT DEATHS.

DR. HORACE BIGELOW of New York died at the Roosevelt Hospital on Oct. 15, from typhoid pneumonia. He was born in Fayetteville, N. Y., Dec. 18, 1871, and was graduated from Amherst College in 1893 and from the Medical Department of Columbia University in 1896. He afterwards served on the house staff of Bellevue Hospital and for the past three years had been examining physician at that institution.

DR. CHARLES HENRY BROWN of New York, for many years managing editor of the Journal of Nervous and Mental Diseases, the official organ of the American Neurological Association and various local neurological societies, died on Oct. 15, at the age of 45.

DR. WILLIAM L. HARDING of New York, a graduate of the Medical Department of the University of the City of New York in 1869, died on Oct. 11, in the sixty-first year of his age.

DR. CHARLES F. W. HAAG of New York died on Oct. 15, after a long illness. He was 74 years of age and was graduated from the Medical Department of the University of the City of New York in 1857.

BOOKS AND PAMPHLETS RECEIVED.

Electricity in Medicine and Surgery, including the X-Ray. By William Harvey King, M.D. In two parts, with a section on Electro-Physiology. By W. Y. Cowi, M.D., Berlin, Germany; and a section on the Bottini Operation, by Albert Freudenberg, M.D., Berlin, Germany. Illustrated. New York: Boericke & Runyon Co. 1901.

Original Articles.

THE MECHANICS OF LATERAL CURVATURE AS APPLIED TO THE TREATMENT OF SEVERE CASES. (SECOND PAPER.)¹

BY ROBERT W. LOVETT, M.D., BOSTON.

THE question as to the best treatment of severe scoliosis is one which is far from being settled, and one which has been often discussed in this association. In recent periodical literature it occupies a prominent place.² It is generally accepted that milder cases of lateral curvature (those where the spine is movable) yield, on the whole, to proper gymnastic and mechanical treatment. There is some difference in opinion of such cases as to whether exercises should be directed to the muscles of one side, or should be symmetrical, and as to whether or not mechanical support is advisable between exercises. These, however, are relatively minor matters, and do not affect the fact that rational treatment is, on the whole, satisfactory in this class of cases.

On the other hand, it is generally admitted that the treatment of scoliosis, where there is bony rotation and any marked degree of stiffness or limited flexibility of the curved portion of the spine, is, on the whole, unsatisfactory; that a *cure* is not to be obtained by any means now at our disposal; that further progress may be retarded; and that the general balance may be improved.³

There is diversity of opinion as to the most effective method of treatment now in use in this grade of cases, but the trend of recent opinion is toward the use of forcible manipulation to improve the deformity, or of fixed apparatus (generally jackets) temporarily used to retain the improved position. This method is spoken of, perhaps not quite correctly, as "forcible correction," because improvement rather than correction is obtained. The treatment of severe cases by gymnastics alone is unsatisfactory, and treatment by braces alone has fallen into disrepute. Forcible correction is hardly beyond its experimental stage, and there is little agreement as to the method of applying it, its scope and its efficiency.

That forcible correction holds out the hope of putting the treatment of severe scoliosis in children on a different basis may be inferred from the experiments of Wullstein, presented at the International Medical Congress in Paris in 1900. He showed that, if young dogs were held for some months by plaster bandages, in a curved position, during their growing period, a permanent bony deformity of the spine resulted. Conversely, it

may be hoped that, retaining a growing child with severe scoliosis in an improved position may result in an improvement, and possibly, in time, a cure of the existing bony deformity, where efficient treatment is begun early and persistently followed.

It becomes, therefore, of importance to inquire how the best corrective position may be obtained in such cases of scoliosis, and how forcible jackets may be best applied.

It is the object of this paper to set forth certain observations bearing on the forcible correction of severe scoliosis. These may be classified as follows:

(a) The theoretical requirement to be met in forcible correction.

(b) The description of a method intended to fulfill some of these requirements.

(c) The presentation of cases treated by this method.

(d) Experimental forcible correction on the spine of a cadaver.

(e) Experiments on a living model with scoliosis.

(f) Conclusions from experiments.

(a) *Theoretical requirements.*—The present paper is supplementary to the one presented last year before the American Orthopedic Association, and deals with the mechanics and treatment of the pathological spine in scoliosis, whereas that dealt with the mechanics of the normal spine as applied to scoliosis. The conclusions presented at the end of that paper were as follows:⁴

Torsion and side flexion of the spine are parts of one compound movement, and neither exists to any extent alone. Lateral deviation of any part of the spinal column is, therefore, necessarily associated with torsion (rotation) at the seat of the deviation.

In flexed positions of the spine, side bending is associated with torsion of the vertebrae in one direction; in extended positions, by torsion in the opposite direction.⁵ In this it follows simply the mechanical law governing flexible rods, which rotate in general in the same way in corresponding positions. From the kind of torsion observed in scoliosis, it is obvious that the deformity originates in the flexed position of the spine. The correction of the rotation would, therefore, seem to be logically made by throwing the spine into extended positions and in taking side bendings from extended positions.

If such a theory has any value, it must lie in its application to the treatment of scoliosis, and to that point my attention has been directed for the last year.

If scoliosis is acquired in the flexed position of the spine, and if the type of rotation shown in scoliosis is the type characteristic of flexed positions, it would seem to be important to throw the affected portion of the spine into the most extended position possible and to hold it there; because the experiments on the normal spine, just quoted, show that when a person bends to the right with his spine in a hyperextended position, his vertebrae turn in their rotation to the

¹ Read before the American Orthopedic Association at Niagara Falls, June 12, 1901.

² Schanz: Das Redressement Schwere Skol. Lang. Arch. G. 4; Ueber den Wirth des Orth. Stützcorsets. Samml. Kl. Vort., 276. Hüsser: Ueber die Wirk. d. Orth. Corsets bei Skol. Z. f. Orth. Chir., 8, 2, 592. Hoffa: Probl. der Sk. Ehdig. Berl. klin. Woch., 1897, p. 4. Hoffa: Neue Fortschritte in der Sk. Bhdg. Zeits. f. O. Chir., 7, 4. Radicke: Beitr. zur Bhdg. d. Skol. Z. f. O. Chir., 7, 243. Noble Smith: Forced Reduction, etc. British Medical Journal, Jan. 8, 1898. Delore: De la Red. de la Scoliosis graves Jour. de méd. de Paris, 1895, p. 26. Phelps: Transactions American Orthopedic Association, xiii, 287. Bradford and Brackett: Correction in L. C. Transactions American Orthopedic Association, xii, 251.

³ A. M. Phelps: Orthopedic Transactions, xiii, 297. R. Whitman: Orthopedic Surgery, 1901, p. 143.

⁴ Boston Medical and Surgical Journal, June 14, 1900; Transactions American Orthopedic Association, xiii, 251.

⁵ Cf. Lünig and Schulthess: Orth. Chir., Münch, 1901, p. 129.

opposite side from what they do when he bends to the right with his spine in a flexed position. So that one problem of treatment would be to hold the affected portion of the spine in a hyper-extended position.

The natural equilibrium of the spine suggests a means of solving this problem in dorsal scoliosis. The normal spine, when seen from the side, presents three curves known as physiological,—one long dorsal curve with the convexity backward and two short curves, cervical and lumbar, with the convexity forward. To maintain the upright position of the body, the centre of gravity must be over the centre of support. If one curve is changed, the others must be correspondingly changed also; for, in a general way, they are compensatory to each other in the upright position. If the lumbar curve is flattened, the dorsal curve must be flattened to a corresponding extent (Fig. 1). The treatment to be described was based in part upon this fact.

In a case of scoliosis in the dorsal region, for example, if the lumbar curve is flattened, the dorsal curve must also be flattened, if it is flexible. If it is not flexible, and the lumbar curve is flattened, the upper part of the column must be thrown forward, and the equilibrium of the whole column disturbed. To induce, therefore, a flattening of the dorsal curve,—that is, a more extended position of the dorsal spine,—a flattening of the lumbar spine was attempted. If a scoliotic patient, with a flattened lumbar spine, stands erect, the influence of equilibrium will tend to produce an extended position of the dorsal spine. To maintain this flattened condition of the lumbar spine, the plaster-of-Paris jacket seemed available. One reason for adopting the mode of treatment to be described was, therefore, to hold the corrected spine with the lumbar region flattened.

(b) *Method of applying corrective jackets.*—For the application of such corrective jackets the easiest way to obtain flattening of the lumbar curve seemed to be to have the patient lie prone on a rectangular gas-pipe frame, on a cloth hammock, with holes cut in the cloth for the legs to hang through perpendicularly. In this way an obliteration, in large part, of the forward lumbar curve was obtained (Fig 2).

In this position a plaster jacket was applied, and was carried to the usual height, and carried as low as possible, the pelvis being firmly grasped. As an accessory to this treatment, side pressure was obtained by bandages passing around the trunk, pulling laterally on the convexities of the lateral curve, these bandages being fastened to the opposite side of the gas-pipe frame.

Jackets were applied with as much or as little force as was desired, with the results as shown in the photographs. It was found in the earlier jackets that it was very easy to obtain an unbearable amount of corrective force without realizing it, and even with padding and all precautions, the position which could be easily obtained in some cases was too much corrected to be endurable. Ether was not used in any case.

Jackets were applied at intervals of from five to seven days in all cases where possible, as, from observing the height of patients, and from the statements of the more observing ones, it seemed as if the maximum corrective effect of each jacket was exerted in the first few days after application,—after a week it was said to exert less pressure and to feel looser. One reason for the application of jackets in this modified prone position has been already stated; namely, the hope of producing extension of the dorsal spine by holding the lumbar spine in a flattened position.

It seems probable that another element enters in, to make forcible correction in the horizontal position more effective than in the suspended position. It was found on several patients, that a better correction of the lateral curve could be obtained by corrective side pressure in the prone position than in suspension. The reason for this is probably to be found in the fact that, in suspension, the intervertebral ligaments and some of the muscles connecting the vertebrae are made tense and are on the stretch; whereas, in the horizontal position of the body the same structures are lax. It would seem to be natural that these structures, when lax, would allow more side movement between the vertebrae than when tense, for in the latter instance a part of their elasticity would have been already exhausted. A flexible rod, with any element of elasticity, allows more lateral displacement on side pressure when it is slack than when it is stretched in its length. The simplest manipulation of a rubber tube or a strip of sponge rubber makes this evident.

My object, then, in applying jackets in this way was to induce an extension of the normal spine in connection with some side correction obtained during the application of the jacket, and to place the patient in the prone position in order to secure the greatest side correction possible. By this treatment I hoped to stretch contracted ligaments and muscles; to make the patient, in his sense of balance when erect, continually strive for a better position, and to push the curved portion of the spine nearer the median line. I did not expect appreciably to change existing bony curves in adolescents or adults, but to place them in a better relation to the rest of the spine and, perhaps, to improve the curves themselves a very little. In young children, on the ground of Wullstein's experiments, I hoped, by a maintenance of corrected position, either by jackets or by other means, to induce, in time, an improvement of the bony curve. Jackets including the shoulders were not applied, although they would be obviously desirable in many cases.

The present method is crude and incomplete as here described, but the lines in which its better development will probably take place will be indicated.

Nonremovable jackets were regarded only as a temporary expedient to secure a better basis for further treatment.

(c) *Presentation of cases.*—The method pursued in the cases observed was as follows: Two

cases, one a severe paralytic case in a girl of 11, and one an extreme bony curve in a girl of 14, have worn continuously jackets applied at varying intervals.

In the others, after two, three or four corrective jackets had been applied at short intervals, a removable leather or celluloid corset was made, and exercises were at once begun, and the jacket worn between exercises. As observed so far, the improvement has been held during the months since the application of the jackets.

In one case, where much correction has been obtained by two or three jackets, proper treatment was discontinued at once, and in three months the boy had slipped back to his former condition.

It is the intention, except in paralytic cases, to discontinue the use of support after a few months at most, continuing the gymnastics, of course, for a much longer period.

The cases reported here are not selected in any way, but are those cases, from a group of twelve or more, of which I have the most satisfactory photographs.

Patients were photographed, sometimes by me and sometimes by someone else. The endeavor was to give a fair photograph without suggesting to the patient to stand in a voluntarily improved position. The photographs in general are not as good as they should be, but, even as they are, they are better than unsupported statements as to the results obtained.

CASE I. K. C., 8 years old. Severe paralytic case of 5 or 6 years' duration; rigid curve; paralysis also of right leg with $1\frac{1}{2}$ inches shortening; rotation very marked; no previous treatment beyond an occasional plaster jacket. Series of plaster jackets at intervals of 1, 2 or 3 weeks from October, 1900, to June, 1901. No attempt made as yet at gymnastic treatment, on account of paralysis of muscles of back. Bony rotation, so far as shown by photographs, has not been diminished (Figs. 3 and 4).

CASE II. S. A., 15 years old, previously untreated. Rigid bony curve with marked bony rotation of several years' duration. Three jackets were applied at intervals of 1 week; a removable leather jacket was then applied, and patient went to her home at a distance. Exercises were prescribed, which she did herself without assistance. An interval of 3 months elapsed between the third and fourth photographs (Figs. 5, 6, 7 and 8).

CASE III. Mary M., 14 years old. Rigid curve in left lumbar and dorsal regions, with bony rotation very marked. Treatment for a short time some years previously by suspension jackets. Treatment for 1 year by prone corrective jackets applied mostly at short intervals (Figs. 9 and 10).

CASE IV. E. B., 11 years old. Rigid curve with bony rotation. Some previous treatment by gymnastics. Position cannot be voluntarily corrected. Between the first and last photographs, 4 corrective jackets were applied, covering a period of 5 weeks. Treatment since the last photograph consists of a removable jacket and exercises (Figs. 11 and 12).

It is well known that most postural cases and cases of scoliosis without fixed curves yield, as a rule, readily to proper treatment, and cases of that type, if cured or improved by any different treatment from those in common use would show very little that was convincing.

To avoid the criticism that consequently would follow the treatment of mild cases by this or any method, only the severest cases of fixed curves were taken for observation, and forcible jackets alone are here discussed. Consequently, only severe cases with fixed curves and bony rotation have been presented here.

(d) *Observations on cadaver.*—Before drawing any conclusions from the cases presented, it may be permissible to add certain observations made on the scoliotic spine of a cadaver, and certain minor observations made on the living model, as both have some bearing upon the question as to the best means of obtaining forcible correction of the spine.

By the courtesy of Prof. Thomas Dwight, the following observations were made upon the scoliotic spine of a cadaver from the dissecting-room of the Harvard Medical School. The spine was from a man about 40 years old. The cadaver had been prepared in the usual way for dissection, and the sternum and some of the anterior ends of the ribs had been removed to facilitate injection; otherwise the spine was intact and was well preserved. The outer muscles had been, for the most part, cut away during the routine dissection, and the viscera had been taken out. The remaining muscular masses were removed, but no elaborate dissection was undertaken for fear of disturbing the ligaments.

The scoliosis was, apparently, of static origin and of many years' duration. At the sides of the bodies, along the concave side of the lateral curve of the spine, were found projecting ledges of bone running from the edges of the vertebral bodies. There was no evidence of disease of the spine, and, except for the affected part, the spine was as movable as the average normal spine of the dissecting-room subject. The scoliosis was to the right in the dorsal region, with slight compensatory curves to the left in the cervical and lumbar regions. The greatest side deviation, as seen from the back, was reached at the sixth or seventh dorsal vertebra. Bony rotation was marked, the right side of the chest being carried well backward.

The observations consisted largely of manipulations upon the spine similar to those used in the treatment of scoliosis, and the effect of each manipulation was noted as accurately as possible.

The conclusions of the experiments only are given here.

Suspension.—Experiments were first undertaken as to the corrective effects of strong traction made in the length of the vertebral column. The spine was hung by the atlas from an overhead pulley, and the sacrum was fastened in a vise attached to a table weighing about 25 pounds. Enough force was used to lift one end of the table from the floor. This amount of traction was sufficient to lengthen the spine one inch, but this lengthening was apparently due rather to the straightening of the cervical and lumbar physiological curves than, as will be seen, to any change in the fixed dorsal curve itself. After suspension

it took the spine several minutes to settle to the length that it had before traction was made.

The lengthening of one inch is not so important a change as it might appear, nor does it necessarily imply any distraction of the vertebrae, although such, perhaps, occurred. The same spine showed a difference of $4\frac{1}{2}$ inches in length between the flexed and hyperextended positions, when measurement was made along the spinous processes. Slight changes in the physiological curves were sufficient to make marked variation in the measurements of the length of the spine when traction was not being used.

Experiments were then made as to the amount of side correction to be obtained in the curved part of the spine by the amount of suspension force described above.

Hatpins were driven into the spinous processes of vertebrae, at the top and bottom of the curved region. These pins were connected by a thread, and the side deviation of a pin in the spinous process of the sixth dorsal vertebra was studied from this thread. The greatest side displacement of the pin that could be observed, when traction was made in the length of the spine, was one-eighth of an inch; that is, the sixth dorsal vertebra was one-eighth of an inch nearer the median plane in the suspended than in the unsupported position of the spine. In this spine, therefore, the corrective effect of traction in regard to the lateral curve was very slight.

Flexed and extended positions.—It was not possible to determine that either the flexed or hyperextended position of the spine influenced the lateral curve markedly, but the sources of error were too many to make this observation of value.

Side pressure.—Corrective side pressure was then made upon the convex side of the ribs by the hand. It was more effective; that is, the same pressure seemed to accomplish more lateral correction in the prone than in the suspended position.

The greatest side correction that could be produced in the curve itself was one-eighth of an inch, when the relation of the sixth dorsal vertebra to a line connecting the upper and lower dorsal vertebrae was considered; that is, a change of one-eighth of an inch could be made in the dorsal curve itself. But when the side movement of the same vertebra, under the same manual pressure, was considered in its relation to a line connecting the atlas and the sacrum, one-half inch of side correction would be obtained; that is, it was easier to displace the whole curved region to the other side than to make the curved region itself straighten.

That is, there was in the spine a fixed region, bounded above and below by the most movable parts of the spine, the lower cervical and the lower dorsal region. Manipulations to correct either the rotation or the lateral curve were, therefore, more likely to take effect above and below the curve than in the curve itself. Side pressure pushed the whole dorsal region to the

left, but made little impression on the curve itself (Fig. 15).

This contrast between the fixed and movable portions was notably to be seen in attempts to correct the rotation. If oblique forward pressure were made upon the angles of the ribs, as prominent on the right side of the back, the cage of the thorax revolved horizontally, in one piece, upon the two movable parts above and below it, and the lateral curve, as seen from the back, was increased. This was because the curved part of the spine, convex to the right, was twisted and carried further to the right, and the convexity of the lateral curve was apparently increased by being carried into another plane. Moreover, by this passive rotation of the thorax, the right side being twisted forward and the left back, the curved dorsal region was placed in a less favorable relation to the cervical and lumbar compensatory curves, thus making the whole lateral curve appear more marked, as seen from the back.

The reverse of this manipulation (that is, backward side pressure upon the right side of the chest) increased the rotation, but diminished the lateral deviation of the spinous processes and made the spine straighter when viewed from the back, because the thorax again moved as a whole, the curved line of spinous processes was brought into a more favorable plane and into a better relation with the cervical and lumbar regions.

So far as the lateral curve was concerned, the best position of all was when both pathological rotations, dorsal and cervical, were forcibly increased by manual twisting; that is, if the right side of the chest was rotated backward and the left side of the cervical region was rotated backward, the best obtainable position of the spine was obtained, so far as the lateral curve of the spinous processes was concerned.

Apparently the same is true of the bodies of the vertebrae.

To meet the criticism that, in the cadaver on which these experiments were made, the sternum had been removed, it may be said that the presence of the sternum would contribute still more to the rigidity of the thorax and would make the application of twisting force to the thorax still more effective in the direction indicated.

In fixed curves, therefore, diminishing the rotation by manual manipulation increased the lateral deviation, and increasing the rotation diminished the lateral deviation. The importance of this in its relation to therapeutic measures may be easily appreciated. For this reason, therefore, forward, or forward oblique pressure upon the right side of the back (in this case of right dorsal, left lumbar curve) made the lateral curve much worse.

There seems to be, in addition to this, a second reason connected with the intrinsic mechanism of the spine, which acted at the same time to make this manipulation increase the lateral curve.

Every rotation in the spine not organically diseased is accompanied by a lateral deviation of

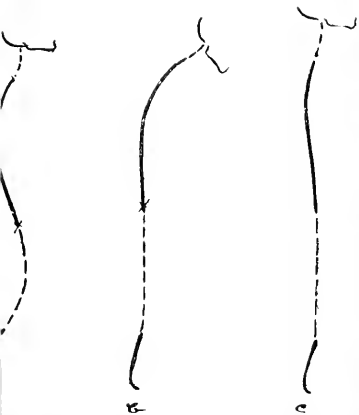


FIG. 1. Diagram showing equilibrium of the spine, seen from the side: (a) Normal equilibrium; (b) lumbar curve flattened where dorsal region is rigid; (c) lumbar curve flattened where region is flexible, showing flattening also of dorsal.

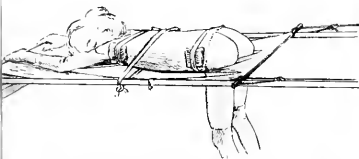


FIG. 2. Patient lying prone on gas pipe frame. The pads are adjusted to correct a right dorsal curve.

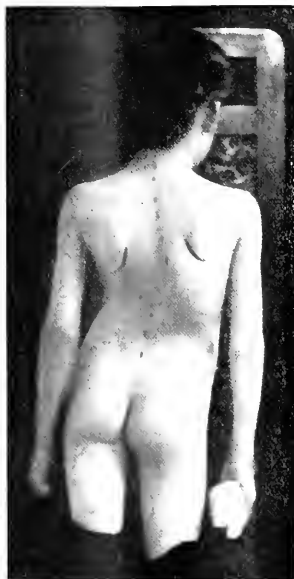


FIG. 3. Case I, K.C., October, 1901.



FIG. 4. Case I, K.C., June, 1901.



FIG. 5. Case II, S.A., Feb. 2, 1901. Before the application of jacket.

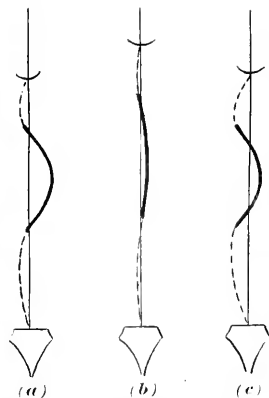


FIG. 15. (a) Diagram of spine, seen from back, with right dorsal left lumbar curve; (b) same spine with curve corrected partially; (c) same spine with curved region pushed bodily to left, with curve unchanged.



FIG. 6. Case II, S.A., Feb. 16, 1901. After two corrective jackets.



FIG. 7. Case II. S. A. Feb. 23, 1901. After three corrective jackets.



FIG. 8. Case II. S. A. May, 1901. After three months of gymnastic work at home.



FIG. 9. Case III. Mary M. July, 1900.



FIG. 10. Case III. Mary M. July, 1901.



FIG. 11. Case IV. E. B. July 23, 1901. Natural standing position before application of jacket.

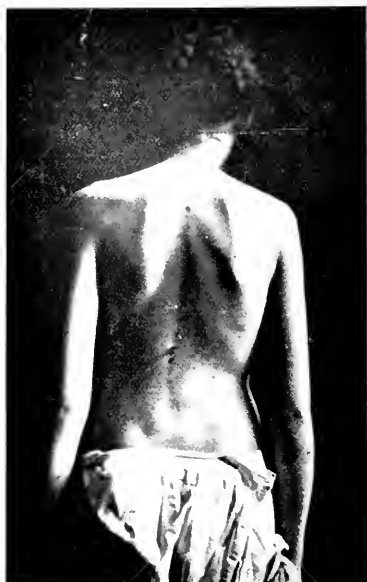


FIG. 12. Case IV. E. B. Aug. 27, 1901. Natural standing position after the application of four corrective jackets.



FIG. 13. Scoliotic cadaver, back.



FIG. 14. Scoliotic cadaver, front.



FIG. 16. Model twisting to the left, showing the consequent lateral deviation of the spine.

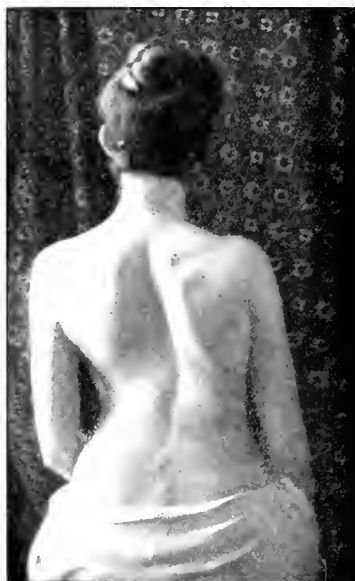


FIG. 17. Patient sitting in natural position.



FIG. 18. Rotation diminished by forward pressure on the right side of thorax. No lateral pressure is being made.



FIG. 19. Rotation increased by forward pressure on left side of chest. No lateral pressure.

the spine. This may be seen as well in the backbone of a fish or a cat as in the human model, being merely one mechanical attribute of a flexible rod. The human model, twisting with the right shoulder forward and the left back, shows a marked lateral deviation to the right in the dorsal region and to the left in the lumbar region.

The twisting forward of the right side of the thorax in the cadaver worked, therefore, to cause a right dorsal, left lumbar curve of itself, as occurs in any flexible rod or any spine twisted in the same direction. This, in the cadaver in question, served to exaggerate the existing curves. Thus these two factors, the rigidity of the thorax and the natural mechanical laws of the spine, worked together to cause an increase of a right dorsal, left lumbar curve, when the right side of the chest was actively or passively rotated forward.

In short, diminishing the rotation increased the lateral deviation.

(e) *Experiments on the living model.*—A similar experiment was made upon an adult woman patient, with a severe fixed curve similar to that of the cadaver.

It will be seen that, when the bony rotation was diminished by forward pressure on the angles of the ribs on the right side, the lateral deviation was increased, no side pressure being made. When the rotation was increased by backward twisting of the right side, on the other hand, the lateral deviation was diminished.

(f) *Conclusions from experiments.*—From these experiments on the cadaver and model, it is evident that forcible attempts to correct bony rotation must be made with much care, remembering that it is easier to twist the whole thorax unchanged than to effect any considerable change in the curve itself.

This has been recognized in the construction of some of the instruments for forcibly correcting the spine.⁶ Much apparatus has aimed only at oblique forward pressure on the bony rotation; for example, the "Detorsions apparat" of Schnlthess.⁷ This sort of pressure, while it may diminish the rotation, so far as it is effective, will increase the lateral curve.

This criticism applies not only to the use of much corrective apparatus, but also to gymnastic work, where attempts to correct the rotation in fixed curves is made by manual pressure upon the prominent ribs. Figs. 18 and 19 are a sufficient comment on this class of work.

In so far as the corrective force used presses forward upon the rotated ribs, it must be met by counterpoints of force on the thorax, preventing the rotation of the thorax as a whole; otherwise the force will be dissipated through the spine, and the thorax will be twisted unchanged. If it is met by such counterpoints of pressure, the force will be expended on the thorax, and will be corrective so far as it is effective.

Forcible correction by pure side pressure may increase the rotation, but, so far as it is effective, will diminish the lateral deviation. That this is not new may be appreciated by a quotation from Schreger⁸ in 1810: "*Der seitliche Druck auf die Rippen biege diese an den ohnehin schon mehr Spitzen Winkeln noch mehr Spitzig zu.*"

That plaster jackets may cause increase of the rib angle is demonstrated by Hüsey.⁹ The same point, that plaster jackets may increase the bony rotation apparent in the back, has been alluded to by Schulthess and Vulpinus.¹⁰

It may, therefore, be stated that attempts, in fixed curves, to diminish the rotation by force in any degree directed forward, not carefully antagonized on the thorax, will lead to an increase of the lateral curve. Conversely, attempts to diminish the lateral curve by pure lateral pressure, not carefully antagonized, will result in fixed curves, in an increase of the rotation, as it is easier for the whole thorax to rotate backward than to give way laterally.

If forcible correction is to be used properly, both forward and lateral force must be met by opposing forces on the thorax itself; the force must be expended on the curve and limited to the thorax. The only way to do this, obviously, is to keep the thorax from rotating on the movable points of the spine, and to exert the pressure there instead of distributing it through the spine.

In flexible cases, on the other hand, the reverse seems to be true, that rotation and lateral deviation are parts of one movement and are correlated. That class of cases, however, is not discussed in the present paper. Given, however, a fixed condition of a distorted spine, and the conditions are changed.

An active or passive rotation of the spine in one direction causes a right dorsal, left lumbar curve, and, in the opposite direction, a left dorsal, right lumbar curve. This suggests that one or the other of these rotations might be used with benefit in a given case, in addition to direct lateral or oblique pressure, in the application of corrective jackets to secure improved position of the lateral curve. The same is equally true of their probable usefulness in gymnastic work.

The chief work on the use of rotations in their corrective effect on scoliosis has been contributed by Wallstein.

It seems not unlikely that the understanding and use of rotation of the spine as a corrective measure in scoliosis may be the next step in progress.

CONCLUSIONS.

In cases of scoliosis with fixed bony curves, the same theory of corrective treatment cannot be applied as in cases of scoliosis with flexible curves. The fact that there is a fixed portion of the spine situated between two movable parts makes it easier to twist or displace the thorax as a whole

⁶ Bradford and Brackett: Children's Hospital Report, Boston, 1895, p. 234; Hoffa: Orth. Chir., second edition, pp. 421, 422.

⁷ Luning and Schulthess: Orth. Chir., München, 1901, p. 286, fig. 159.

⁸ Fischer, quoted by Hüsey.

⁹ Hüsey: Zeitsch. f. Orth. Chir., viii, 2, 235.

¹⁰ Vulpinus: Volkmann's Samml., kl. Fort., 276.

than to make any change in the curved portion itself. As a result of this, forcible attempts to correct bony rotation in fixed curves will increase the lateral curve, unless the thorax is kept from rotating, and forcible attempts to correct the lateral curve are likely to increase the rotation.

To judge from the observations on the cadaver, suspension as a corrective agent has but little corrective effect in rigid cases, being more likely to affect the compensatory curves than to produce any marked improvement in the rigid curve itself.

For the application of forcible jackets, the prone position, with the legs hanging perpendicularly, seems the most effective for two reasons: First, because in the prone position greater side displacement between the vertebra is permitted on manipulation than in the suspended position, because in the former the spine is not put on the stretch and part of its elasticity thereby exhausted; and second, because in the prone position, with the legs hanging perpendicularly, it is possible to apply a jacket which shall flatten, in some degree, the lumbar curve of the spine, and when the erect position is assumed, this flattening of the lumbar spine will necessitate some degree of hyperextension in the dorsal region on account of the equilibrium of the spine.

When the effect of rotations of the spine, in their effect on lateral deviation, is better understood, it will probably be possible to add the element of rotation to the corrective force applied in the treatment of scoliosis.

With regard to forcible correction, one of two things may be done: (1) Force, carefully antagonized, may be applied to the curve itself, with a view to improving the curved portion of the spine; (2) the curved region may be twisted as a whole, or displaced sideways as a whole in its relation to the rest of the spine, as occurs when unopposed force is applied to the curve. The former is, of course, the more desirable when it is possible, but the latter may be of much use in improving the general outline of the body. The separation of the two is important for the application of intelligent therapeutic measures. It is relatively easy to displace the thorax in relation to the rest of the column, but relatively hard to change the curve itself.

Forcible correction seems to have its place only as preliminary to gymnastic treatment, and the writer would not wish to be understood to advocate the use of corrective plaster jackets except as a temporary means to secure a better foundation for better gymnastic or, if necessary, mechanical treatment.

INTERMITTENT HYDROPS.*

BY E. H. BRACKETT, M.D., AND F. J. COTTON, M.D., BOSTON.

THE cases here reported represent a well-defined and recognized disease, although one not frequently seen. It is quite possible that many

cases pass unrecognized, since it is necessary to have an opportunity of studying them in a greater or less length of perspective.

CASE I. A man of 30, good general condition, previous history negative with regard to any condition bearing on the present affection. Well until 4 years ago, then began to suffer with occasional pain in the hip, the thigh and the knee. Later periodic swelling appeared in the knees, lasting only a few days, and with comparatively free interval. The trouble gradually increased, with an increasing disability, not only at the time of the swelling, but also during the intermission. The patient had tried residence in several parts of the United States without benefit from the change of locality, and at the time when first seen the general condition was decidedly below par. The patient was suffering from a regular and intermittent swelling of knees, affecting the two knees alternately, with perfect regularity both of the effusion and of the interval. The affection consisted of swelling preceded by local symptoms of heat, some soreness and tenderness, with a general feeling of languor and malaise. The swelling reached its maximum in about 2 to 3 days, quite filling the knee-joint, which was somewhat hot and tender, until the time of maximum swelling; it then gradually disappeared, lasting in all about 4 days. During the interval, the knee was free from any symptoms except that of general weakness, and a limitation of motion both in full flexion and in extension.*

CASE II. Woman, 35, general condition good, with previous history negative; the first attack followed a slight trauma, and the knee was treated by fixation and crutches for several months. Later another effusion appeared, which was followed by the second period of fixation, after which the swelling came and went, but no special local treatment has been employed. At the time when first seen, there had been periodic swelling, appearing every 10 days, and lasting 4, with regular intermission of 6 days. The swelling was preceded one day by a feeling of malaise and languor, the knee was somewhat tender, painful and hot; the swelling reached its height in 2 days, and disappeared at the end of the fourth day. During the interval the patient was able to go about without any particular disability.

Both of these cases present a well-marked type of swelling known as intermittent hydrops, with the characteristics of a regular periodic swelling, of a constant length of duration of swelling, and of interval between the attacks, and with no apparent permanent resulting disability.

These cases are of interest from the manner in which they yielded to treatment; the first, that of the man, to the fixation of one knee, and the administration of quiaquin in 20 gr. daily doses, to which the condition responded at once. The improvement occurred first in the lengthening of the interval by 1 or 2 days, then in the skipping of an attack, followed by a gradual disappearance, the attacks becoming steadily slighter and less frequent.

The same treatment in the second case proved quite unavailing, but this case yielded to a persistent treatment by arsenic and strychnia, followed by creosote. Fixation and local treatment apparently had no effect. The manner of disappearance was of the same character as of the first; namely, that of the gradual lengthening of the interval, later the lessening severity of the attacks, and finally the gradually increasing duration of the interval.

* This case was reported by Dr. Spaulding under the title "Periodical Rheumatism," in the *Medical World*, July, 1900. This report covered the earlier portion of the course of the case.

* Read before the Boston Society for Medical Improvement, May 6, 1901.

The affection is characterized, in the cases recorded in the literature, by swelling due to serous effusion, recurring at definite periods. Each attack lasts a given number of days, fixed for the given case, the time of increase, of acme and of decrease being constant for the case. After a given interval without symptoms the attack recurs in like form. The calendar-like regularity of these attacks in nearly all of the reported cases is very striking, as is the long continuance of the affection without any change or progression.

There are in all 68 cases recorded in the literature, in which this diagnosis has been made.

A few show intermittent hydrops, so complicated with other conditions as to make their status somewhat doubtful. Such cases (and those in which the data are incomplete) being excluded, there remain 43 cases pretty fully described and closely resembling one another. Nearly all of them are so similar in essentials that they evidently form a natural disease group by themselves.

The joints affected.—The joint most frequently affected is the knee. One or both knees are involved in nearly all cases at some time during the disease; thus in 41 out of 55, one or both knees were involved without involvement of other joints. The hip, shoulder, elbow, wrist, ankle, jaw and spine have all been attacked in various cases. One joint alone may persistently show effusion at intervals for many years, or after a time other joints may be affected simultaneously or alternately, as in Fridenberg's case,³⁴ Löwenenthal's,⁸ Kapper's,²⁸ one of Pierson's²⁴ and others. Also a number of cases, beginning as a knee affection, later involved other joints as well, as Case No. 28, which ran for years as a knee affection, then disappeared for a few years and returned in both knee and elbow.

In a case of Pierson's²⁸ the various joints were affected one after another in a sort of cycle, but without any strict regularity.

The attack.—The character of the single attacks vary somewhat in duration and symptoms. More usually there is, as above noted, a nearly painless swelling, dividing the fixed time of duration into about equal periods of effusion, fastigium and absorption. The onset is sudden. As a rule the disability is only that due to the mechanical hindrance of the effusion; the amount and tension of the effusion varies considerably. In few cases only does there seem to be any considerable spasm. Perrin's case¹ showed very marked spasm; Le Dentu's case¹⁶ showed restricted motion, apparently spasm, in several joints, with and without joint effusion. In a number of reported cases the description leaves this point undefined, save for mention of subjective stiffness.

In Rosenbach's case³⁰ there was doughy swelling about the knee at the time of attacks. In Perrin's case¹ edema accompanied the effusion in elbow and knee. As a rule local heat and redness are conspicuously absent; present, however, in typical cases reported by Grandidier⁸ and by Köster.³⁹

Local sensitiveness is noted in Rosenbach's case.³⁰ Usually it is not noted and is very often stated to be absent.

The matter of pain is curiously variable. In many of the cases there was no pain whatever, the subjective symptoms being limited to a vague feeling of discomfort. In others pain is marked, and in some severe arthralgia seems to be definitely the equivalent of the effusion. In Le Dentu's case¹⁶ there was at first intermittent knee hydrops, which ceased, and then later severe pain and disability (without swelling) in the hip and knee at regular intervals; still later the periodic swelling of the knee reappeared. In Grube's case⁴⁵ there was also a partial alternation of pain and effusion at the given interval. Benda's case⁵⁷ had periodic pains in various joints at regular monthly intervals for years before the effusion in the joints began its periodic appearance. There may be much pain in the earlier attacks, lessening in the later. (Canonne.)

The pain is likely to be most pronounced during the first part of an attack, so, for example, in cases of Köster,³⁹ Rejon,¹⁷ Rosenbach,³⁰ Kennedy.⁴⁶ Or the pain may be most pronounced before the swelling comes on. It may be a prodromal pain in and about the joint, or more often in the whole limb. So it was in the cases by Blanc⁵² and Fridenberg.^{34, 35}

Subjective languor is common during and after the attack. Headache, chilliness or slight objective fever are noted in a few cases. There may be, after a time, partly no doubt from the enforced confinement and the pain, a serious depression in health.

The duration of the attack varies greatly. The extremes are a case with duration of about an hour (terminated by morphine injections) with a daily recurrence, reported by Féré,⁴¹ and Benda's case with 19- to 21-day attacks and only 8-day free intervals. There is no discoverable relation between duration of attack and length of free interval. The duration most often recorded is 3 or 4 days. This was the time in 14 of 32 cases where this point was determined (but it is not always certain from the data that this includes the time of resorption).

A duration of 5 or 6 days is frequent (8 out of 32). Longer or shorter attacks vary all the way between the two extremes. The duration of the attack is less apt to be mathematically precise than is the interval of recurrence, but in the rule the swelling comes up in a given time, and its resorption begins after an interval constant for the given case.

The interval between attacks, the cycle of days, is, as has been said, curiously constant in each case for long periods of time. From beginning to beginning of the attacks the most usual period is 14 days (7 cases in 42), or 11, 12 or 13 days (including 11 cases). A cycle of 8 or of 9 days appears in 7 cases; of between 28 and 30 days in 6. The minimum of time recorded is 24 hours, Féré,⁴¹ the maximum 3 months (cases by Seeligmüller,¹⁹ Pletzer²⁰).

A change of interval is noted in a number of cases: For instance, in Moore's case⁶ there was a change from 30 to 8 days; in Pletzer's case,²⁰ from 3 months to 11 days; in Perrin's case,¹ from 7 to 3 days; in Fridenberg's case,³⁵ from 14 to 21 days. In some cases the change in interval follows a temporary cessation of the attacks (Perrin's case¹ and Pletzer's²⁰) or the change may take place without such pause. When the new rhythm is established, it usually continues with the regularity of the old. In a few cases there is a progressive shortening (Rosenbach³⁰ and Löwenthal⁸) or lengthening (Seelingmüller,¹⁸ Pierson²⁴ and Fridenberg³⁴) of the interval. So also the cases here reported, after the beginning of treatment. In some cases, otherwise typical, the interval is never a definitely fixed one (cases of Rorer¹¹ and Pierson²⁴).

When an intermittent effusion, already appearing in cyclic form in one joint, attacks others, the affection of the newly affected joints may come on at the same time, or may occur in the middle of the previously free interval (Goix²⁹), or may alternate with the attacks in the joint first affected, or may precede or follow the attacks in it by a short interval. As a rule the persistence of the original cycle in one form or another is obvious during all this shifting.

There is usually no obvious determining cause for the length of the cycle. In certain cases, to be sure, it apparently has some connection with the menstruation. In Wagner's case¹⁴ the attack is said to have coincided exactly with the menses. In Senator's case⁴⁷ there were attacks usually just before the menses, and in a case of Pierson's²⁴ the cycle was 9 days, and the more obstinate attacks always coincided with the menses. In 1 of Féré's cases the deprivation of narcotics determined the daily attack, and in another, reported by the same author, anger was the obvious exciting cause. Trauma may start up the affection to begin with, or after a pause, but of course cannot determine the periods.

Age.—Of 38 typical cases where the age is given, the average age of beginning was 26 years. The individual cases varied irregularly from 12 to 54 years, but 18 were between 20 and 40, 7 above 40, and 13 below 20. Only 3 cases began at 15 years or younger; Pierson records an irregular, atypical case in a girl of 9 years, the youngest case on record.

Sex.—As to sex, there is a slight, but only a slight, preponderance of females. The sex evidently is of no considerable importance. The disorder occurs in the weak or in the robust without obvious choice.

The question of intermissions is an interesting one, especially in relation to the matter of cure. Apart from all treatment, such interruptions occur in a large proportion of cases. In 5 cases at least, there was an intermission during pregnancy. This, however, is in no way constant, and in a given patient (case by Pletzer²⁰) one pregnancy may not and another may cause intermission. Such intermissions may occur, however, without

any obvious cause and may run over several years, and sometimes as the result of some trauma or other shock, or oftener without obvious cause, the trouble returns in the same or another joint, in the same (Le Môme⁵⁰) or in different rhythm (Pletzer²⁰).

Needless to say, some alleged cures have been of this sort, and have not stood the test of years. The question of cure is the more difficult to judge, inasmuch as the spontaneous remission may either be abrupt or preceded by gradual improvement.

Pathology.—The condition of the joint or joints between attacks is interesting in a negative way. In the great majority of cases there is nothing to be found during the interval, beyond possibly a little thickening and laxness of the capsule. Occasionally there is a little crepitation in the joint. Some cases have finally become chronic hydrops (Bylieki,¹⁰ Féré⁴⁹), and in Fiedler's case,²¹ where many joints were affected, the wrist alone became stiff. Moore reports free bodies in 2 cases, and the presence of "Gelenk-zotten" is mentioned in the records of Schuchard³⁸ and Benda.⁵⁶ The arthritis deformans, rheumatism and Charcot's joint existing in 4 other cases were certainly in no sense changes resulting from the affection. Strangely enough, the considerable effusion recurring so often through so many years seems usually to leave no trace of damage to the joint. It would seem that there are no characteristic changes locally; the lesions occasionally occurring may be *provocative* of the disease, hardly more. The disease has no complications, strictly speaking, and involves no danger to life.

When we come to the question of the real nature of this disease, we find a series of facts and plenty of theories, all of which are somewhat inadequate to explain the facts.

It has been supposed that the trouble was of infectious nature. So far as bacterial infection goes, there are but 2 cases with bacteria found. One by Ehrlich and Garré⁴³ was obviously a staphylococcus osteomyelitis, not really belonging in the present series. In the other, reported by Hartmann,³⁶ the bacilli found were not identified or tested, and the findings have not been confirmed. There is really no ground for belief in bacterial infection. As to malaria, the case is a little different, but not very convincing. In a number of cases (as in any group of any sort of cases) there was a history of malaria, but in no case a fresh infection. Knowing as we do that quinine affects not only the white blood corpuscles but the capillaries as well, we cannot accept the cures under quinine as in any way a proof of the malarial nature of the affection, nor is even a history of malaria to be found in most cases. At most, we can say that it may have something to do with the liability of some persons to the disease. It cannot be the usual cause.*

The same may be said of rheumatism; it is not

* Benda cites from Liszt: Irregular Malaria, *Deutscher Med. Chir. Presse*, 1883, No. 52, a case of malaria with periodic pains in one joint recurring daily.

infrequent in the histories of cases. It may offer favorable ground for the development of the disease, but is certainly not the true cause.

So, too, of gout and gonorrhea.

The theory most favorably received by modern writers is that of a vasomotor neurosis. The genesis of the individual attack may then be explained (Seeligmüller) by a dilatation of the capillaries. On this theory the action of quinine (which paralyzes vasomotor nerves) may be explained as an interference with an active stimulation of vasodilator nerves.

In favor of the vasomotor theory is the concurrence in certain cases of what seems to be vasomotor edema (angioneurotic or blue edema) (Perrin case,¹ Goix case²⁹ and Féré⁴⁰) of migraine (Féré⁴¹), which is definitely vasomotor and periodic, of urticaria (Féré⁴²) and of various disorders classed as neurotic or functional nervous diseases, especially epilepsy (2 cases) and Basedow's disease (3 cases).

On the vasomotor theory may also be explained the influence of pregnancy, the slight influence of menstruation, and the effect of trauma or other shock in lighting up the process. So, too, we may perhaps explain the case³⁸ where preparation for operation sufficed to avert an attack in an usually regular case, and cases where methods of treatment succeeded which could hardly have more than a psychic effect (case of Kolbe,²² where application of a bandage 2 days before brought about a cure). So, too, perhaps, the cases are to be explained where the trouble, banished by treatment in one joint only begins in a fresh one (Köster,³⁹ Blanc⁶²), nor is such explanation inconsistent with the 1 case (Blanc) which was apparently hereditary.

To sum up, we have an affection without discoverable anatomical basis, without proof of infection, giving a simple noninflammatory serous effusion in the joints, occurring at regular inextinguishable periods, interrupted without rule, or in accordance with what we may term psychic stimuli, associated in some instances with what are usually classed as functional nervous disorders. Certainly the disease seems to be a functional, as opposed to an organic, trouble; and whether we do or do not call it a vasomotor trouble or a neurosis, depends largely on our reluctance towards these catch-alls for unexplained disorders.

As to therapeutics, we have a bewildering array of remedies. Bandaging, blisters, the cautery, aspiration and irrigation, injections of ergotine, of iodine, of iodoform, of carbolic acid, and open operation have each brought about one apparent cure. In 2 cases (1 after treatment with hot iron, 1 after puncture) the result was not a cure, but a shifting of the process to another joint. Operation would seem to have its effect simply as one way of interrupting a vicious cycle; there is usually nothing *definite* to do by operating. Electricity seemed of benefit in a number of cases, and in Kapper's case²³ brought about a cure.

Of internal medication potassic iodide was of service in 1 case. Salicylic acid has been used repeatedly without result. Quinine shows good results, 2 cases (Perrin¹ and Moore⁶) cured and 1 improved. Best of all the drugs is arsenic, given as Fowler's solution, with 3 cures to its credit. It seems that the last 2 drugs are the only ones that are to be looked on as possibly having a definite action. Baths, change of climate and of scene, help somewhat, but seem rarely if ever to be the real determining factor in such remissions as may follow them. The prognosis, on the whole, is not good, the proportion of permanent cures up to date being relatively small. Most cases have simply been lost sight of.

On the basis of the data at hand it is hard to formulate treatment, but it seems fair to infer that quinine and arsenic and electricity (according to Benda its action is psychic only) should be tried, and if no result is achieved, then, and after time allowed for the chance of spontaneous remission, puncture and injections or open drainage may be resorted to.

The list of cases referred to in the text is appended. A good many of these cases have been taken from Benda's exhaustive monograph, in which excellent and full abstracts are given of nearly all cases up to 2 years ago.

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ASSOCIATION OF ANEMIA WITH CHRONIC ENLARGEMENT OF THE SPLEEN.*

BY ARTHUR H. WESTWORTH, M.D., BOSTON.

(Concluded from No. 17, p. 464.)

In 1891 Holt⁷⁰ reported the case of a child 2 years old, under the title of "pernicious anemia," but the description resembles the cases that have been reported as anemia infantum pseudoleukemica. The child had lived in a malarial district, but had not had malaria; the spleen was enlarged; there was a diminution in the number of red corpuscles, and a marked increase in the number of leucocytes; no differential count reported. The autopsy showed chronic changes in the spleen associated with passive congestion; the heart was fatty; there was an old pneumonic process in the lungs. In 1892 Tissier⁷¹ published an article entitled "anémie infantum pseudoleucémique." He believed anemia infantum pseudoleukemica and anemia splenica to be the same disease. His article contained nothing new. In 1892 Alt and Weiss⁷² gave a brief report of 4 cases. Two of the cases had rickets, and a third had syphilis. They stated that the blood in these cases showed the characteristics described by Luzet. In 1892 Hook and Schlesinger⁷³ reported 2 clinical observations in infants. Both infants were 1 year old; both had marked rickets; enlarged lymph-nodes; very large spleens; enlarged livers; anemia; blood examinations showed in 1 case 2,700,000 red corpuscles; 48,000 leucocytes; 45% hemoglobin. The other showed 2,900,000-3,100,000 red corpuscles; 45,000-40,000 leucocytes; hemoglobin 35-42%.

Koplik in 1892⁷⁴ gave a clinical report of 2 cases. Both cases had rickets; enlarged spleens; enlarged livers; lymph-nodes slightly enlarged in 1 case. In 1 case a blood examination showed 2,304,000 red corpuscles; 27,800 leucocytes; 40% hemoglobin. Dried slides showed numerous nucleated red corpuscles, in many of which there were evidences of subdivision in the nuclei.

In the other case only dried specimens were examined. There appeared to be no marked increase in leucocytes.

In 1892 Monti and Berggrun⁷⁵ described 4 cases, which they had observed, and also referred to some of the cases which I have described.

The first case was 8 months old; emaciated; livid color; severe rickets; chronic pneumonia; liver not enlarged; very large spleen; petechiae; edema; trace of albumin in urine; 3 blood examinations, as follows:

Red Corpuscles	2,900,000	Leucocytes	45,000	Hemoglobin	42%
"	2,750,000	"	48,000	"	"
"	2,661,000	"	48,713	"	42%

A limited number of nucleated red corpuscles. The second case was 19 months old; extremely emaciated; extreme pallor; severe rickets; liver slightly enlarged; spleen very large; enlarged inguinal lymph-nodes. The child died after 8 days' observation. Autopsy not obtained.

Blood examinations, as follows:

Red Corpuscles	2,422,000	Leucocytes	28,686	Hemoglobin	36%
"	2,113,000	"	31,600	"	"
"	2,115,000	"	31,500	"	"

A limited number of nucleated red corpuscles.

The third case was 7½ months old; emaciated; cachectic; severe rickets; enlarged liver; very large spleen; inguinal lymph-nodes enlarged.

Blood examinations, as follows:

Red Corpuscles	3,200,000	Leucocytes	38,866	Hemoglobin	40%
"	3,210,000	"	40,000	"	"
"	3,248,000	"	41,000	"	"
Last Exam.	4,052,000	"	18,300	"	44%

Limited number of nucleated red corpuscles. Some improvement noted in general condition.

The fourth case was 15 months old; there was extreme emaciation; petechiae; slight cyanosis; nutritive disturbance in terminal phalanges; liver not enlarged; spleen much enlarged; inguinal lymph-nodes enlarged.

Blood examination, as follows:

Red corpuscles, 2,100,000; leucocytes 21,000; hemoglobin 35%; nucleated red corpuscles with mitoses in some of them.

In 1894 Andeoud⁷⁶ reported the case of an infant 18 months old; rickets; no fever; lymph-nodes slightly enlarged; liver enlarged; spleen very large; incomplete blood examination; there appeared to be no leucocytosis; hemoglobin 30%; red corpuscles not counted, but were diminished in number.

The autopsy showed hyperplasia of the follicles in the spleen; proliferating lymphoid cells; increased pulp; congested vessels.

Andeoud gives a number of references which include Italian cases of anemia splenica infectiva.

Glockner in 1895⁷⁷ published observations on 4 cases. All of the cases were autopsied; syphilis was not present; rickets and chronic gastroenteric trouble had been present in all. No evidence of malaria or of tuberculosis; lymph-nodes not enlarged; spleens enlarged, but not otherwise changed macroscopically; microscopically the capsules and reticulum were thickened, as were the trabeculae and adventitia of the vessels; there was a striking diminution in the number of red corpuscles, without any evidence in the spleens of their having been destroyed there. The follicles showed no changes; no evidence of hyperplasia in pulp cells; growth of epithelioid cells in the pulp and a slight increase in the endothelium of the vessels; eosinophiles increased; nucleated red corpuscles diminished. The blood showed nucleated red corpuscles with mitoses in the nuclei of some of them; poikilocytes; number of red corpuscles and hemoglobin diminished. In 2 cases there was leucocytosis, in 1 none, and in 1 a diminished number of leucocytes. In 2 cases there were marked changes in the spleen and relatively slight changes in the blood. There were a number of large mononuclear leucocytes resembling the "markzellen" of Müller. The eosinophiles were not increased.

These 4 cases are very interesting, because among other things they show how little connection exists between the lesions in the spleen and the character of the blood.

*Read before the Massachusetts Medical Society, June 11, 1901, as a part of the general topic, "The Diseases of Nutrition of Infants."

Vickery in 1897⁷⁸ published a clinical observation on a child 18 months old; anemia; rickets; enlarged spleen; lymph-nodes in neck, axillæ and groins slightly enlarged; the child died; autopsy not obtained. The blood showed 2,500,000 red corpuscles; 25,000 leucocytes; nucleated red corpuscles were numerous and of various types; myelocytes present. Vickery regarded it as intermediate between pernicious anemia and leukemia. There was nothing about the case or the blood that differentiated it from the cases which I have described. Vickery evidently interpreted the blood from the standpoint of the adult and not from that of the infant.

In 1892 Fischl⁷⁹ stated his conviction that "anemia splenica infettiva" and "anemia infantum pseudoleukemica," were identical, and that both were secondary anemias. He said: "The fact that dissimilar blood examinations have been reported is no proof to the contrary, because the unstable character of the blood in infancy precludes the possibility of diagnosis by this means alone."

He described a case of severe rickets, in which the blood was perfectly characteristic of anemia infantum pseudoleukemica. The chief symptom, the marked enlargement of the spleen, was absent. There was only a slight enlargement of the liver and spleen; there was emaciation; waxen color; petechiæ; moderate enlargement of the lymph-nodes. The autopsy showed chronic hyperplasia of the spleen; chronic intestinal catarrh, etc.

The only clinical diagnosis in the absence of the large spleen was rickets with anemia.

The blood showed in 100 fields, 65 normoblasts; 2 megaloblasts; and 4 free nuclei. In almost $\frac{1}{2}$ of the nucleated corpuscles the nucleus had undergone subdivision. In 2 there were karyokinetic figures; excentric nucleus frequent.

In 1894 Fischl⁸⁰ called attention to the strikingly large number of cases which the Italians had described. He emphasized the connection between rickets, syphilis, chronic gastro-enteric disturbance and anemia infantum pseudoleukemica. In reference to Hayem and Luzet's diagnosis from the examination of the blood, he remarks: "It would indeed be a great advance if such a thing were possible with so little difficulty." He believes that malaria is almost the only disease that can be diagnosed in this way. He refers to cases that clinically present the picture of anemia infantum pseudoleukemica, and in which the relation of the red corpuscles to leucocytes, and the percentage of hemoglobin, give the typical picture; and yet dried and stained specimens of the blood show nothing that is characteristic. On the other hand, he, and later Felsenthal, has described cases of rickets with typical changes in the blood and only a slight enlargement of the spleen. He says: "The diverse etiology is not so hard to understand if we regard the manifestations as a result of severe general disturbances." He refers the occurrence of fever to intercurrent diseases.

In a discussion of this paper⁸¹ Raudnitz said he believed that he had seen cases of glandular

tuberculosis and congenital syphilis that gave the same picture as anemia infantum pseudoleukemica.

Epstein said that he considered it to be a secondary anemia, and called attention to the fact that in some cases chronic septic conditions in the newborn were followed by anemia and splenic enlargement. Also the same condition can depend upon tuberculosis of lymph-nodes and on congenital syphilis; on rickets and on chronic gastro-enteric disturbances.

Von Jaksch admitted that his observations were made on a limited number of cases, and that he had not been in a position since then to observe cases of anemia in children; so that he had not completed those early observations. He admitted that there was nothing characteristic of the disease in the blood changes, but he believed that the clinical symptoms and blood changes combined were typical. He did not agree that it had anything to do with rickets, syphilis, etc., but still believed it to be a primary disease of the blood in infancy.

When one recalls how incompletely the cases he observed were described, and also his own admission that he had never observed any more cases, it is obvious that his remarks made in 1894 can have no added value by being repeated 5 years later. The above-mentioned cases have been referred to repeatedly in the literature as typical cases of anemia infantum pseudoleukemia. One sees that almost all of the patients had rickets, and that some had syphilis. Chronic gastro-enteric disturbances were rarely absent from the history.

It has been stated that anemia infantum pseudoleukemia was not secondary to rickets, because rickets does not cause such severe anemia. Arguments such as this are valueless as proof. Our knowledge of anemia is limited to its clinical manifestations in most instances. The clinical examination of the blood affords us no hint of the underlying cause for anemia in a given case. It seems to me that a critical examination of the cases which I have described should convince anyone that all the evidence tends to show that anemia infantum pseudoleukemia is a secondary anemia.

Most of the observations were made at a time when Ehrlich's method of examination had been in use only for a short time. The control work which has been done in the last 7 years has proved conclusively that the importance of blood examination by the usual methods is exceedingly limited in its scope, and that it was enormously overestimated at the time when differential diagnoses were made between so many blood conditions. In their zeal to be foremost among the observers, men made statements that were based upon too hasty and too few observations. It is certainly suggestive that nothing more has been heard from the men who 10 years ago believed anemia infantum pseudoleukemia to be a primary disease of the blood. The readiness with which infants' blood reverts to a fetal type has long been noted. Also the fact that the spleens of infants and children become enlarged more easily than do those of adults. Even in adults

rapid changes in the size of the spleen have been observed, due to a varying quantity of blood in the organs.

In 1898 one of the German medical societies prepared seven questions relative to the value of blood examination in early infancy. These questions were submitted to Fischl and Siegert for answer. I shall copy the conclusions which were published in 1898 in the *Münch. Med. Wochenschrift*.⁸² The articles were published subsequently in detail in the *Jahrbuch für Kinderheilkunde*, 1899.

Fischl's conclusions are as follows:

(1) In early childhood there is no histological picture that is characteristic of this or that form of anemia, and therefore it is not possible from an examination of blood-slides alone to make diagnosis of a blood disease. It is possible to say from the blood-slides that anemia is present, and to determine the degree of anemia, and that is all.

(2) It is not possible to tell from a blood examination in early childhood which one of the blood-making organs is affected, because the function of the blood-making organs that are active in fetal life continued to be so for several months after birth normally, and especially so under pathological conditions. The blood-making functions appear to be undertaken by various organs at this time, and therefore the finding of "characteristic cells" is not reliable.

(3) The occurrence of large numbers of normoblasts; evidences of mitosis in the nuclei; the occurrence of megaloblasts; poikilocytosis and polychromatophilic cells indicates a more or less severe disturbance of the blood-making organs depending upon the degree of abnormality in the cells. The prognosis is therefore more or less grave, but these conditions do not indicate the diagnosis.

(4) Only in typical cases of leukemia with a chronic course is it possible to make a certain diagnosis post-mortem of the blood disease. The ante-mortem examination of the blood frequently disagrees with the results of post-mortem examination.

(Fischl demonstrated the truth of these statements by showing blood-slides and organs.)

Siegert's conclusions were as follows:

(5) For practical purposes clinically, it is possible to make out the presence of anemia, and its degree, from blood-slides.

(6) As a means of localizing the anemia or its cause the differentiation of the various leucocytes is of no value for diagnosis. It has a certain value for treatment and prognosis, to show the progress the patient is making.

(7) The result of treatment may be followed in this way. Improvement or the reverse is shown by the character of the blood. The abnormalities disappear as the anemia improves; so that the examination of the blood is of considerable value in this respect.

At the end of the discussion which followed the reading of this paper, Fischl said: "After many years of work on the blood, one gradually

acquires a *certain resignation* toward the results. The more one examines, the more uncertain one becomes of the significance of certain manifestations. This is especially the case in early childhood and infancy, for the reasons which I have stated. One fails to find the more or less sharp distinction to be found in the blood of adults."

Fischl called attention to the fact that "lymphocytosis" is quite frequent in the blood of infants, and especially so after intestinal disturbances.

These statements were made by men who for years have examined the blood of infants. Their observations must be allowed to have more value than the chance observations of men who have never made a study of the subject.

Stengel⁸³ says: "It is quite evident from a study of the etiology, the pathological features and the character of the blood, that anemia infantum pseudoleukemica is not an independent disease. On the contrary, it seems to be a type of secondary anemia which may occur in consequence of a variety of affections, and which owes its peculiar character of the blood to the age of the patient rather than to underlying disease." He also says that a similar affection had been described by Italian writers, and styled "anemia splenica infectiva," before Von Jaksch described his case in 1887. The lesions are those of chronic hyperplasia of the spleen and liver, and do not warrant the assumption that there is a separate pathology.⁸⁴

It is generally admitted that "anemia splenica infectiva die bambini" and "anemia infantum pseudoleukemica" are identical.

It is interesting to note that in almost all of the cases of "anemia infantum pseudoleukemica" more or less severe rickets was present, whereas in the literature on "anemia splenica infectiva" rickets is scarcely mentioned. In a few instances it was noted as present in a slight degree. The apparent absence of rickets in the Italian cases cannot be due to its having been overlooked, because the Italians go so far as to deny any causal relation between rickets and anemia splenica infectiva.

It has been stated that the spleen rarely is found enlarged in rickets, and in such cases only moderately. Also that when the spleen is enlarged considerably in rickets, that syphilis is also present. The following references are to articles by Fox and Ball, Kuttner and Starek, on the connection between rickets and enlarged spleens.

Kuttner⁸⁵ examined 60 cases of rickets, in 44 of which he found the spleen enlarged. Thirty-three times slight enlargement; 9 times moderate; twice very much enlarged. In 15 cases the children looked normal. In 23 they were in moderately good condition; in 7 the condition was poor. Kuttner also refers to collected cases.

Starek⁸⁶ gives a number of references. In 100 cases that he examined, he found the spleen palpable in 68. Only 3 of these cases were over 3 years of age. He refers to the fact that has been noted repeatedly, that infants' and children's spleens enlarge more readily under pathological

conditions than do those of adults. Most of Starck's cases showed moderate enlargement. He says that the largest ones were found in the cases of severe anemia and rickets, which have been designated as "anemia infantum pseudoleukemica." He refers to autopsies on 93 cases, in which more than half showed chronic enlargement of the spleen. In addition, he referred to 148 autopsies, in 77 of which there was chronic enlargement of the spleen and no rickets. So enlargement of the spleen is common in children, aside from rickets. It is associated almost as frequently with chronic gastro-enteric diseases and with lung diseases. These enlargements are common in the first year of life, and persist for long periods. The enlargement of the spleen in rickets is due to chronic hyperplasia. At first there is an increase in the pulp and follicles, and later the growth of connective tissue occurs. This change is not characteristic of rickets, but the same appearances are presented when due to other causes.

Fox and Ball⁸⁷ reported 63 cases of enlarged spleens in children. Rickets could not be excluded in a single case. Syphilis was present in 26 cases and possibly more. The number of autopsies was not stated, but the changes found in the spleen were "hypertrophy, with perhaps some excessive formation of fibrous tissue." Nearly all the children were in poor condition, flabby and thin, with more or less severe grade of anemia. Marked anemia was not always present, even when the spleen was considerably enlarged. In 6 cases there was marked anemia without any leucocytes. The liver was almost always enlarged, and the superficial lymph-nodes were often hard and easily detected in the neck, axillæ and groins.

It appears evident, from a study of the literature, that anemia splenica infantiva and anemia infantum pseudoleukemica are identical conditions. A plausible explanation of the apparent differences in the two diseases seems to be that the observations were made at different periods. Most of the Italian work was done between 1880 and 1890. At this time modern methods of blood examination were not generally employed. The attention of the Italians seems to have been directed especially to the symptoms. The only marked difference between cases of anemia splenica infantiva was the presence or absence of fever. The fever was so variable in its occurrence that the Italians felt obliged to describe 3 classes of cases; namely, cases with fever, cases without fever, and cases with recurrent fever.

The work on anemia infantum pseudoleukemica was done after 1890. At this time the examination of the blood absorbed every one's attention; in consequence of which, observation of the clinical course of the disease from day to day was more or less neglected. The relative frequency of its occurrence in Italy, and its rarity elsewhere, can be explained by the fact that, outside of Italy, the diagnosis of anemia infantum pseudoleukemica was not made in cases of anemia with chronic enlargement of the spleen, unless the blood changes were characteristic.

SUMMARY.

(1) The blood changes in cases of so-called anemia splenica are those of a secondary anemia. The degree of anemia varies in different cases.

(2) The degree of cachexia, which has been described in these cases, does not always correspond to the blood changes, which are often moderate rather than severe. The percentage of hemoglobin frequently is over 50%. In one of Banti's cases it was 68%. The number of red corpuscles is often more than 3,000,000 in a cmm. It is obvious that the cachexia does not depend upon the diminished number of red corpuscles and the quantity of hemoglobin. It is not improbable that the cachexia and other symptoms are produced by a chronic intoxication similar to that produced by cancer, tuberculosis, etc., and that the splenic and blood changes are merely two of the results which are thus produced. The source of the intoxication is unknown, and it is very probable that it may come from various sources.

(3) It is not easy to see how fibrous changes in the spleen can produce toxin. Fibrous tissue can interfere materially with the functions of an organ, as in cirrhosis of the liver, or in interstitial nephritis. But there is no analogy between these organs and the spleen. Fibrous tissue in itself cannot be considered capable of producing toxic or other substances. It can produce mechanical disturbances by interference with the circulation; or from the increase in size which it may produce in an organ; or by interference with the functions of an organ through injury of its cells. We know that the splenic functions, whatever they may be, are not essential to the life, or apparently to the health, of an individual, and, so far as is known, after the removal of the spleen, the functions of that organ are not performed by other organs. Therefore, the mere interference of function from an overgrowth of connective tissue in the spleen could not produce the symptoms described as characteristic of anemia splenica. The functions of the spleen are in no way analogous to those of the thyroid gland and suprarenal capsules.

(4) If it were possible for fibrous tissue to produce toxic substances, it is difficult to account for the absence of such substances in connection with chronic hyperplasia of the spleen when associated with a variety of well-known causes. In these cases the lesions in the spleen are identical with those described by Banti as characteristic of anemia splenica.

(5) It has been stated that the splenic alterations are primary, and precede all of the other symptoms. This statement requires further observation to confirm it. Bruhl remarks that the splenic enlargement may come before or after the anemia. The lesions in the spleen are characteristic of chronic hyperplasia, a condition which is associated with a number of abnormal conditions in various organs, and which frequently gives rise to no symptoms, or in other cases causes such

symptoms as may be produced by the size and weight of the organ.

(6) The lesions found in the spleen in cases of so-called splenic anemia do not warrant the statement made by Banti and others, that this condition is related in any way to pseudoleukemia. There is no analogy between the hard glandular form of malignant lymphoma and the lesions of chronic hyperplasia in the spleen. In addition it may be said that considerable uncertainty exists as to the nature of the hard form of malignant lymphoma, and its classification is a matter for discussion.

(7) A tendency to generalize from observations made upon 1 or 2 cases is to be deplored. In the case of splenic anemia nothing characteristic of a primary disease has been discovered in any organ or in the blood. The number of cases, small as it is, unquestionably shows a diverse etiology. The investigations have been very incomplete, and most of the statements depend upon clinical observations. No better proof of a varied etiology is needed than is to be found in Banti's own cases.

(8) The evidence is conclusive that anemia infantum pseudoleukemica is a *secondary anemia*, and that it owes its peculiar symptoms and blood changes to the occurrence of severe anemia at an early age.

(9) There is little doubt that anemia infantum pseudoleukemica and anemia splenica infetiva are identical conditions, and there is even less proof that anemia splenica infetiva is a primary disease of the spleen than that anemia infantum pseudoleukemica is a primary disease of the blood.

(10) There is no apparent connection between the character of the blood and the splenic changes in infancy. Cases with identical lesions in the spleen — namely, chronic hyperplasia — show varying degrees of anemia. At times there are marked changes in the blood, and at others the changes are very slight. The degree of leucocytosis varies in the same way. In some cases it is considerable, and in other cases the number of leucocytes is normal or even diminished.

(11) These differences cannot be explained by the duration of the condition in many of the cases. All that one is justified in concluding about these secondary anemias of infancy is that in some cases there occurs a chronic hyperplasia of the spleen, and in others the spleen is not altered.

(12) The names anemia splenica, primary splenomegaly, anemia splenica infetiva and anemia infantum pseudoleukemica are objectionable, because they are misleading. Anemia splenica has been used for many years as one of the synonyms of pseudoleukemia, and should not be used to describe conditions that are in no way related to pseudoleukemia. No evidence has been furnished that justifies the use of the word "primary" in connection with splenomegaly. The same may be said of the word "infetiva" (infections) in connection with the infantile form

of splenic anemia. Anemia infantum pseudoleukemica is a secondary anemia of infancy, and in no way related to pseudoleukemia.

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A CASE OF ANOMIA AND PARAPHASIA.

BY GEO. H. THOMAS, A.M., M.D., KANSAS CITY, MO.

The following is the report of a case of peculiar interest; in the first place because of its rarity, and in the second place because it adds a little more to our knowledge of the cerebral localization of that form of aphasia known as anomia, or

the inability to recall the names of objects. Dr. G. H. Hammond, in the *Medical Record* of Dec. 9, 1900, reports 2 cases, and Dr. Edwin E. Jack, in the *Boston Medical and Surgical Journal* of Dec. 6, 1900, reports another. These 3 cases, though differing in many particulars from each other, and from the one here to be described, show sufficient similarity to warrant their being included in one group. Previous to the appearance of the above, Dr. Mills reported a case in the *Journal of Nervous and Mental Disease* of 1895, which, together with those of Hammond and Jack, complete, so far as I know, the literature of the subject.

The patient about whom I am writing was a lawyer, 60 years of age, living in Kansas. He had been married many years; was the father of several healthy children, and, so far as could be learned, had never had any venereal disease. He had all his life been very abstemious in his habits. His health had always been good, and, barring a discharge from his left ear of 20 years' duration, he always regarded himself as perfectly sound in every way.

A few months previous to the occurrence of the present illness, the patient had headaches for the first time in his life; and on one occasion, about 5 months before the present symptoms, he acted very strangely to his wife, using profane language to her, which he afterwards entirely forgot. This conduct was the more noticeable because he had never been known to use similar language before, and had always been a man of refined sensibilities, and one who showed especial fondness for his wife.

About 5 weeks before the writer saw the patient, he began to have intermittent attacks of headache, which were described as general, though the pain was most marked on the left side of the head. During the last 2 weeks these headaches became more severe, and were more or less persistent day and night, and finally were so troublesome that on Monday, Nov. 12, 1900, he was compelled to consult his family physician, Dr. B. F. Morgan of Clay Centre, Kan. The doctor found that the patient acted strangely, and had a noticeable difficulty in finding words to express himself. One thing especially noticed was that the patient on entering the office went to the stove, in which a hot fire was burning, and, stretching out his hands, asked if there were a fire in the stove. This question was repeated several times by the patient, although the doctor gave each time an affirmative answer. This queer conduct, the difficulty of speech and the headache, were the only symptoms manifested.

The doctor prescribed for him, with the effect of giving him a better night's rest than he had had for some time. The patient attended business the next day, and, although still complaining of his headache, was able to make out some legal documents relative to the sale of land. Throughout Tuesday night he suffered much with pain, but was able to attend business again on Wednesday. On this day he drew up other legal docu-

ments of more complicated nature than those of the day before. These documents, it may be well to state here, were examined after his death, and were found to be carefully written and correct in every way.

On Wednesday he called on Dr. Morgan again, when a more careful examination of his defective speech was made. In the process of conversation the patient mentioned the doctor's name several times, but when asked directly to repeat the name, was unable to do so. Several attempts to recollect the name of his law partner failed completely. The doctor, to test him, gave the names of a large number of neighboring lawyers, to all of which he shook his head, and evinced much annoyance that his memory was so poor.

On the following Sunday his physician, recognizing the probable nature of the trouble, brought him to Kansas City, where he was placed in Saint Margaret's Hospital, in the service of Dr. John W. Perkins, through whose courtesy I was asked to examine and give an opinion of the case on Monday, Nov. 19, 1900.

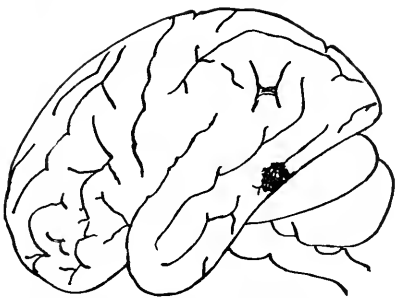
The patient was found in bed in dorsal decubitus and somnolent, probably partly due to a small dose of one-eighth of a grain of morphia, which he had received the evening before. From this state, however, he was easily aroused. He had passed a comparatively comfortable night, in spite of a journey of over 100 miles in a railroad train, but was still suffering from a diffuse headache, with a centre of greatest pain over the left side of the head. His face was thin, ashen gray, and his appearance was that of one suffering from sepsis, although he had no temperature. He looked his age, and his expression showed that he had undergone much pain, and that he was worried and anxious about himself. His breath was exceedingly offensive, and his tongue dry and heavily coated. Pulse was 90 and weak, and the temperature normal. The pupils reacted to light, but the left pupil was thought to be a little the smaller. Vision was good in both eyes; there was no limitation or other modification in the field of vision; and examination of the fundi was negative.

There were no motor or sensory disturbances anywhere in the body. There was no tremor of the tongue, nor in the extended fingers. Both knee jerks were present, though sluggish. There was no ankle clonus or other abnormal reflex. The co-ordination of the muscles was found unimpaired, and Romberg's symptom was absent. He could hear a watch tick at a distance of 4 feet with the right ear, but on the left side could hear it only in contact with the ear. There was a foul-smelling, purulent discharge from the left ear, but no tenderness over the mastoid. No cultures or microscopic examination of the discharge was made, because of its long standing. So far as the patient could remember, he had never had an earache, and was quite sure he had never had any soreness behind the ear.

The noticeable thing about the patient in talking with him was his paraphasia; that is, his miscalling names of things, and his replacing one

word for another, as in the use of adjectives. He read aloud without mistakes, understood written and spoken words, wrote correctly from dictation, and was able to remember and write his name. But when shown any object and asked to name it, he found it impossible to do so, though he apparently recognized perfectly what the object was, and frequently indicated his knowledge by trying to show its use. A very large number of things were shown him, but with all of them there was the same inability as before. Whenever he mis-called the object, he knew his mistake at once, and after several attempts to give the correct name, gave up in despair. When the name of the object was suggested to him, he recognized it immediately, and was able to repeat it; but in a few moments, if the same thing was shown again to him, he was at as much loss to name it as before. It was noticeable that he was as well aware of his defect as we were, and evinced considerable annoyance at his failing memory.

I regret that I am unable to state the character of his sense of smell, taste and color perception. From his inability to give the specific names of things, however, I doubt if this examination



would have been very conclusive. No blood examination was made, but an analysis of the urine was reported negative.

During his stay in the hospital he showed no inclination to vomit. His headaches were for the greater part of the time less severe than they had been before admission, although no more morphia had been given. Attacks of very painful headaches, however, came on intermittently, generally most marked over the left side. Pressure over the left side of the skull revealed a point of great tenderness, about 3 inches above the tip of the mastoid; and deep pressure here provoked almost unbearable pain, which lasted 5 or 10 minutes. There was no tenderness anywhere else on the skull.

There was no motor aphasia, no agraphia, no psychical word-blindness or deafness, for he understood all written and spoken words. Apparently there was no marked impairment of word-memory when he attempted to write, for the examination of the 2 legal documents, drawn up but 5 days before, proved that. More extended tests in this direction were not made at the time of this exami-

nation, and were not possible to make later. The evident defect was the patient's inability to name familiar objects.

Besides this anomia, the patient was unable in many instances to apply fitting adjectives, which depended, as it seemed, on the sound-memory for their use. He apparently recognized his mistakes and tried many times to correct them, but always without success. If the proper adjective was mentioned, however, he appreciated it at once.

It was evident from an analysis of these symptoms that the higher word-hearing memory centre was involved. Whenever he tried to recollect any name by referring, as it were, to his memory of the word as he had heard it, he failed. This was the conspicuous symptom, and the situation of the lesion which produced it was located in the left temporo-sphenoidal lobe, below the angular gyrus.

It was decided to wait a day, to make more extended observations, and to see if there might not be some improvement; but on Monday night the patient's headache was so severe, and his general condition was becoming so much worse, that it was agreed that the only hope of his recovery lay in the possible result of a surgical operation. Accordingly, on Tuesday a trephine opening was made over the superior temporal lobe, about one inch vertically below the angular gyrus, and over the point of tenderness marked out the day before. On removing the trephine button, a pulsating mass protruded about half an inch, and, on opening the dura, normal brain tissue appeared. The trephine opening was enlarged downward, and careful exploration of the brain beneath the surface was made with a needle in every direction, without discovering pus or other pathological condition.

It was then thought advisable to make another exploratory opening lower down, in the region of the cerebellum; not that the symptoms indicated it, but because it was the next point of election to locate an abscess extending from the middle ear. Accordingly, the skull was again trephined over the left lateral lobe of the cerebellum, but with negative results. The patient was by this time in such poor condition that further operative procedure was abandoned. The scalp wounds were hurriedly closed with silk sutures, and the patient returned to bed with all the symptoms of shock. He reacted, however, to stimulation, but gradually grew weaker, and died on the following day.

The post-mortem was made in a very hurried and imperfect manner, because the body was taken away on the earliest possible train, shortly after death. The mastoid portion of the temporal bone was removed, the antrum and cells of which were found filled with foul-smelling, inspissated pus, and the bone was for the most part necrosed. The brain was carefully sectioned, and found to be normal everywhere in appearance, except for an area in the posterior part of the left lower temporal convolution, where an abscess cavity was found, about the size of a walnut, filled with thick, foul-smelling pus of gelatinous consistency. Extending around this area, for a distance of about

three-fourths of an inch in all directions, the brain tissue was found softer than elsewhere. Further examination of the meninges, other organs of the body, and particularly of the vessels of the skull, was not made. The writer was able to verify the above examination of the brain several days after its removal, and after it had been kept in formaldehyde solution. But the point of most interest was determined; namely, the location of a distinct lesion in the posterior part of the left lower temporal lobe, as indicated on the diagram.

The first trephine opening was made just above the position of the lesion, and presumably the needle had entered it at the time of the operation, but, owing to its gelatinous character, the fact was not discovered.

It is not the intention of the writer to enter into further speculative study of the case than has already been given. The cases reported by Mills, Hammond and Jack, in the articles mentioned above, are interesting for comparative study. This case is reported in the hope that it may add a little more to our at present rather imperfect knowledge of these higher auditory word centres. In offering this article, the writer regrets that a more careful and extensive pathological description of the case cannot be given.

ON THE PASSING OF THE TREPHINE.

BY THOMAS H. MANLEY, PH.D., M.D., NEW YORK,

Visiting Surgeon to Harlem Hospital; Professor of Surgery, New York School of Clinical Medicine.

IMPROVEMENT in mechanical technique occupies a prominent place in the recent marvelous advances in the art of surgery. It occupies a position of the first importance, though rendered possible only by the employment of anesthetics and antiseptics.

In this instance but a few brief notes will be submitted on improved and simplified operative technique in the management of fractures of the cranial vault.

From time almost immemorial the trephine was the instrument solely relied on for raising depressive skull fractures, and it is most remarkable, we will show, how several of our latest writers still recommend this antiquated and dangerous instrument; another illustration of the difficulty of casting aside the traditional teachings of the past.

For example, Treves, in describing the necessary instruments for dealing with fractured skull, mentions "the trephine-brush, a Hey's saw, a rongeur and a periosteal engine."¹

Dr. Joseph D. Bryant says: "The patient is anesthetized, if not unconscious, preferably with chloroform; raise the periosteum with periosteotome, select a trephine of moderate calibre . . . push down the pin, etc."²

Dr. Lewis A. Stimson pursues a similar course, and observes that "the trephine is employed only in cutting bone-flaps of large size . . . There is

some reason to think that the jarring of the brain by the strokes of the mallet may be prejudicial."³

Dr. John Collins Warren of Boston, in no ambiguous terms, casts aside the trephine, and observes that "for elevation of depressed bone the trephine is very rarely needed; the sharp edge of a chisel can generally be inserted between some of the depressed fragments, and one after another they can be raised into position or removed."⁴

Vidal, in a recent valuable contribution on craniotomy, dwells on the great value of the mallet and chisel as a substitute for the "ancient trephine," which, he well observes, has no place at the present time in the therapy of cranial surgery.⁵

VARIETIES OF VAULT FRACTURE CALLING FOR SURGICAL INTERVENTION.

(1) Closed fracture, depressed or not; (2) open fracture, depressed or not; (3) fracture over the vascular areas—the sinuses; (4) fracture over the nonvascular areas.

After vault fractures the patient may or may not be unconscious. Our therapy must somewhat vary in children and adults.

DANGERS IN VAULT FRACTURES.

The dangers in fractures through any area of the calvarium proceed chiefly from two sources: (1) From the inherent effects, immediate or remote, of the traumatism; as shock, hemorrhage, disorganization of brain substance, or meningitis; (2) from the effects of surgical procedure, the depression and toxemia of a pulmonary anesthetic, from hemorrhage, damage to the brain substance and sepsis.

OBJECTIONS TO THE TREPHINE.

In my early experience in the treatment of depressed skull fractures two patients' lives were lost by the employment of the trephine,—the sinuses were opened, mortal hemorrhage resulting; cerebral hernia was not uncommon from opening the meninges, and the violent propulsion of the cerebral substance under the extreme congestion of pulmonary anesthesia often led to subsequent hernia. The trephine serrations are cleansed with difficulty; in enburated bone they are liable to break off; the skull's walls, being of an unequal thickness and oval in outline, are penetrated unequally by the ring-saw, so that while one segment of the instrument is yet engaged in the cranial wall, the other is ploughing through brain substance, or tearing open a great blood sinus; *we are working in the dark*. Perhaps at the moment we most need the instrument it is dulled or out of order; in any event, its employment frequently involves the employment of great force, and may exhaust more than one operator before the cranial cavity is opened.

It always involves the loss of the osseous covering of the brain, as the trephine button of bone

¹ Manual of Operative Surgery, 1900, II, 211.

² Operative Surgery, 1899, p. 136.

³ Operative Surgery, 1900, p. 196.

⁴ Inter-Textbook of Surgery, 1900, I, p. 192.

⁵ *Thrombo Phlébite Du Sinus-Latéral*, Arch. Prov. de Chirug., Mai, 1901, p. 17.

removed, cannot be effectively reimplanted. In trephining, a staff of several assistants is indispensable.

DEBRIDEMENT, OR ELEVATION WITH THE CHISEL
UNDER COCAINE ANESTHESIA.

At the present time the osteotome has quite generally displaced the trephine in Germany, France and Italy, its employment only lingers in England and America. By its employment with the substitute of cocaine-analgesia for pulmonary anesthetic, when any benumbing agent is necessary, one of the most formidable and dangerous operations in surgery has become one of the safest and simplest; and why, indeed, in our time, one hesitates to avail himself of this expedient, seems incomprehensible.

Being able to dispense with a pulmonary anesthetic, in itself is a great gain. In the unconscious no anesthetic is required, of course; in young, sensitive children a pulmonary anesthetic may be imperative to overcome resistance.

MODE OF PROCEDURE.

A wide area of the scalp is shaved and severely cleansed; a circular elastic band is carried around the crown, to shut off the peripheral vascular supply; then with a long, fine hypodermic needle a radius is subcutaneously cocaineized, of such extent as is required.

Now, a crucial incision is carried through the scalp and pericranium, the flaps deflected, and bleeding points closed. With a rugine we turn away the divided periosteum, taking care not to lacerate it. This brings us down to the inside skull surface. Now, under the naked eyes we see the precise character of the depressed fracture. The centre is usually sharply depressed, the fissures passing in various directions from the centre. The problem before us is to remove or elevate this indented part. Our objective point is that fissure which is the most completely shattered. Sometimes we will find this quite loose, but generally the fragments are impacted and so tightly wedged in that we must chisel away enough of fixed bone at the periphery to enable us to introduce the lever.

The chisel osteotome—it may be square, conical or grooved; *not too sharp*, lest we open the dura mater or blood vessels. If no mallet is at hand, many things will safely serve as a substitute. But moderate force is needed on the mallet. The edge is free; we may now select a periosteal elevator or the handle of a scalpel for a lever. After the first piece is raised, the others are easily levered into position or lifted out with a bone forceps. I have rarely discovered fracture here involving but one lamina of the skull; and in the greater number the dura mater is not lacerated.

The osseous parts dealt with, we wipe the parts dry of blood—employing no irrigation—stitch the scalp flaps into place, leaving a small tamponed aperture for an escape of the secretions from the wound.

Here, there has been scarcely any blood loss; no fresh shock added. The case has been displaced from the category of major operations, and if a hospital case, the patient can go home frequently the same day and return to the out-patient department for later dressings.

REPORT OF CASES.

For 10 years I have entirely dispensed with the trephine in vault fracture, and by *débridement* alone have treated more than 50 cases within that time.

CASE I. F. L., age 39, carpenter, American; entered Harlem Hospital May 12, sustained a skull fracture by a falling brick. Depressed fracture of frontal bone, 2 inches to the left of the mesial line, 1 inch from the coronary suture. Depression well marked. Patient in full consciousness, though somewhat dazed. No evidence of cortical lesion.

Prepared for craniotomy. Walked from bed to operating-room; declined the invalid carriage. In 35 minutes cleansed, cocaineized and operated. A depression through both tables was exposed; one small fragment loose and removed, the others pried up into position; the dura mater was uninjured. Wound closed in scalp, with small wick drain inserted. Patient walked back to bed unsupported. Sequelae unimportant. Wound completely closed in three weeks. This young man at first was reluctant to permit us to operate without ether; but his joy was great when the operation was completed without the least suffering under cocaine.

CASE II. B. J., patient 40 years old, a powerfully built Italian, admitted to Harlem Hospital June 18, was injured by being violently thrown against an iron post from a trolley car. Was struck on the forehead directly in the median line, 4 inches above the glabella. A well-marked depressed fracture discovered. Patient walked to the table. On exposure of the skull a radius of 2 inches found driven in. Caution had to be observed here not to penetrate the frontal sinus. Two small segments of bone removed, remainder elevated. Usual dressings. Patient left for home on the next day, and since made excellent recovery.

CASE III. McC., boy of 5 years, fell 4 stories. Brought to hospital unconscious, being in great shock. With tumefaction over left ear, large hematocoe, face puffed and sanguineous, extravasation into the subconjunctival tissues and lower eyelids. Patient prepared for craniotomy; so restless that ether had to be administered in small quantity.

On opening through scalp a large depressed fracture was discovered over the temporo-parietal articulation, with a large escape of disorganized cerebral substance. With the chisel and elevator the fragments were loosened and several removed.

The dura mater was found lacerated, a long, flat clot lying over the pia mater. The parts were wiped dry, and the dura mater completely closed with fine gut suture. In this instance a large plaque of skull-plate, fully 2 inches in diameter,

was raised into position and retained by the expanding brain. Scalp flaps sutured, and free drainage secured.

He bore the operation well, but it was three weeks before consciousness fully returned. He has, however, completely recovered, without the least impairment of any of the cerebrospinal functions, and was discharged from the hospital cured, June 28.

It may be observed that in these cases the wound treatment was *dry*; that is, *no* irrigation *after* the incision was made, until it was again closed.

In brain and cranial surgery there can be no doubt but in fresh, nonsuppurative traumatic lesions we will realize the best results by the entire exclusion of all antiseptic solutions from the intracranial structures.

In connection with the subject of vault fractures it may not be amiss to call attention to a few things in connection with it of some practical importance.

(1) To make a large incision to freely expose the skull.

(2) Let us leave all aseptic sub- or epidural coagula, however extensive, undisturbed.

(3) Let all lacerations in the dura mater be securely closed with fine aseptic gut suture.

(4) Reimplantation of trephine buttons of skull bone invariably fails, and any procedure which will conserve the skull is of great advantage to the adult. In the child under 15 years, as Ollier has correctly demonstrated, the periosteal layer of the dura mater will regenerate ample new osseous tissue to fill in a large breach.

(5) Silk-worm gut, or *Crin de Florence* fish-gut, answers best for suture of the scalp; small wicks of aseptic gauze in the angles of the wound provide for ample drainage.

(6) For antiseptic powder over the wound here, or indeed any scalp wound, nothing surpasses finely ground fresh mustard.

and which are in no way connected with the group of cases reported, which represent a vasomotor disturbance. In any case of simple synovitis or joint injury it is perfectly possible to have folds of membrane, fringes or tabs result, which at times become pinched and cause an internal trauma to the joint, which is followed by joint effusion. In those cases the attacks may be, and usually are, irregular, sometimes going for a long period without any, at other times having numerous attacks near together.

The type under discussion is decidedly uncommon, although it is probably more common than most of us realize; and now that we are on the lookout, we shall probably find more of them. It is a condition which leaves the joint, after the process has run out,—as they almost all do after a time, whether treated or not,—with very little in the way of pathological change, the only apparent change being the thickening of the cartilage, which is common after any irritation of the joint. The only case I have had the opportunity to study at all is one that has been under most careful treatment, and the attacks came on whether it was in fixation or the patient was most active, the treatment having no apparent influence whatever. It seems to me it is a matter of some importance to treat the cases, even though they get well if left to themselves, because of the thickened cartilage which takes place, as was shown in my own case, if not treated, just as it is seen in any irritated joint.

DR. BEYER: I should like to ask whether, in the cases reported, other vasomotor disturbances were observed.

DR. COTTON: In relation to what Dr. Beyer said, there are some of these cases in which vasomotor edemas have appeared,—perhaps three or four out of this list,—which perhaps brings them into the same line with the case he has described.

As to Dr. Goldthwait's division into two classes, I think the cases cut out of the list belonged to the class he speaks of with anatomical changes; these were cut out with rather a liberal hand. The reason I ask is this: I have had under observation a patient who had this trouble in the knee, but in his case there were distinct vasomotor disturbances in other parts of the body. For instance, without any cause, rhyme or reason which could be recognized, a small tumor developed upon his forehead, which presented a slightly different, generally more reddish color than the surrounding skin, and remained about 24 hours and then disappeared. He was a person of very light complexion, had light hair, blue eyes; was of Teutonic origin, I suppose, and particularly subject to mental depression; would feel at times rather melancholic, owing perhaps to vasomotor disturbances in other parts of his nervous system. He could not take quinine without the occurrence of a general edema of the skin of his forehead accompanied by a slight congestion of the cutaneous capillaries. The epidermis was very thin, and generally more or less chronic congestion was present, but perfectly within the physiological

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR R. STONE, M.D., SECRETARY.

REGULAR meeting, Monday, May 6, 1901, Dr. F. W. Goss in the chair.

DR. E. G. BRACKETT and DR. F. J. COTTON presented a short communication entitled

INTERMITTENT HYDROPS.¹

DR. GOLDTHWAIT: It seems to me, Mr. Chairman, in such a discussion we must bear in mind that the cases which have been reported are but one form of intermittent hydrops, which has a perfectly definite clinical picture, as has been described by both Dr. Brackett and Dr. Cotton, and the cases should be very carefully differentiated from those which come on at irregular intervals,

¹See page 484 of the Journal.

range. Without knowing anything about the literature of these cases, I came to the conclusion that it was undoubtedly due to some vasomotor disturbance. Of course the pathology of the vasomotor system is entirely dark.

Recent Literature.

A Guide to the Clinical Examination of the Blood for Diagnostic Purposes. By RICHARD C. CABOT, M.D. With colored plates and engravings. Fourth revised edition. New York: William Wood & Co. 1901.

This last edition of Cabot's well-known work deserves more than ever the favorable comment accorded previous editions. It has been very thoroughly revised and in many places entirely rewritten. Much new material has been added, and the book brought completely up to date. Smith's method for the estimation of the total volume or mass of blood and Wright's for the estimation of the time and completeness of coagulation are described. Tallquist's and Dare's hemoglobinometers are also described, and new methods for preparing blood films on slides and with tissue paper given. Tallquist's hemoglobinometer is recommended on account of its cheapness and simplicity, its accuracy being nearly, if not quite, as great as that of the other ordinary methods. Degenerated leucocytes, transitional neutrophils and Türk's "stimulation forms" are described, and new sections on "aplastic anemia" and splenic anemia are inserted.

The upper normal limit of the white corpuscles has been raised from 10,000 to 10,500. The definitions of lymphocytosis and eosinophilia have been changed, we think for the better. The terminology of the leukemias has been changed again, myelocytemia now being called myeloid leukemia. Lymphemia, however, remains as before!

The chapters on the special pathology of the blood are even more valuable than before, being now based on 12,000 observations made by the author or at the Massachusetts General Hospital in addition to those collected from literature. The sections on typhoid, malaria, pertussis, pleurisy, nephritis and bronchitis contain the most new material. The photographs of the blood in malaria are new and especially good. The chapter on the diseases due to animal parasites has been much enlarged by new articles on bothrioccephalus anemia, ankylostomiasis and trichinosis. The chapter on the clump reaction has, on the other hand, been much shortened.

After looking this edition through we are more than ever of the opinion expressed in a previous review that "no one who wishes to study the blood or to know what has been learned by the study of the blood can afford to be without this book. It is indispensable both to the student and to the practitioner."

Practical Manual of Diseases of Women and Uterine Therapeutics. For Students and Practitioners. By H. MACNAUGHTON JONES, M.D., M.Ch., Master of Obstetrics (*Honoris Causa*), Royal University of Ireland; Fellow of the Royal Colleges of Surgeons of Ireland and Edinburgh; President of the British Gynecological Society, etc. Eighth edition, revised and enlarged, with 640 illustrations and 28 plates. New York: William Wood & Co. 1900.

The eighth edition of this standard textbook has been thoroughly revised and brought up to date by the addition of much new material and the elaboration of the old, so that the book has had to be completely rearranged and in part rewritten. Obsolete uses, practices and appliances have been omitted, and the writer has endeavored with a fair measure of success to make the book a condensed compendium which includes everything of practical importance on the subject up to the date of publication.

It is interesting to note the author's appreciation of the work of Kelly, and the free use he has made in this edition of the latter's "Operative Gynecology." He gives ample space to the description of Kelly's operative methods, and reproduces many of his illustrations. In fact, the work of the best German and French writers is also judiciously drawn upon, so that the work is made to constitute an excellent compendium of modern gynecology. The illustrations are adequate and in the main well executed, and the publisher's work has been well done.

Mosquitoes. How They Live; How They Carry Disease; How They are Classified; How They may be Destroyed. By L. O. HOWARD, Ph.D., Department of Agriculture, Washington, D. C. Pp. 239. New York: McClure, Phillips & Co. 1901.

Dr. Howard has written a timely book on a subject which is at present much before the popular mind. The author has succeeded admirably in presenting his subject in such a way that it will prove of interest and profit not only to physicians and special students, but also to the laity, whose co-operation is urgently needed in the war of extermination. The book aims to tell what is known about mosquitoes from the biological, medical and practical points of view, and particularly to show physicians how the varieties of mosquitoes may be distinguished, and to indicate the habits and breeding-places of those concerned in the spread of yellow fever and malaria. Directions are given for killing the pests, and much interesting information regarding their longevity, flight, transportation, etc. In fact the author has given us a detailed account of the mosquito from every standpoint, and is certainly to be congratulated upon having produced a most useful as well as readable book. The illustrations and presswork are excellent; there is no index and a somewhat brief table of contents.

Aphorisms, Definitions, Reflections and Paradoxes, Medical, Surgical and Dietetic. By A. RABAGLIATI, M.A., M.D., F.R.C.S.Ed., Late President of the Leeds and West Riding Medico-Chirurgical Society, etc. New York: William Wood & Co. 1901.

This is a volume of 291 pages, including a voluminous index. It represents the thought of a man who is inclined to look at medical problems from a philosophical standpoint. The views contained in it will not be generally accepted by the critical scientific spirit of the time in which we live. Some of them are evidently the product of speculation rather than experimental research, and the tendency to express medical matters in paradoxes and aphorisms does not conduce to accuracy. The book contains many excellent suggestions expressed in original ways, but as a guide to the student of medicine or as a fair expression of the matured opinion of medical men in general it is not to be recommended. It is, for example, full of such doubtful generalizations as the following: "An epidemic-stricken community is an improperly fed community"; "Few diseases are not in some sense alimentary"; "Disease is one!" "Disease is salutary." The book is well printed and bound.

International Directory of Laryngologists and Otolologists. Containing Names and Addresses of Practitioners engaged in the Study and Practice of Laryngology and Otology. Compiled by RICHARD LAKE, F.R.C.S. Second edition. London: Reiman, Ltd. 1901.

This small and useful directory is published under the auspices of the *Journal of Laryngology, Rhinology and Otology*. At least as far as Boston is concerned, it is complete and accurate, which was not the case with the first edition. The book is not intended to be interesting, but there is a certain interest in noting that there are recorded in Boston 22 names, in New York 105, in Chicago 152, in Philadelphia 26, in London 68, in Paris 101, in Berlin 75, in Vienna 24. Nineteen pages are devoted to the United States, 19 to Germany, 9 to France, 4 to Russia, whereas in Asia, Africa and South America combined, there are but 16 names.

A Practical Treatise on Diseases of the Skin. For the use of Students and Practitioners. By JAMES NEVINS HYDE, A.M., M.D., and FRANK HUGH MONTGOMERY, M.D. Sixth and Revised Edition. Illustrated, with 107 Engravings and 27 Plates in Colors and Monochrome. Philadelphia and New York: Lea Brothers & Co. 1901.

The remarkable success of Dr. Hyde's book is emphasized by the fact that it is not more than a year and a half ago since we noticed the appearance of his fifth edition. Now comes a sixth edition, thoroughly revised up to date, with three new plates and some new engravings. The chapters on Anatomy, General Diagnosis, Herpes Simplex, Herpes Zoster, Acne, Psoriasis, Scleroderma, Tu-

berculosis, Blastomycosis and Carates have been wholly or in part rewritten. The article on Blastomycosis is of especial value on account of the unusual opportunity that has been offered to the author for its study during the last few years. In other respects the excellence of the preceding editions has been maintained and strengthened.

Practical First Principles. Simplifying the Study of Normal and Abnormal Structure and Function Aiding and Diagnosis. Designed for the use of Students and Practitioners of Medicine. By A. H. P. LEUF, M.D. Philadelphia: The Medical Council. 1901.

This is a small volume of 105 pages, simply and somewhat popularly written on a variety of fundamental subjects related to practical medicine. As stated in the preface, it is another attempt to simplify the study of medicine for the beginner, and also to afford an aid to the "busy practitioner." The book contains many facts which every intelligent physician should know, and will therefore fill a certain place of usefulness. It is, however, a chimerical hope, and one that should not be too strongly encouraged, that the study of medicine can ever be simplified by this or any method. It is, and must remain, a highly complex subject, to which there is no easy road.

The Medicinal Plants of the Philippines. By T. H. PARDO DE TAVERA, Doctor en Medicina de la Facultad de Paris, Comisionado Cientifico de S. M. en las Islas Filipinas y Delegado General en las Mismas de la Societe Academique Indo-Chinoise de Francia, Miembro Fundador Correspondiente de la Sociedad Espanola de Higiene, etc. Translated and revised by JEROME B. THOMAS, JR., A.B., M.D., Captain and Assistant Surgeon, U. S. V. Philadelphia: P. Blakiston's Son & Co. 1901.

Interest in this book will be confined almost wholly to those physicians who reside in the Philippines. It contains descriptions of the various medicinal plants in the islands and the uses to which they are put both by the profession and laity. The author and translator have evidently taken great pains in their work, which cannot fail to add to the success of medicine in the Philippines. There are 269 pages in the book.

A Manual of Diseases of the Nose and Throat. By CORNELIUS GODFREY COAKLEY, M.D., Clinical Professor of Laryngology in the University and Bellevue Hospital Medical College, etc. Second edition. New York and Philadelphia: Lea Brothers & Co. 1901.

It is not surprising that a second edition of this book should have been demanded within two years. While it cannot take the place of the larger textbooks, it is the best condensed manual that has recently appeared. This edition has added a chapter on the affections of the upper respiratory tract occurring in the infectious diseases, and has slightly enlarged the text in a few places.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, OCTOBER 31, 1901

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REPORT OF THE SURGEON-GENERAL OF
THE UNITED STATES ARMY.

THE annual report of the surgeon-general of the army is always a document of more than passing interest, and particularly so now that the army has certain problems to face and conditions to meet which are in great measure new and unique. It has not before happened, at least for many years, that the army has been required to do garrison duty under arms in countries at a distance from the United States, a circumstance which has brought out many matters of interest in military administration. Not the least of these are the manifold questions relating to the hygiene of camps, and the medical service in general. The medical department has had an opportunity to extend the scope of its work far beyond the mere treatment of sick and wounded, and to demonstrate in a forcible way its claim to recognition as a factor in the scientific progress of medicine.

For these various reasons we turn with interest to the report before us. It contains the usual statistics regarding finances and other matters of importance to military men. There is also much of interest to medical men in general, and it is to some of these points that we wish particularly to refer. Mention has before been made in these columns of the establishment of a hospital for tuberculosis at Fort Bayard, New Mexico, which was formerly a military post. This hospital is now in excellent running order, and during the last year has had under treatment 344 patients, with, on the whole, good results. One hundred and eighty-four patients were discharged, 10 apparently cured, 26 convalescent, and 73 improved.

By an act approved the early part of this year, a corps of 30 contract dental surgeons was authorized, and is now in process of formation. Eleven have already been assigned to the Division of the Philippines, and 1 to Cuba. The official appointment of dentists in the army is certainly a step in

the right direction, both because dental science is worthy of such a distinction, and also because the services of competent men must be in constant requisition in the army as in other walks of life.

The maintenance and development of the hospital corps has proved in every way successful. It now numbers between 4,000 and 5,000 men. Special attention has been given to the instruction of the men of this corps; a large proportion of those composing it have entered the service since 1897, and but few of them, from the necessities of the situation, could receive the careful training given before the Spanish War. Schools of instruction have, however, been maintained in Washington, at Fort McDowell, Cal., and at Manila, all of which have been conducted on a high plane of efficiency. The surgeon-general says:

"I take pride in stating that the men of the Hospital Corps have borne themselves creditably under all conditions of service. Many have been specially commended during the past year."

During the year the Army Nurse Corps was reduced from 210 to 175; 96 of these are in the Philippines, 43 on duty in the general hospital, Presidio of San Francisco, and the others scattered.

The general health of the army was exceptionally good during the year 1900.

To give a proper valuation to this statement, the statistics of our army from the time of the Civil War must be taken into consideration. For many years after that war the admissions to sick report, discharges for disability and deaths were somewhat similar to those reported during the past year, but then they were the result of service in the garrisons of the United States, while now they result from what practically has been war service in the Philippine Islands. Sanitary improvements in the condition of the soldier gradually lessened the rates year after year, subsequent to the Civil War, among the troops in the United States, until in 1894 the admission rate from all causes fell to 1,089.73 per 1,000 of strength. The lowest admission rate for disease was 830.65, in the year 1896. The lowest death-rate from all causes was 5.11 per 1,000 of strength, 3.14 having been the rate for disease, both of which were recorded in the year 1897, the year preceding the great change in the sanitary environment of the soldier, which resulted from the outbreak of the Spanish-American War. Following that outbreak we had heavy rates of sickness and mortality, due to the exposures of active service in Cuba, Porto Rico and the Philippine Islands. For a short time these rates were in excess of those of the Civil War when at their worst, but the sanitary knowledge of the present time, put to energetic practical use, speedily caused a cessation of these excessive war rates, leaving the ratios still as high as those which prevailed in the garrisons of the United States for a number of years after the close of the Civil War. The increase in the ratios of admissions to sick report, discharges and deaths during the past year over those of the years 1894-1897, is due to the relatively large proportion of our military force which served under war conditions in the Philippine Islands and China; but for this, the rates given by the army would have made a very sat-

isfactory record, as those given by troops serving in Cuba, Porto Rico and the United States were by no means heavy.

The death-rate in China was large, being in the ratio of 23.62 per 1,000 from disease, and 24.14 from injury. Since Jan. 1, 1901, to the present time the health of the soldiers in the Philippines has been steadily improving. Typhoid fever has practically disappeared, constituting but 1.78 of the total sickness; many of the cases were mild, and scarcely appear in the mortality returns. Smallpox, a much-feared disease in the early occupation of the islands, has been almost entirely eradicated. Bubonic plague occasions little anxiety; during the year but one case was reported in the army, and that occurred in the person of an enlisted Chinese cook. Dysentery remains the dangerous disease. The health of troops serving in Cuba was likewise excellent during the year. There was in the early part of 1900 a considerable number of cases of yellow fever, but this also has practically disappeared. Under date of July 26, 1901, it was reported that the only cases of yellow fever that had occurred in military garrisons were the 9 cases of experimental inoculation at Quemados. The medical record of Porto Rico is also a most creditable one.

Many interesting details of the prevalence of special diseases are given. An attempt is being made to control venereal disease in the Philippines by the segregation of prostitutes, and also by the treatment of those infected at hot springs in Laguna de Bay. Similar efforts at control have been made in Cuba and Porto Rico. The charges of drunkenness made in certain quarters against the soldiers in the Philippines are not borne out by the figures. Their habits are much the same as soldiers elsewhere, and the somewhat false reports are probably based upon the fact that the native intoxicant, vino, which is a crudely distilled alcohol, causing a very rapid intoxication, with marked symptoms of delirium.

The surgeon-general commends the work of the boards appointed for the investigation of yellow fever and of the diseases of the Philippines, and alludes in terms of praise to the exhibit of the Army Medical Department at the Buffalo Exposition under the charge of Capt. E. L. Munson, assistant surgeon, U. S. A.

With regard to the yellow fever investigation, the report says:

The results obtained were especially valuable, showing that the bacillus *icteroides* (Sanarelli) bears no causative relation to yellow fever, and that the mosquito serves as an intermediate host for the parasite of this disease. Further experiments of a most interesting character demonstrated that yellow fever is transmitted to nonimmunes by the bite of a mosquito that has previously fed on the blood of those sick with this disease; that yellow fever can also be produced by the

subcutaneous injection of blood taken from the general circulation during the first and second days of the disease; that an attack of yellow fever produced by the bite of the mosquito confers immunity against the subsequent injection of infected blood; that yellow fever is not conveyed by clothing, bedding or merchandise soiled by contact with those sick with the disease; that a house may be said to be infected with yellow fever only when there are present in it mosquitoes capable of conveying the parasite of the disease, and that the spread of yellow fever can be most effectually controlled by measures directed to the destruction of mosquitoes and the protection of the sick against the bites of these insects. The importance and far-reaching consequences of the observations made by Major Reed and his associates at Quemados, Cuba, can hardly be overestimated. For the first time in the history of this widely prevalent tropical disease we are in possession of knowledge with regard to its propagation, which will enable us, I believe, not only to check its ravages, but to effectually stamp it out whenever it may appear in any of our garrisons or cities.

The whole report is well worth a careful reading, and certainly reflects much credit on the work done in the army, not only in the immediate management of disease as it arises, but also in the much more important field of prevention and research.

MEDICAL NOTES.

CONGRESS OF RUSSIAN NATURALISTS AND PHYSICIANS.—The Eleventh Congress of Russian Naturalists and Physicians will open Jan. 2, 1902, at St. Petersburg. Those who desire to take part in the congress should send their exact addresses and a fee of \$1.50 to the Executive Committee of the Congress, University, St. Petersburg, before Dec. 15.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Oct. 30, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 61, scarlatina 33, measles 40, typhoid fever 21, smallpox 14.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending Oct. 26, was 208, as against 214 the corresponding week last year, showing a decrease of 6 deaths, and making the death-rate for the week 18.9. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 40 cases, 10 deaths; scarlatina, 23 cases, no deaths; typhoid fever, 21 cases, 4 deaths; measles, 23 cases, no deaths. The deaths from consumption were 27; pneumonia, 19; whooping cough, 1; heart disease, 19; bronchitis, 7; marasmus, 11. There were 12 deaths from violent causes. The number of children who died under 1 year was 43; under 5 years, 62; persons more than 60 years, 47; deaths in public institutions, 67.

A HOSPITAL FOR HEBREWS.—A Hebrew hospital is in contemplation in Boston. In a discussion recently held by the Mt. Sinai Hospital Association, one of the reasons brought forward for the establishment of such a hospital was the strict adherence of the Hebrews to the laws of diet, which could not be granted them at a public institution.

THE PURITY OF ICE.—At a recent meeting of the Massachusetts Association of Boards of Health, the subject under discussion was the condition of the ice supply from a hygienic point of view. The general opinion gained by experiment was that water in process of freezing tends to purify itself from bacteria.

SMALLPOX.—New cases of smallpox are continually being reported. In one day this week seven persons were discovered ill with the disease. Cases have now been reported from Roxbury, South Boston, South End, West End, East Boston and Charlestown.

NEW YORK.

NEW YORK STATE MEDICAL ASSOCIATION.—At the eighteenth annual meeting of the New York State Medical Association, which was held at the New York Academy of Medicine from Oct. 21 to Oct. 24, Dr. Alvin A. Hubbell of Buffalo was elected President; Dr. William H. Biggam of New York, Vice-President; Dr. Guy D. Lombard of New York, Secretary, and Dr. Edward H. Squibb of New York, Treasurer. The annual banquet was held at the Murray Hill Hotel on the evening of Oct. 23. Dr. John A. Wyeth of New York, the retiring president, acted as toast-master, and those who responded to toasts were Jacob Gould Schuman, J.L.D., president of Cornell University; Dr. George H. Simmons of Chicago, secretary of the American Medical Association; Dr. William M. Polk, dean of Cornell University Medical College; State Senator Samuel S. Slater, and Dr. George W. Brush of New York. In his remarks Dr. Brush urged the profession to exert its influence toward securing legislation which would provide for the involuntary restraint and treatment of persons diseased, incompetent or dangerous from the use of alcoholic stimulants or of narcotics. A bill with that object in view, introduced in the New York Legislature by Dr. Brush in 1898, passed the senate, but was defeated in the assembly.

OBJECTION TO YEARLY HOSPITAL APPOINTMENTS.—At a meeting, held Oct. 14, of the visiting staff of the hospital at New Rochelle, Westchester County, composed of ten leading physicians and surgeons of the city, adopted a resolution notifying the Board of Governors that after Nov. 1 they would no longer serve at the in-

stitution, and that this action would not be reconsidered unless the board rescinded a recently passed resolution to the effect that the tenure of service among the members of the staff should be one year. At the time of the organization of the hospital an agreement was made that all the physicians appointed on the staff should have a perpetual tenure unless removed for cause.

WORK OF ST. LUKE'S HOSPITAL.—The annual meeting of the Society of St. Luke's Hospital was held on Oct. 18. The report of the Board of Managers showed that the work of the hospital for the year had exceeded that of any previous year, the number of days' treatment amounting to 90,695. The wards are in a crowded condition, and the expenses for the year exceeded the receipts from all sources by \$50,630.

THE REPRESSION OF QUACKERY.—At a meeting of the Medical Association of the Greater City of New York, held Oct. 14, a committee of five was appointed, in accordance with a recommendation of the executive council, to submit a plan of action for the repression of quackery in the State of New York to be recommended by the association to the various other medical societies.

TWO CENTENARIANS.—Mrs. Mary Ann Brown of New York died on Oct. 23 at the age of 100 years. She was a native of Philadelphia, and is reputed to have danced with La Fayette when the latter revisited that city. Mrs. Assenath Burnett, a native of Hampton, Conn., died at Cape Vincent, near Watertown, N. Y., on Oct. 25, at the age of 102 years.

\$275,000 FOR NEW HARLEM HOSPITAL.—The Board of Estimate and Apportionment has appropriated \$275,000 for the new Harlem Hospital, of the Department of Public Charities, which will be built on Lenox Avenue, between 136th and 137th Streets.

NINE MONTHS' INCUBATION OF HYDROPHOBIA.—A little girl two and a half years old died of hydrophobia on Oct. 23. She was bitten badly in the face by a setter dog in January last, the period of incubation thus extending over nine months.

JOSEPH SANDERS, M.D.—Dr. Joseph Sanders of New York died from typhoid fever at Oil City, Penn., on Oct. 20. He was born in New York City, July 6, 1867, and was graduated from Bellevue Hospital Medical College in 1892.

CHARITABLE BEQUESTS.—Among the charitable bequests made in the will of John W. Harrison of Jersey City, who died on Sept. 26, is one of \$5,000 to Christ Hospital, Jersey City.

"RUMMAGE SALES" FORBIDDEN.—On Oct. 22 the Board of Health of Newark, N. J., passed an ordinance forbidding all "rummage sales" in the city. Health Officer Chandler, in urging such action, expressed the opinion that the present fad of rummage sales, though a means of benefiting churches and charitable institutions in a degree, might easily prove a menace to the public health, as there is every possibility of the articles exposed in such sales spreading disease germs.

Miscellany.

EMBALMING AND PREMATURE BURIAL.

AN English writer refers to the subjects of embalming and premature burial as follows:¹

The craze for embalming lately introduced into this country from the United States, and recommended by fashionable undertakers, constitutes a fresh danger to the safety of the public, which has not received the attention it merits. A case was published in the press not long since in which a medical practitioner on making a post-mortem examination of the body of a surgeon, who fell dead after visiting his patients, discovered that an undertaker had made an incision in the left arm and injected the arteries for the purpose of embalming the body. It is admitted by high medical authorities that the difficulty of distinguishing between real and apparent death is often insuperable, and that putrefactive decomposition is the only reliable diagnostic sign of dissolution. If experienced physicians find it difficult in such cases to ascertain the presence or absence of life, how much more so an undertaker, who is neither qualified by study nor examination to solve so serious a problem. In a pamphlet just issued by the London Association for the Prevention of Premature Burial, on "Burying Alive: A Frequent Peril," the author, Prof. Alex. Wilder, M.D., says, page 12:

"I have often been told that the modern practice of embalming made death certain. I admit it. But those who are too poor to pay for this funeral luxury must yet take the chances in the old-fashioned way. There is no doubt, however, that the number annually put to death by the embalmers is sufficiently large to demand attention. An investigator of this subject in New York has openly declared his belief that a considerable number of human beings are annually killed in America by the embalming process."

The *News and Sentinel*, of Colebrook, V. S. A., Aug. 1, publishes a most startling episode, under the title "The Corpse was Alive." It appears that Dr. Nelson Call of Guilbhall, Vt., was driving a spirited horse, and at a railway crossing the animal took fright, became unmanageable and ran away, running the vehicle into a ditch and throwing the doctor out. Some passers-by saw

and recognized the doctor lying insensible and conveyed him to his home. A physician was called in, who pronounced life extinct, declaring that the man's neck was broken. Whilst an undertaker and embalmer, who had been telephoned for, were arguing over their embalming tools, the supposed corpse sat up and asked sleepily if it was not nearly time for dinner. To their astonishment he then got up and walked into the kitchen, where he ate a hearty meal. They dropped their embalming instruments and fled. In the afternoon the doctor was observed doing a good half day's haymaking in his meadow.

Obituary.

DONALD ROSE HINCKLEY, M.D.

At a recent meeting of the New Haven Medical Association, the following memorial on the death of Dr. Hinckley was adopted:

The sudden and untimely death of Dr. Donald Rose Hinckley, leads us, his friends and associates in the New Haven Medical Association, to pay a last brief tribute to his memory.

A graduate of Yale and of the Medical Department of Harvard University, after serving on the house staff of the Boston City Hospital, he commenced practice in New Haven in 1898. He soon received an appointment as assistant in physical diagnosis in the Medical Department of the University, where his patience, courtesy and thoroughness won the respect of his associates and the students, as well as the grateful appreciation of the patients.

Owing to his retiring disposition he rarely took an active part in our proceedings, but his occasional remarks always commanded attention by their lucidity and soundness.

His clearness of intellect, his depth of erudition, and his kindness of manner secured for him the esteem and regard of all of us who had the privilege of a more intimate acquaintance with him.

Overwhelmed with sorrow by the unexpected tidings of his death, we wish to convey to his family and friends the assurance of our tender and sincere sympathy in their bereavement.

(Signed)

GUSTAVUS ELIOT,
CHARLES D. PHELPS,
WILLIS H. CROWE,
Committee.

Correspondence.

COLORADO NOT A MORGUE BUT THE TRUE TUBERCULOSIS HOSPITAL.

DENVER, COL., Oct. 25, 1901.

MR. EDITOR: A few words of reply to your Boston correspondent of Oct. 15 about the Boston Tuberculosis Hospital.

The lamentable ignorance of the medical profession about the good results achieved in Colorado in cases of tuberculosis of the lungs, should be brought to their own attention, for is not the culpable neglect on the part of the profession in not at once sending their incipient cases of tuberculosis to the arid region of the West getting pretty close to malpractice?

For 17 years the writer of this letter has seen hundreds of cases of incipient phthisis come to Colorado and get well, and during the same time has seen hundreds of cases come to Colorado which on sight brought to the lips the exclamation, "Too late! Why were they not sent out before?"

¹ The Sanitary Record, Sept. 26, 1901

We have a region here in which we *know* incipient cases of tuberculosis of the lungs have been cured by the hundreds, and they are living and working among us today,— hale, hearty men and women.

About the Boston hospital. If it is for incurable cases, is it anything less than a morgue? If it is used for incipient cases, a terrible mistake is made. Let the Board of Health in Boston search for and send West the incipient cases at the very start, and Boston will have no need of her tuberculosis hospital.

But do the patients come on the start? No! "They would rather die in Boston than live in the West," they say at first,—and lose their chance for life. When, later, death stares them in the face, from experimenting with a New England climate, they change their minds and come too late, and the climate is voted a failure. The sending of the patient West at the very first moment of alarm is the point the profession should learn.

Suppose a few cases are arrested in New England! Colorado, New Mexico and Arizona can show 100 cases (100 is nearer right) arrested and cured to 1 in New England. Are not the odds 10 to 1 in favor of sending patients to Colorado?

Practical results achieved in Colorado have more weight than what Professor Koch says in London. And even that distinguished man has failed to substantiate certain claims heretofore.

As we have cured 100 cases,—as we have cured 1,000 cases,—why can't we cure 10,000 or 1,000,000,—why not *all* cases in time, if they and their descendants are kept in this climate? If the germ cannot live in sunshine, why not transport it to a region where we have more sunshine and dry air than any region in America, and an altitude so high that you are obliged to breathe deep to get air enough upon which to live?

Our cure of thousands of cases of lung trouble is no dream. Our conquest of the arid region so far is no flight of imagination. Denver, Colorado Springs and Pueblo are very practical realities, and are in their infancy.

Legislation in Congress for storage reservoirs will be as prominent soon as formerly were measures for improving harbors and rivers, and it will be the *right* of this western country to receive national aid. Then an incipient consumptive who needs to work for his support will not have to give up the struggle and go back home to die because of lack of funds.

Let the profession and the nation awake to this subject, and tuberculosis will not long head the death list.

Very truly yours,

O. J. PFEIFFER, M.D.

THE STATISTICS OF THE RUTLAND HOSPITAL FOR CONSUMPTIVES.

BOSTON, Oct. 19, 1901.

MR. EDITOR: May I ask your indulgence once more for a final word in my correspondence with Dr. Bonney relative to results at the Rutland State Sanatorium?

Let me say at the outset that not for a moment have I ever suspected Dr. Bonney of any intention to misrepresent facts. I know that he is as desirous as I am myself of getting at the truth only. I have felt obliged to take exception to some of his statements, however, as I can but think them somewhat misleading. As he gives his views, so I must express mine. Those of our medical brethren who feel sufficient interest to look into the matter can then judge for themselves.

In the results of our first and second year's work, I have endeavored to express as concisely as I could the percentage of "arrested" cases, and in order to do this have considered only the cases of patients who have been *discharged* during each year, not of all who have been *admitted* during the same year, as Dr. Bonney thinks we should. To his view I cannot agree, for naturally many of those admitted in the first year remained into the second year, at the end of which

their cases in their turn were taken into consideration, if they had left the institution.

Any other method would seem to me not only to bring hopeless confusion in attempting to judge of results, but would be obviously "unfair," for not only were many cases admitted just before the close of the year, but others were on the high road to health, and in the following year were discharged as "arrested."

In the Fourth Annual Report (October, 1900), giving the results of the second medical year, an unfortunate typographical error, noticed too late to be corrected, makes the report read "Total number of cases *admitted* during the year ending Oct. 1, 1900." For "admitted" the word "discharged" should have been substituted. The same method for showing the results of treatment has been pursued in the Fifth Annual Report, just about to be issued (October, 1901), and until I am convinced that any other method will give clearer and more fair statistics I shall adhere to it.

It is my pleasure to add that in the whole correspondence upon the subject there has been no trace of ill-will towards Dr. Bonney. Any criticism of his would always be received with respect and good-will, even if exception be taken to it.

Respectfully yours,

VINCENT Y. BOWDITCH, M.D.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, OCT. 19, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria and croup.	
New York . .	3,387,202	1,145	379	27.85	8.90	2.60	11.35	2.18	
Chicago . .	1,098,575	—	—	—	—	—	—	—	
Philadelphia .	1,293,697	401	123	19.46	9.51	2.74	2.04	2.04	
St. Louis . .	575,238	—	—	—	—	—	—	—	
Baltimore . .	508,567	177	54	25.42	9.60	2.82	4.52	1.13	
New England .	38,1708	—	—	—	—	—	—	—	
Buffalo . .	367,487	—	—	—	—	—	—	—	
Cincinnati . .	325,902	—	—	—	—	—	—	—	
Pittsburg . .	321,616	116	36	18.10	13.79	5.17	1.72	3.45	
Washington .	275,718	—	—	—	—	—	—	—	
Milwaukee . .	285,315	—	—	—	—	—	—	—	
Providence . .	175,597	46	13	21.80	10.90	4.36	10.90	—	
Boston . .	560,892	194	53	30.41	7.76	3.60	10.36	1.54	
Worcester . .	118,421	21	10	42.85	—	—	9.53	4.76	
Fall River . .	104,863	50	19	26.00	4.00	—	16.00	4.00	
Lowell . .	94,969	34	20	14.70	11.76	—	2.94	8.82	
Cambridge . .	91,886	—	—	—	—	—	—	—	
Lynn . .	68,513	15	1	13.33	13.33	—	—	—	
Lawrence . .	62,559	27	18	28.91	14.81	—	3.70	—	
New Bedford .	62,442	22	9	9.09	4.54	—	—	—	
Springfield .	62,059	9	2	11.11	—	—	—	—	
Somerville . .	61,643	—	—	—	—	—	—	—	
Holyoke . .	45,712	13	9	15.40	23.10	—	—	—	
Brockton . .	40,063	3	—	—	—	—	—	—	
Haverhill . .	37,170	10	4	20.00	—	—	—	20.00	
Salem . .	35,866	10	4	20.00	—	—	—	—	
Chelsea . .	34,672	14	3	14.28	—	7.14	—	7.14	
Malden . .	33,661	6	2	16.67	—	—	16.67	—	
Newton . .	33,587	7	1	14.30	—	—	—	—	
Fitchburg . .	31,631	7	3	25.00	14.30	—	—	—	
Taunton . .	31,036	4	—	—	—	—	—	—	
Gloucester . .	26,212	6	3	16.67	—	—	—	—	
Everett . .	24,536	11	6	18.18	18.18	—	—	9.09	
North Adams .	24,500	9	2	11.11	—	—	—	—	
Quincy . .	23,899	—	—	—	—	—	—	—	
Waltham . .	23,481	8	2	12.50	—	—	—	—	
Pittsfield . .	21,766	1	—	—	100	—	—	—	
Brookline . .	19,935	—	—	—	—	—	—	—	
Chicopee . .	19,767	9	6	11.11	—	—	—	11.11	
Medford . .	18,244	3	2	—	33.33	—	—	—	
Newburyport .	14,478	3	—	—	33.33	—	—	—	
Melrose . .	12,962	5	1	20.00	—	—	—	—	

Deaths reported 2,422; under five years of age, 795; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 592; acute lung diseases 220; consumption 246; scarlet fever 11; erysipelas 4; typhoid fever 55; whooping cough 12; cerebrospinal meningitis 5; smallpox 13; measles 6; diarrheal diseases 186.

From whooping cough, New York 7, Philadelphia 3, Baltimore 2. From cerebrospinal meningitis, New York 2,

Boston, Worcester and Gloucester 1 each. From scarlet fever, New York 6, Philadelphia 2, Pittsburgh 1, Salem 2. From typhoid fever, New York 23, Philadelphia 11, Baltimore 5, Pittsburgh 6, Providence 2, Boston 7, Chelsea 1. From erysipelas, New York 2, Baltimore 1, Worcester 1. From measles, New York 6. From smallpox, New York 1, Philadelphia 10, Boston 2.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Oct. 5, the death-rate was 15.6. Deaths reported 1,437; acute diseases of the respiratory organs (London) 132; whooping cough 30, diphtheria 74, measles 41, fever 59, scarlet fever 38.

The death-rate ranged from 10.8 in Bradford to 23.1 in Sunderland; Birkenhead 13.1, Birmingham 17.1, Blackburn 18.1, Bolton 12.1, Brighton 13.9, Bristol 12.3, Burnley 16.6, Cardiff 12.9, Croydon 13.2, Derby 11.3, Hull 15.5, Leeds 18.4, Leicester 12.5, Letcham 20.0, London 14.7, Manchester 18.1, Norwich 14.9, Oldham 14.0, Plymouth 15.9, Portsmouth 13.5, Preston 17.5, Salford 17.4, Sheffield 18.8, Swansea 14.9, West Ham 17.5, Wolverhampton 16.0.

METEOROLOGICAL RECORD

For the week ending Oct. 19, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer Daily mean.	Thermometer Maximum. Minimum.	Relative humidity. 8:00 A.M. 5:00 P.M.	Direction of wind.	Velocity of wind. 8:00 A.M. 5:00 P.M.	Clouds. 8:00 A.M. 5:00 P.M.	Rainfall in inches.
S. 13.30.01	62	69 55	94 95	94 S E	8 8	12 O. T.	
M. 14.20.02	63	70 56	100 95	98 S W	8 8	O. O. 1.98	
T. 15.30.06	58	65 50	78 74	74 N W	13 5	C. C. 15	
W. 16.30.03	58	69 48	80 80	80 S W	10 9	C. C. .61	
T. 17.20.04	57	69 45	80 78	79 S W	13 12	O. O.	
F. 18.20.08	46	64 43	66 66	66 S W	16 12	F. C. F.	
S. 19.20.05	53	66 40	56 66	61 S W	21 24	C. F.	
Wk.	23.07	66 48		79			2.14

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall. **Wk.** Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING OCT. 12, 1901.

L. L. VON WEDERKIND, surgeon. Detached from the Puget Sound Naval Station and ordered home and to wait orders.

O. D. NORTON, surgeon. Detached from the "Monadnock" on reporting of relief and ordered home and to wait orders.

D. H. MORGAN, passed assistant surgeon. Ordered to the "Philadelphia."

A. W. DENBAR, passed assistant surgeon. Detached from the Naval Hospital, Mare Island, Cal., and ordered to the Puget Sound Naval Station.

S. G. EVANS, passed assistant surgeon. Detached from the "Solace" upon reporting of relief, and ordered home and to wait orders.

A. R. ALBERT, passed assistant surgeon. Detached from the Marine Barracks, Cavite, P. I., and ordered to the "Monadnock."

J. M. MOORE, passed assistant surgeon. Detached from the "Franklin" upon reporting of relief, and ordered to the "Indiana."

C. C. SMITH, assistant surgeon. Detached from the "Albatross" and ordered to the "Marietta."

F. E. McCLELLAN, assistant surgeon. Detached from the "Philadelphia" and ordered to the Naval Hospital, Mare Island, Cal.

J. F. MERRIN, assistant surgeon. Detached from the "Indiana" upon reporting of relief, and ordered to the "Solace" for temporary duty, and then to the Marine Barracks, Cavite Naval Station.

W. H. BELL, assistant surgeon. Ordered to the "Franklin."

D. G. BEKEE, assistant surgeon. Detached from the "Marietta" upon reporting of relief, and ordered home and to wait orders.

A. M. FAUNTLEROY and L. W. BISHOP, assistant surgeons. Commissioned assistant surgeons from Sept. 28, 1901.

C. F. STOKES, surgeon. Detached from the "Oregon" and ordered to the "Solace."

G. A. LUNG, surgeon. Detached from the Marine Barracks, Cavite Naval Station, on reporting of relief, and ordered home and to wait orders.

L. W. SPATLING, surgeon. Commissioned surgeon from Sept. 28, 1901; detached from the Naval Hospital, Cavite, P. I., on reporting of relief, and ordered home and to wait orders.

M. S. GUEST, passed assistant surgeon. Detached from the Naval Hospital, Philadelphia, Pa., and ordered to the "Solace," Oct. 17, for temporary duty, and ordered to the Cavite Naval Station on arrival at the Asiatic Station.

A. FAHRENHOLT, passed assistant surgeon. Ordered to the "Independence."

M. K. JOHNSON, passed assistant surgeon. Detached from duty at Guam on reporting of relief, and ordered to the Marine Barracks, Cavite Naval Station.

C. D. LANGHORNE, assistant surgeon. Ordered to the Naval Hospital, Naval Home, Philadelphia, Pa.

W. SEAMAN, assistant surgeon. Detached from the "Independence" on reporting of relief, and ordered to the "Solace" for temporary duty, and ordered to duty at Guam on arrival at that place.

H. M. TOLFREE, assistant surgeon. Detached from the "Columbia" and ordered to the "Solace" for temporary duty, and ordered to duty at Guam on arrival at that place.

J. B. DENNIS, assistant surgeon. Detached from the Naval Academy and ordered to the Naval Hospital, New York.

R. M. YOUNG, assistant surgeon. Detached from the New York Navy Yard and ordered to the "Columbia."

R. M. FAUNTLEROY, assistant surgeon. Ordered to the Naval Academy.

J. J. SNYDER, assistant surgeon. Detached from duty at Polce, P. I., and ordered to the Naval Hospital, Cavite, P. I., for treatment.

J. A. GUTHRIE, passed assistant surgeon. Detached from the "New York" and ordered to duty at Port Isabella, P. I.

R. K. McCLEAN, assistant surgeon. Detached from duty at Port Isabella, P. I., and ordered to duty at Polce, P. I.

F. A. ANDERSON, assistant surgeon. Detached from the "General Alava" and ordered to the "New York." F. L. BAYTON, assistant surgeon. Detached from the "Brooklyn" and ordered home.

SOCIETY NOTICES.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.—The Surgical Section will meet at the Medical Library, 8 The Fenway, on Wednesday evening, Nov. 6, 1901, at 8.15 o'clock.

Papers: "The Treatment of Congenital Cleft Palate by Mechanical Appliances," by George A. Raymond, D.M.D.; "Similarity of Symptoms in a Case of Simple Abdominal Contusion, and One Complicated by Intestinal" Injury, by John T. Bottomley, M.D.; "A Demonstration of Jujitsu, or the Art of Killing by the Hands," by Mr. J. J. O'Brien, late inspector of Japanese police at Nagasaki.

F. S. WATSON, M.D., Chairman.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of the society will be held in Sprague Hall, Medical Library Building, 8 the Fenway, on Monday, Nov. 4, at 8.15 p.m.

Dr. James C. White will present a paper entitled "Errors in the Diagnosis of Syphilis."

ARTHUR K. STONE, M.D., Secretary,
543 Boylston Street.

BOOKS AND PAMPHLETS RECEIVED.

Essentials of Obstetrics. By Charles Jewett, A.M., M.D., Sc.D., assisted by Harold F. Jewett, M.D. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1901.

Textbook of Nervous Diseases, being a Compendium for the use of Students and Practitioners of Medicine. By Charles L. Dana, A.M., M.D. Fifth edition. Illustrated. New York: William Wood & Co. 1901.

Diseases of the Digestive Organs in Infancy and Childhood, with Chapters on the Diet and General Management of Children, and Massage in Pediatrics. By Louis Starr, M.D. Third edition, rewritten and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Original Articles.

MEDICAL AND SANITARY CONDITIONS IN THE PHILIPPINES.¹

BY W. P. CHAMBERLAIN, M.D.,

First Lieutenant and Assistant Surgeon, U. S. Army.

To appreciate the medical and sanitary problems facing the authorities in the Philippine Islands, it is necessary to consider the local conditions there existing, which are in every way different from those met with in the United States. The climate of the islands, their topography and the methods of cultivation in vogue, the race, character, and manner of life of the inhabitants, and their previous training or lack of training,—all these, as well as the peculiar diseases incident to the tropics, have to be taken into account when dealing with the problems presented for solution in our trans-Pacific colonies.

Climate.—The most northern extremity of Luzon does not reach to the nineteenth parallel of north latitude, so is nearer to the equator than any part of Cuba. The most southern portion of the archipelago is within 5° of the equator. This stretch of 1,000 miles from north to south allows for some range of climate, though it is all within the tropics. At Manila, latitude 15° north, the records of the Jesuit Observatory show the lowest observed temperature to be 60° F., and the highest 100° F., in the shade. April, May and June are the warmest months, but the average monthly variation between the hottest and the coldest months is only 7° F.—the mean being 77° F. in December and 84° F. in May. The humidity of the air is great. There is usually a good breeze,—the northeast monsoon, or trade wind, during the winter, and the southwest setting in about April and continuing during the summer months.

Rainfall.—On the western coast of Luzon the southwest monsoon brings the rain. At Manila the period of greatest rainfall is from June to October, and there is an average of 135 days with rain per year. The average annual fall is 75 inches. The season of greatest rainfall varies in different parts of the archipelago, and in general is in the winter on the eastern coast of Luzon and in summer on the western. By judicious moving about one can completely escape the wet season. I did this last year, entirely avoiding the rains by a change from the northeastern to the western coast of Luzon made in October. An air line between the two towns was less than 100 miles in length.

As to the subjective sensations of an American in the Philippines, great diversity of opinion is expressed, some claiming that the climate is delightful, others that it is almost unendurable. My own experience has been confined to towns on or near the coast of Luzon, where the climate has seemed to me very agreeable. I have walked, ridden and bicycled in the middle of the day with

no more discomfort than I have frequently experienced in New England in summer. Lighter clothing was of course worn than is used here. I have rarely seen a day when it was not cool indoors at all hours. I have never spent an uncomfortably warm night and have often needed a blanket.

Back from the sea the heat is said to be more noticeable. In the mountains it is often very cold at night. Bangnet Province, north of Manila, is said to be favored with a delightful climate, and it is proposed to build a sanitarium for Americans there as soon as rail communications can be established.

It is too early yet to say what will be the effect on Americans of long residence in the Philippine Islands, but it seems probable that the climatic influence will not be especially bad for those who avoid all excesses and live under good sanitary and hygienic conditions. Many Spaniards who have lived for years in the islands appear in good health. It has been stated the climate is especially severe in its effects on white women and children, yet the American women who have lived in Manila a year or more have in most cases enjoyed good health. Dean Worcester thinks it very doubtful if successive generations of American children can be reared in the archipelago.

Food and water.—The staple article of native diet in the Philippines is rice. On the coast many varieties of excellent fish abound, and, either fresh or dried, are extensively used for food. Chicken, pork and, to a less extent, beef are eaten by the better classes, and among the well-to-do natives an abundance of meat is seen on the table. Here, as in Porto Rico and Cuba, the amount of meat consumed is limited, not by the inclination of the consumer, but by his financial resources. The statement often made, that the natives of the tropics do not care for meat, is not borne out by the facts. Milk is very rarely used, and chocolate is the most common beverage. Most of the cooking is done by boiling or frying in earthen pots supported on three stones over a small fire.

The water supplies are usually bad, being obtained from muddy rivers or shallow wells, subject to every kind of surface contamination. In the larger towns are many deep wells, but often located in close proximity to cemeteries or water-closets. Manila has an ample public supply of clear and palatable water, but it is not considered safe for Americans to use it without previous boiling. The Chinese custom of fertilizing gardens with human excreta is a great source of danger, not only by contaminating water supplies, but also by infecting such vegetables as are eaten without being cooked.

Topography.—The surface of the Philippine Islands is for the most part mountainous, many of the peaks being volcanoes, yet some of the most densely settled portions of Luzon are not much elevated above the sea level, are generally flat, and are to a large extent flooded during the rains. The extensive cultivation of rice in flat,

¹ Read before the Boston Society for Medical Improvement, May 6, 1901.

terraced or diked "paddy fields" tends to retard rather than to promote good drainage. No part of Manila is more than a few feet above the high-tide mark, and the city is everywhere traversed by sluggish canals receiving deposits of all kinds of filth.

Inhabitants.—The total area of the Philippine group is 114,000 square miles, and the estimated population from 8,000,000 to 10,000,000. Luzon has an area of 41,000 square miles, with from 5,000,000 to 6,000,000 inhabitants. It is therefore considerably smaller than either New York or Pennsylvania, with a population somewhat in excess of either State. There are more than 80 distinct tribes, speaking different languages, but the bulk are considered to be of Malay origin. There is a strong admixture of foreign blood in nearly all the Filipino tribes. There are large numbers of Spanish and French *mestizos* (half-breeds) and a still greater number with a Chinese cross. There are many Chinamen scattered throughout the archipelago, and 40,000 to 50,000 in Manila.

I am personally familiar with only the more important tribes of Luzon. The men of the civilized tribes are all small, but usually broad shouldered, muscular and well built. The women have a graceful carriage, being extremely erect, as a result of bearing burdens balanced on their heads. They give birth to many children, but a large number of these perish before reaching puberty. Children are always carried by the mother astride the hip, sometimes one on each hip. The sick Filipino is apt to be like the Semitic patient, so common in our clinics. He does not bear pain with fortitude, and is always sure that his end is rapidly approaching. He does not, however, fear or try to avoid disease, yet he is ready and willing to receive scientific treatment, and even to submit to surgical interference. In this he differs markedly from the Chinaman, whose creed forbids him to submit to a mutilating operation. The Chinaman must arise whole at the judgment day.

The clothing of both sexes is light and usually made of cotton, hemp or pineapple fibre (*piña*). The female costume is loose, airy and very picturesque. The men always wear the shirt-tails outside the trousers, which is obviously a much cooler arrangement than ours. Dean Worcester says he was at first surprised to know why the shirt was outside. It was explained when he asked for a spoon. The waiter snatched a dirty one from a vacant place, wiped it on his shirt-tail, and presented it with a cheerful smile.

Habitations.—The mass of the Filipinos live in small, sharp-roofed houses, built of a bamboo framework tied together with rattan and covered on roof and walls with nipa palm thatch. The floor is raised from 1 to 10 feet above the surface of the ground. The better classes live in wooden or stone buildings, thatched or roofed with galvanized iron or tiles, and with the living floor 6 to 12 feet from the ground. Two-thirds of the wall space is given over to windows, sheltered by awnings, and provided, in the better houses, with

sliding sashes set with thin, translucent plates of oyster-shell about 3 inches square. Glass is very rarely seen. The native fears night air, and tightly closes his windows soon after sunset.

Sanitation.—The average Filipino is fastidiously neat about his person and his clothing, but is quite the reverse about his house and surroundings. Even the metropolis, Manila, had a very incomplete and imperfect sewerage and drainage system, and other towns were entirely innocent of any attempt at sanitation. Slops, refuse and fecal matter were usually deposited on the surface of the ground beneath the houses, where they were eagerly devoured by half-wild, razor-backed hogs, which roam about every Filipino town, and which are eventually killed and eaten. In Manila the Spanish sanitary laws were in most instances well drawn, but were not executed, and on the arrival of the Americans the sanitary conditions were unbearable. Filth filled the streets and was hidden in back yards, cellars and cesspools. Tenement-houses were dark, damp, dirty and greatly overcrowded, especially in the Chinese section. Everywhere progressive measures ran counter to the characteristic inertia of the native temperament — his unwillingness to take any active steps. If told to clean up his premises, he says *mañana*, the Spanish word for tomorrow. The Philippines is a *mañana* country, and in that soft atmosphere the American also is only too liable to fall into the snare of *mañana*. However, by force and fines much has now been accomplished in the way of municipal cleanliness in Manila by the Board of Health (composed of army medical officers), and in the outlying towns by the medical officers serving with the troops in those places. Bi-monthly house-to-house inspection throughout the town, and the fining of all offenders against sanitary regulations, was the method pursued in the town of Aparri, where I was stationed.

In such a land and among such a people it is to be expected that there would be much disease. Smallpox is everywhere epidemic, and is not feared or avoided by the native any more than we dread or shun a cold. Beriberi is common and fatal. Cholera has occurred, and the plague gained a foothold in 1900. Lepers are estimated to exceed 30,000 in number, and are not segregated, except to some extent in Manila. *Culcutura* (a fever probably in most cases malarial), as well as dysentery and diarrhea, is frequently encountered among the natives, as are many cutaneous diseases and surgical affections, which sadly need radical treatment. When our unacclimated troops are subjected to the same unfavorable climatic conditions as the natives, and in addition have to endure the hardships of campaigning against an elusive enemy, often in the wet seasons, through swamps and over almost impassable roads, drinking polluted water, and frequently on short rations, because far from the base,—when all these things are considered, it is surprising that the sick-rates have been as low as those now to be given.

Sick-rates in the army.—During the calendar year 1899 there was an average approximately

of 12,000 regular troops in Cuba, 26,000 in the United States, and 23,000 in the Philippines. The total sick admission rate per 1,000 of mean strength was, for disease alone, in Cuba 2,690, in the United States 1,551, and in the Philippine Islands 2,454. It is seen, therefore, that the percentage of sick to the total strength in the Philippines was about one-tenth less than in Cuba, and was about two-thirds more than in the United States. The deaths in 1899 among the regulars, from disease alone, per 1,000 mean strength were in Cuba 17.29, in the United States 6.72, and in the Philippine Islands 17.80. Thus the death-rate per 1,000 was the same in the Philippines as in Cuba, but was about two and one-half times as great as in the United States. So while the morbidity in the Philippine Islands was only two-thirds greater than in the home stations, the mortality from disease was two and one-half times as great, this being due partly to the more dangerous character of the diseases to be dealt with in the islands, and partly to the exposure, hardships and consequent lowering of vitality resulting from active service and adverse climatic conditions.

During the latter half of 1899 the ratio of non-effectives to the whole force in the Philippines ranged from 9 to 13%, the total strength averaging about 63,000 men. In the first half of 1900 the ratio of non-effectives was reduced to an average of 8.8%, and unofficial reports show that the percentage of sickness for the last 2 months has been below 7.4%. The latest report seen shows only 5.9% of sick. The percentage of sickness has reached its maximum during June and July, these being the months when dysentery is at its height. Malarial disease claims its greatest number of victims during November and December.

On Aug. 13, 1901, Colonel Greenleaf, chief surgeon of the Division of the Philippines, reported that while the percentage of sickness in the army was steadily decreasing, the number of deaths was increasing, this being due partly to the greater number of soldiers shot from ambush, and partly because as time progressed the men became more and more debilitated by tropical service, and consequently less able to combat severe illness. It is to be expected now that the loss of life from gunshot wounds will soon nearly cease. The judicious transfer to the United States of debilitated men and chronic cases can be made to offset one of the chief factors in the mortality rate. The opinion is prevalent among the medical officers who have served in the Philippines that, in time of peace and doing only garrison duty, the sick-rate of the army in the Philippine Islands will be no higher than it ordinarily is in the Southern United States.

Relative prevalence of diseases.—Of the total sick report among our Philippine forces, it is estimated that 31% is due to dysentery and diarrhea, 22% to malaria, 10% to venereal disease, 8% to wounds and injuries, 2% to typhoid fever, and 27% to other diseases. Of the total mortality, from Jan. 1, 1900, to July 31, 1900, 20% was due to dysentery, 9% to smallpox, 8% to typhoid

fever, 2% to suicides, 29% to other diseases, and 32% to wounds and injuries.

Dysentery.—Intestinal diseases, therefore, constitute the largest item in the sick-list, forming over one-third of the total morbidity. The line of demarcation between chronic dysentery and chronic diarrhea is by no means sharp, and many cases diagnosed clinically as diarrhea may have been in fact dysentery. Dysentery is *par excellence* the most troublesome affection the army surgeon has to deal with in the Philippines. It forms over one-tenth of the total admission rate and causes one-third of the deaths from disease. No statistics are at hand, but it is my opinion that over one-half of the men invalided home are sent because of dysentery. It has become a generally accepted view that diarrhea and dysentery, when they become chronic, are incurable in the Philippines. Reports also indicate that cases which have recovered in the United States, speedily relapse on return to Manila. Dysentery has been much more prevalent in the Philippines than among our troops in Cuba and Porto Rico.

Etiology of dysentery.—The researches of Drs. Strong and Musgrave indicate that there are two distinct types of dysentery at Manila: One due to the *ameba dysenteriae*, and the other (called specific dysentery) to a short, rod-like organism, the *bacillus dysenteriae*, similar, if not identical, to that described by Shiga. These two types have different clinical features and distinctive pathological lesions, and can easily be differentiated ante-mortem; one by the demonstration of the *ameba* in the stools, and the other by a marked agglutinating serum reaction with the *bacillus dysenteriae*. It is stated that the specific dysentery never produces liver abscess.

Of 1,328 cases of dysentery studied at the First Reserve Hospital at Manila, 58% were specific dysentery, and 42% amebic. The recorded mortality of the specific type was 7%, and of the amebic 12%. This, however, is not the real mortality, as nearly one-half of the cases were lost sight of, being transferred to other hospitals or to America, and of these, doubtless many died.

The source of infection in both types is thought to be usually polluted water. When the troops were in the more permanent camps or stations, where the drinking-water was sterilized either by boiling or passing through the Waterhouse-Forbes sterilizer, it has been the almost universal experience that there was a marked decrease of bowel disturbances. There has been great variety in the medication used for dysentery. In my experience careful dieting, with high rectal irrigation with a solution of nitrate of silver, has given the best results in the chronic cases, but these patients do not recover permanently in the Philippines, and all such should be sent home for treatment.

Malarial fevers.—Malaria, next to the diarrheal diseases, causes the greatest number of admissions to sick report in the Philippines. The intermittent fevers considerably exceed in number the remittent, and the pernicious form only 2 of 1% of the total number. The admission rate for the

malarial fevers in Cuba was one-half greater, and the death-rate three times greater, than in the Philippine Islands. Pernicious malarial fever is confined to a few localities, one being a shut-in mountain valley, near the centre of Luzon, where a very severe type prevails.

In my opinion many cases diagnosed as malaria were not in reality due to the *plasmodium*, but belonged to a class of fevers, the causation of which has not yet been discovered. I have studied several cases of mild febrile attacks, in which no *plasmodium* could be found, and no Widal reaction was present, and which were uninfluenced by quinine. Some of these may have been Malta fever, several cases of which have been reported at Manila. Two of these cases under my care, on the hospital ship *Relief*. There were no subjective symptoms, and physical examination showed nothing of interest. The bowels were constipated. There was an irregular fever, lasting about six weeks, not markedly undulatory. The leucocyte count was normal, and the Widal test and search for *plasmodium*, repeated several times, failed to give positive results. Large doses of quinine produced no effect. Specimens of the blood sent to the laboratory of the First Reserve Hospital gave a marked agglutinating reaction with the *micrococcus Melitensis*. While experimenting with their organism Dr. Strong accidentally infected himself, and suffered from a severe attack of Malta fever.

Mosquitoes are numerous in all parts of the Philippines. So far as I am aware, no work has been done there bearing on the theory of the mosquito as the intermediate host for the *plasmodium*. The use of mosquito-net canopies over beds is very general, and in some posts is made compulsory.

Veneral disease.—Venereal disease, which forms 10% of the total sick-list in the Philippines, is somewhat less prevalent there than among troops in the United States and Cuba, and is much less than in Porto Rico. At the time of the sailing of the first expeditions, much was said about the anticipated ravages of the malignant Oriental syphilis. Such a disease has not been found to prevail in the Philippines. The admission rate from syphilis has been a little less than that in home stations, and it is thought that much of the syphilis which has developed in the Philippines was either acquired in the United States, or from infection by white prostitutes in Manila. Chancroidal disease, however, seems to be very common among the Filipino prostitutes, and the admission rate in the army from this cause was much higher than in the United States.

Typhoid fever.—During the calendar year of 1899 there were 862 cases of typhoid fever reported among the Philippine forces, of which 118 died, a mortality of 13.7%. From Jan. 1, 1900, to July 31, 1900, there were 84 deaths from enteric fever. The cases were widely scattered, and in two instances only did epidemics occur; and these were of small extent, and easily checked. Convalescence from typhoid is very slow.

Pulmonary Tuberculosis does not seem common among the Filipinos, and the number of cases among the Americans has fortunately been small. It was speedily discovered, however, that consumption progressed with great rapidity in the Philippines, and if patients remained in the Islands, they were soon past all hope. It has therefore become the practice, as soon as the diagnosis is made, to transfer such patients to the U. S. Army Hospital for Consumptives, at Fort Bayard, New Mexico.

Rheumatic affections are prevalent among the soldiers serving in the islands. They are not usually severe, but tend to become chronic, and do not improve at any of the points thus far occupied by our troops.

Insanity in the Philippines has occupied such a prominent place in sensational newspaper columns that it is of interest to know the true facts. Probably there has been enlisted a somewhat larger percentage of mildly insane men during the active recruiting of the last three years than heretofore. Men of excitable temperament, but not actually insane, may lose their mental equilibrium under the stress of field operations, and many young soldiers separated from friends and familiar surroundings, became victims of intense mental depression. Many such are among those designated as insane on the monthly sick reports. Numerous cases of this kind recovered on the voyage across the Pacific, and still others during their detention in San Francisco, before being sent to the Government Hospital for the Insane at Washington. Yet, even including these transient cases, the admission rate per 1,000 was not alarming, being but a trifle higher than the mean annual rate in the army for the decade before the Spanish War, and not as high as the rate for the year 1892.

Smallpox is everywhere prevalent among the Filipinos, a large proportion of the population bearing the indelible marks of the disease. In different provinces the estimated number immune, by reason of a previous attack, varies from 25 to 75% of the total population. Most of the cases occur in childhood; no attempt at isolation or disinfection being made. Among the troops in 1899 there occurred 312 cases of variola, with a death-rate of 29%. From Jan. 1 to July 31, 1901, there were 89 deaths from this cause, which shows that, in spite of vaccination, variola is still a serious problem in the Philippines.

Vaccination.—Recruits are vaccinated soon after enlistment, and usually all soldiers not showing evidence of recent successful inoculation, are revaccinated one or more times during the voyage across the Pacific. It is found that virus prepared here is inert by the time it reaches the Philippines, and therefore the manufacture of lymph is now carried on in Manila and also in Hoilo, the *carabao* (water buffalo) being used instead of the calf. A fresh and exceedingly powerful virus is thus produced, and it is planned to vaccinate all unprotected soldiers with this product as soon as they land in the Phil-

ippines. In spite of these precautions, a few soldiers escape vaccination, or fail to obtain a successful result, and these are generally the men who contract and succumb to the disease.

An epidemic of smallpox appeared among the natives in the town of Aparri, where I was stationed. Twenty-five cases developed; were isolated, and were nursed by native immunes. All but 1 were children under 14 years of age. Seven cases died; a mortality of 28%. The epidemic was suppressed. Twelve thousand Filipinos and Chinese were vaccinated in this town by native vaccinators, working under my direction. The method used was as follows: The virus was in 2 cc. tubes. A needle set in a wooden handle and a wire loop set in a handle, were employed, being burned in an alcohol flame before using. The arm was washed with soap and water, and scarified with the sterile needle. The sterile loop was inserted into the tube of virus, and the drop adhering to it was thoroughly rubbed into the wound. Needle and loop were heated red hot before being used a second time.

Vaccination of natives was practised to some extent under the Spanish régime, and the people are glad to submit to the procedure. The task of vaccinating the entire unprotected population has been begun, but much yet remains to be finished. In 3 districts in Northern Luzon, out of a population of 780,000, 194,000 have been vaccinated. In Manila and suburbs, 113,000 vaccinations were performed in a single year.

Beriberi in both its types prevails extensively among the Filipinos and Chinese. It has been often epidemic among the insurgents held as prisoners by the Americans, and has caused a large mortality. Two cases have been reported among the Americans, with 1 death.

Skin diseases, mostly of parasitic origin, are very common among both natives and Americans. Few officers or soldiers escape an attack of the so-called "dhotie itch,"—a loose term applied to several varieties of ringworm, chiefly affecting the crotch and axillæ. It is very difficult to eradicate in the Philippines, and is quite disabling to the soldier on the march. Compound tincture of iodine, frequently applied, is the most effective remedy, and recovery is spontaneous on return to a cool climate. The name is derived from the Indian "*dhotie*" (laundryman), and was applied because it was supposed that the infective agent was carried in the clothing. This seems a reasonable hypothesis in the Philippines, where tae native laundresses never boil the clothes.

Hospitals.—For the care of the American sick at the established bases in the Philippines, little remains to be desired, except in the direction of constructing buildings especially designed for hospital purposes, which of necessity can be done only slowly. There are in Manila 5 large army hospitals, with an aggregate capacity of 2,200 beds. Of these, the First Reserve occupies the buildings formerly used as a Spanish military hospital. Two years ago it was greatly crowded, and, with numerous tent wards, sheltered 1,500

sick. Now its capacity is reduced to 400 beds. The buildings are fairly well constructed for hospital purposes, and have been greatly improved since American occupation, the most extensive improvement being the installing of a new sewerage system. This hospital is on the river front, and a large steam launch, capable of holding 60 patients, is a part of the hospital equipment. The Second Reserve Hospital occupies a convent-school building, and Hospital No. 3 is in a Spanish barracks, which has been extensively reconstructed. The hospital on Corregidor Island has a capacity of 250 beds, and the buildings, made of wood and galvanized iron, were constructed for hospital purposes. The Santa Mesa Hospital of 1,000 beds is built of bamboo and nipa palm thatch, after the native style of architecture, and furnishes most cool and comfortable quarters for the sick. All these hospitals are fully supplied with everything desirable for the care of the sick. Each has a special diet kitchen, a pathological laboratory, and a well-equipped operating-room. The largest part of the operative work has been done at the First Reserve Hospital, and to this hospital also are sent the cases requiring the services of a specialist for either surgical, medical or diagnostic purposes.

There are 11 base hospitals in the provinces, with a total capacity of 1,200 beds. These are placed at centrally located cities, easily accessible to Manila by rail or steamboat. Their equipment is similar in all respects to the hospitals in Manila, and half of them are, like the Manila hospitals, furnished with an ample corps of trained female nurses. Last July there were 120 female nurses on duty in the Philippines.

There are numerous regimental hospitals, and in addition nearly every occupied town has a house set apart for hospital purposes, and supplied with from 10 to 20 beds and necessary equipment for caring for a few sick men. These bring the total bed capacity up to over 5,200, which can in emergency be expanded one-third.

Laboratories.—For the prosecution of scientific research and up-to-date diagnostic work, the government has been very liberal in supplying the means. All the hospitals in Manila, most of the base hospitals, and many of the others, have laboratories where the usual routine chemical and microscopical examinations can be made. The hospital ship *Relief* has a well-equipped laboratory, and another belongs to the Board of Health. The laboratory of the First Reserve Hospital is fully supplied with all that could be desired for original research. This laboratory has for two years been under the charge of Dr. Strong of the Army Medical Corps, and it is there that he and other doctors have carried out the investigations in regard to dysentery, malaria, Malta fever, bubonic plague and other diseases.

Supplies.—In spite of the great distance from the centres of manufacture in the United States, supplies of medicines, dressings and other articles have, with a few exceptions, been ample for all needs in the Philippines, and have been

promptly distributed, except in those instances where the difficulties of transportation rendered delay unavoidable. Instruments and other appliances, as well as professional books, have been provided in abundance. All the Manila hospitals, and most of the larger ones in the provinces, are furnished with excellent iron bedsteads, woven wire springs, hair mattresses, mattress covers, and an abundance of bed linen, towels and pajamas. Ice machines have been installed by the Medical Department at 5 hospitals, and will soon be placed at 8 others.

Subsistence.—The food supplied by the commissary department has in general been all that could be desired, and the allowance of 40 cents per patient per day for subsistence while in hospital has been found ample. The impossibility of obtaining fresh milk in the Philippine Islands is a serious handicap in the treatment of many diseases, but the unsweetened evaporated cream, and especially the Australian evaporated milk, serve as reasonably satisfactory substitutes. Chicken and eggs are always obtainable.

The army ration.—In this connection it may be mentioned that the majority of medical officers have, from practical experience, come to the conclusion that the present army ration, as used, is not an improper diet for troops serving in the tropics. If any alteration is desirable, it is the addition of more sugar, which the soldier in the Philippines seems to crave for. Colonel Greenleaf, chief surgeon of the Division of the Philippines, says: "It does not appear, after careful observation, that the food furnished by the present ration produces sickness, either by its variety, character or quality, provided it is properly cooked and eaten in moderation."

Transportation.—For the distribution of medical supplies, for attending military expeditions which were operating near the seacoast, and for bringing sick from outlying towns to the hospitals in Manila, the U. S. Army hospital ship *Relief* has been found to be extremely useful. I had the good fortune to serve for 16 months on this vessel. The *Relief* was not the gift of Miss Helen Gould, as has been so freely stated in the press, but was bought and equipped at great expense by the government. She has a capacity of 244 patients, and in all her equipment and fittings compares favorably with the best civil hospitals in this country. When in Nagasaki, I inspected two large German hospital ships. While these displayed some points which might be copied with advantage, they were on the whole far behind the *Relief* in the elegance and completeness of their equipment. Another hospital ship is soon to be added to the resources of the medical department in the Philippine Islands.

All the transports now in use on the Pacific have well-fitted hospitals of from 10 to 60 beds, and these are made use of to transport the sick and convalescent from Manila to the magnificently equipped army hospital at the Presidio, San Francisco. In addition to the members of the hospital corps, there are usually two or more

female nurses to assist in caring for the sick on these trips.

"*Invaliding home*" is an imperative necessity in all cases where the vitality has been greatly reduced, as convalescence is slow and imperfect in all regions thus far occupied by our forces. From Jan. 1, 1900, to July 31, 1900, there were transferred to the United States 1,560 sick soldiers, a rate of 41 per annum per 1,000 men. Adding to this a death-rate of 26.7 per annum gives a total annual loss of 67.7 per 1,000 from death and transfer.

Duties of medical officers.—The care of the American sick, and the attention to the sanitation of the military camps, is by no means the only work that has been thrown upon the army medical officer in the Philippines. The condition of all the garrisoned towns was at first vile, filth of every kind surrounding and underlying the houses, and all improvements had to be inaugurated by medical officers amid the most discouraging state of apathy on the part of the natives. In Manila a board of health composed of army surgeons began the fight against unsanitary conditions, struggling with and overcoming an epidemic of the bubonic plague. The health officer of the port of Manila was for two years an army doctor, and army doctors still act as health officials at the other ports in the archipelago. The public vaccination also has been entirely under the supervision of the American medical men.

In Manila there are numerous Spanish and Filipino doctors, some being men of ability and skill. Of these most were educated in the medical school at Manila, but some have taken courses in Europe. In the provinces, however, doctors are the rare exception. When I was stationed at Aparri, a town of over 12,000 inhabitants, there was no civilian doctor there, nor any within a radius of 40 miles, in a thickly settled country. Therefore, in the cause of humanity, army medical officers have felt obliged to do much work among the natives, and a limited amount of medical supplies has been distributed by the government for use among the indigent.

Problems to be solved.—From this imperfect review of existing conditions it is evident that many new and important problems confront the American medical profession in the Philippines. With the cessation of hostilities and the establishment of permanent garrisons, barracks and hospitals adapted to the tropics must be constructed to guard the whites from the dangers of living in their present makeshift quarters. Ice machines, water distilling plants and laundries must everywhere be installed. Measures for municipal sanitation must be enforced among the native population, to protect the white man from the effects of epidemics among his neighbors. General vaccination must be vigorously carried out, and lepers must be segregated and cared for. For the benefit of the natives, dispensaries and civil hospitals must be founded, where the indigent can receive scientific treatment and proper care free of charge. For the ultimate good of both the white

and the brown inhabitants, as well as for the advancement of science, laboratories should be established for the investigation of the many unsolved problems of tropical medicine. The initiative and the execution in all these matters must depend upon the American army surgeon, unless a special medical service is established to look after the civil side of medical and sanitary administration.

The duties confronting the profession in our new colonial possessions are as yet novel to us, and by no means easy to perform. They are being met, however, by earnestness on the part of the medical officers of the army and by liberality on the part of the government. With the progress of time, and with the acquisition of a broader experience in such affairs, there is no reason why America should not accomplish, for the safety of her troops in the Philippines, and for the betterment of native races coming under her flag, all that England has accomplished in India and her other tropical possessions.

THE U. S. ARMY SYSTEM OF PERSONAL IDENTIFICATION.¹

BY C. H. ALDEN, M.D., U. S. ARMY, RETIRED.

You have welcomed me so cordially to your meetings, and I have experienced so much profit and pleasure in listening to your papers and discussions, that I gladly comply with the request of your president to address you, in the hope that I may on my part contribute somewhat to your entertainment.

Personal identification in general, its importance to the individual and to the community, and the best means of accomplishing it, are subjects of great interest, and well worth discussion; but I shall take up tonight one branch only, the system now in use in the office of the surgeon-general of the U. S. Army, for the identification of the soldier. This system is designed to prevent the re-entry into the military service of former soldiers who, by desertion or dishonorable discharge, have become unfit associates for the men in the ranks, and whose re-enlistment is forbidden by law. I shall endeavor to point out the necessity for such a system, the principles upon which it is based, to give an account of its practical working and of the results obtained.

It is a matter of history, and possibly within the remembrance of some of those present, that the re-enlistment of deserters, bounty jumpers, and other undesirable characters in the army, became a very serious embarrassment to the government during the later years of the war of 1861-1865. Stimulated by the large bounties offered by towns and counties, or the large prices paid by individuals for substitutes, amounting sometimes to hundreds, or even thousands, of dollars, these recidivists would enlist and desert, then re-enlist and again desert, repeating the same process, it may be, many times. An attempt was made at one time

to detect the repeater, by marking every man with nitrate of silver; but it was ineffective, and was soon abandoned. It is unlikely, in view of the great armies then in the field, and the hurry and confusion of actual warfare, that any successful plan of detection could have been carried out.

It was hardly to be expected that this practice of repeating would persist to any serious extent when the war was over and the army reduced to a peace footing, yet such proved to be the case, and the re-enlistment of deserters and dishonorably discharged men became so frequent, that in 1888 it was evident that measures must be taken to prevent it. The efforts that were then being made, and have continued to be made, to procure better men for the army and to elevate the tone of the enlisted men, added to the importance of keeping undesirable characters out of the ranks.

I give here one instance showing the persistence of one of these repeaters, an instance which occurred, of course, after the introduction of the identification system, or it would not have become known. It illustrates also the value of the method which secured his detection.

Patrick Timlin enlisted in the U. S. Army, Feb. 28, 1891, and was dishonorably discharged later in the same year. He then enlisted again, Jan. 14, 1892, under the name of William Swift; was at once identified by the outline figure card to be Timlin, and was promptly discharged for fraudulent enlistment. On May 2, 1892, he again enlisted as James T. Casey; was again identified, to be Timlin, and again discharged for fraudulent enlistment. Next he enlisted Sept. 15, 1892, as Thomas J. Casey; was again identified, and again discharged for fraudulent enlistment. Finally, on May 25, 1894, he again enlisted as James Pearson; was identified, tried by court-martial, and dishonorably discharged, with confinement for one year in the military prison.

The identification system of M. Alphonse Bertillon had already become known, and no doubt suggested the plan finally adopted for use in the army. To Dr. Charles R. Greenleaf and Dr. Charles Smart, both of the U. S. Army, and then on duty in the office of the surgeon-general, is due the credit of devising this plan and putting it into practical operation. Messrs. B. B. Thompson and Walter S. Kaye, their clerical assistants in the identification division of that office, are also entitled to much credit for their intelligent and efficient services in the successful working out of the system and the perfection of its details. Dr., now Assistant Surgeon-General, Smart is still in charge of the identification division. Dr. Greenleaf, also assistant surgeon-general, is now chief surgeon in Manila.

A brief reference to the system of Bertillon, with which some of those present may not be entirely familiar, is necessary to an understanding of that to which this paper especially relates. The anthropometric system of M. Bertillon had been in successful use in the police department at Paris since 1882, but it was probably not until 1885 that the author made it known to the world,

¹ Read before the Boston Society for Medical Improvement, May 6, 1901.

which he did in an address before the International Prison Congress at Rome, in November of that year. Its merits were so obviously superior to the imperfect methods then in use, which depended on photographs and personal descriptions only, that it was rapidly adopted throughout Europe. In September, 1887, it was adopted by the Wardens Association of the United States and Canada, which had been organized earlier in the same year, its adoption being at the instance of Maj. R. W. McClaughey, warden of the Illinois State Penitentiary at Joliet. A school of instruction in the method was held at Joliet, Ill., in 1888, and the system was soon adopted by the principal penitentiaries, houses of correction and police departments in the United States. At the present time the system is in use in the detective bureaus of 76 cities, and there is a central office at Chicago for the filing and comparison of record cards made at the various stations. The use of the Bertillon system has now extended to almost every civilized nation of the world, including South America and Japan, and is everywhere recognized as a valuable and almost indispensable agent in the administration of justice in civil life. Its purpose is to ascertain the previous history of suspected criminals, to identify old offenders, and to separate them from the new and less hardened ones, and thus provide for more successful efforts at reformation.

The Bertillon system depends essentially on the assumption, believed to be true, that the dimensions of the osseous structures of the human body do not change materially during adult life. The following measurements are prescribed: (1) The length of the figure; (2) the span of the outstretched arms; (3) the length of the sitting figure from the bench to the top of the head; (4) the length of the head; (5) the width of the head; (6) the length of the right ear; (7) the width of the right ear; (8) the length of the left foot; (9) the length of the left middle finger; (10) the length of the left little finger; (11) the length of the left forearm.

In 1894 M. Bertillon substituted the bizygomatic width for the width of the right ear, and added the impressions of the finger tips.

Special instruments and appliances, such as calipers, sliding scales of various kinds, benches, stands, etc., are employed in obtaining the desired measurements. These measurements are entered on a card, to which is attached photographs of the individual under examination, a full face and a right profile view, together with a notation of the peculiarities of his features, such as the shape of his nose, color of eyes, form of ear, etc., according to a definite system; and lastly, a description of scars, moles, birthmarks, etc. These data: (1) The measurements of the body; (2) the photographs and notes of peculiar features; and (3) the description of scars and blemishes; or, as M. Bertillon styles them, "the anthropometric, the descriptive and the pathological" divisions, are the three essential parts of his system.

The cards containing the threefold data referred to are put into file boxes, or drawers, and classified first, according to the length of the head, then by its width, then by the length of the left middle finger, and so on, each subdivision being again divided into small, medium and large, each class having definite limits. By comparing the prescribed measurements of the suspected recidivist with those on the cards on file, and then successively eliminating those cases in which the measures differ, it is easy to find the card, if one exists in the cabinet, in which all the measurements coincide, the final detection being made by the photograph, the personal description and peculiar marks. The measurements serve not only as a means of identification, but as an index to find the other data, upon which the final decision is made.

M. Bertillon published in 1895 an edition of his work in two volumes,—text and album of plates. The principles of his system remain unchanged, but he gives very minute and detailed instructions for the several procedures, even prescribing a sort of drill for the movements of the person under examination, who makes them in three motions or times, and each measurement is to be made from two positions of the examiner. A special chair is devised, in which the subject sits to be photographed, and careful directions are given for describing peculiarities of feature. Scars, moles, etc., come last, and take a subordinate, though important, place, though only such marks as are found on the head, upper extremities and trunk above the waist are ordinarily recorded. An American edition, in one volume, was published in 1897.

While the U. S. Army system was suggested by that of M. Bertillon, the adoption of the latter in its entirety was out of the question, for two reasons: In the first place, it was necessary to avoid a method which was associated in the public mind with the work of the police and the detection of criminals. To treat the man who offers himself for the military service of his country, no matter from what motive, as a criminal, to place his photograph in a "rogues' gallery," was clearly inadmissible, and would have been forbidden by Congress. In the second place, the Bertillon system was not adapted for military use, owing to the amount of bulky apparatus—including a camera—required, army recruiting stations not being always stationary. Nor was it possible, in the limited time that can be given to the examination of a single recruit, to carry out Bertillon's instructions for taking his eleven measurements, each twice, to take two photographs, to record a careful description of facial peculiarities, and then of scars and other blemishes.

The first scheme that suggested itself was that of causing each soldier to be vaccinated on some exact and unusual spot, and thus to become marked as having been in service. Accordingly, a circular was issued by the surgeon-general, in December, 1888, requiring that all vaccinations on soldiers be made thereafter on the outer aspect

of the left leg, at a point 4 inches below the head of the fibula, and that every man be so vaccinated when enlisted or re-enlisted. It was an ingenious plan; but, unfortunately, so many soldiers became disabled temporarily by the inflammation resulting, that in December, 1891, the circular was revoked. The scars then made are still of value as evidence of former service.

The failure of this scheme led to an effort to see if the scars, moles and other natural or acquired marks could be utilized as means of identification. In carrying out this plan, which was adopted, the third division of the Bertillon system was amplified and extended to include the whole surface of the body, instead of the parts above the waist only, and the notations made on an outline figure card by the graphic method and not by description merely. The data on the outline figure card become the sole means of identification, and when classified according to the regions of the body on which the marks are found, furnish their own index. No measurements, except of the height of the body and of the size of the marks, are taken, and no photographs made.

In accordance with orders issued in April, 1889, for every man who enlists or re-enlists, the examining surgeon makes out an outline figure card such as is here illustrated, Figs. 1 and 2. This card has blank spaces for name, age, height, color of eyes and hair, a scheme for recording loss of teeth, and on it are noted the scars, tattoos, amputations, moles and birthmarks, their nature, location and size being accurately indicated, as shown in these figures. Both front and back of the body, it will be seen, are represented.

It is unnecessary to describe in detail the way this card is made out, as it is sufficiently shown in the diagram. The recruit has already been stripped for the usual physical examination, that examination made, and the results recorded on the proper blank form, which form, it should be stated, contains a series of questions to be answered and signed by the recruit. The examining surgeon then proceeds to fill out the outline figure card, using abbreviations in noting the scars, moles, etc., according to simple rules laid down in orders. Some care is required in this notation, but by a little practice the examiner becomes expert and able to make it rapidly. The dimensions of the scars, etc., are usually estimated, and not measured with the scale provided.

On their receipt at the surgeon-general's office, where they must be sent at once, these cards are filed alphabetically. Immediately on the desertion or dishonorable discharge of an enlisted man, a report of the fact is made to the surgeon-general. On receipt of this report, the original enlistment outline figure card, is taken out of the alphabetical filecase and transcribed on office outline cards, like the original card, except that the outlines are on the same side. This is done in order that a separate card may be filed, one for each of the prominent regions (1 to 3) in which important marks are found, and because

both sides, front and back, of the original card are utilized, while this arrangement would be inconvenient for office work. The original outline card of the deserter is then returned to the alphabetical file. Transcripts are also made of the out-

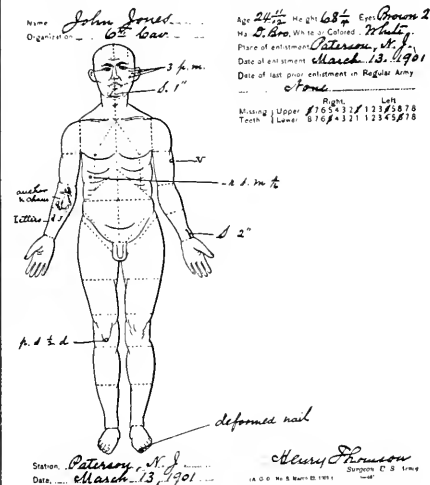


FIG. 1. Front of outline figure card. Reduced one-half size.

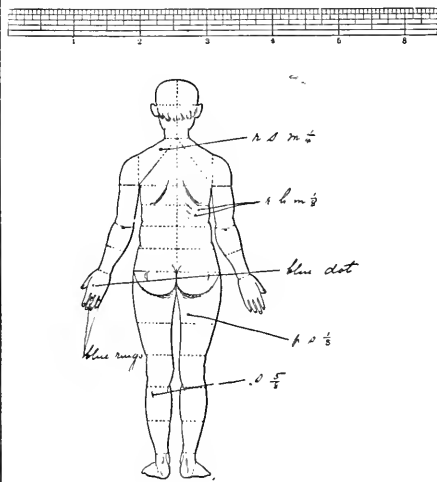


FIG. 2. Back of outline figure card. Reduced one-half size.

line cards required to be sent in for every man dishonorably discharged at a post, and convict who leaves the military prison. These office transcripts are placed in two filecases, called the

"transcript" or "delinquent" files, shown in Figs. 3 and 4. It will be noted that the labels on the filecases refer to regions marked off by dotted lines on the outline figure card. Scars re-

Minor divisions of age and subdivisions of regions are made by partition cards in the file boxes. Then come the tattoos, which are similarly classified by regions and heights; then moles,

Scars. L. B. Head. Under 67.	Scars. R. B. Head. Under 67.	Scars. L. Neck.	Scars. R. Neck.	Scars. L. U. But- tock.	Scars. R. U. But- tock.	Scars. L. U. F. Leg. Under 67 1-2.	Scars. R. U. F. Leg. Under 67 1-2.	Scars. L. Shoulder. L. U. Arm.	Scars. R. Shoulder. R. U. Arm.
Scars. L. B. Head. 67 and over.	Scars. R. B. Head. 67 and over.	Scars. L. Breast. L. Chest.	Scars. R. Breast. R. Chest.	Scars. L. L. But- tock.	Scars. R. L. But- tock.	Scars. L. U. F. Leg. 67 1-2 & over.	Scars. R. U. F. Leg. 67 1-2 & over.	Scars. L. U. F. F. Arm. L. L. F. F. Arm.	Scars. R. U. F. F. Arm. R. L. F. F. Arm.
Scars. L. F. Head. Under 67.	Scars. R. F. Head. Under 67.	Scars. L. Abdomen.	Scars. R. Abdomen.	Scars. L. U. F. Thigh.	Scars. R. U. F. Thigh.	Scars. L. L. F. Leg. L. B. Leg.	Scars. R. L. F. Leg. R. B. Leg.	Scars. L. U. B. F. Arm. L. L. B. F. Arm.	Scars. R. U. B. F. Arm. R. L. B. F. Arm.
Scars. L. F. Head. 67 and over.	Scars. R. F. Head. 67 and over.	Scars. L. Groin.	Scars. R. Groin. Penis.	Scars. L. L. F. Thigh.	Scars. R. L. F. Thigh.	Scars. L. B. Thigh. L. B. Knee.	Scars. R. B. Thigh. R. B. Knee.	Scars. L. B. Hand. Under 67.	Scars. R. B. Hand.
Scars. L. Cheek. L. Ear.	Scars. R. Cheek. R. Ear.	Scars. L. Scap. L. I. Scap.	Scars. R. Scap. R. I. Scap.	Scars. L. F. Knee. Under 67 1-2.	Scars. R. F. Knee. Under 67 1-2.	Scars. L. Foot. Under 69.	Scars. R. Foot. Under 69.	Scars. L. B. Hand. 67 and over.	Scars. R. Palm. R. Fingers.
Scars. Chin.	Scars. Nose. Lip.	Scars. L. Lumbar.	Scars. R. Lumbar.	Scars. L. F. Knee. 67 1-2 & over.	Scars. R. F. Knee. 67 1-2 & over.	Scars. L. Foot 69 & over. L. Heel. L. Toes.	Scars. R. Foot 69 & over. R. Heel. R. Toes.	Scars. L. Palm.	Scars. R. Thumb.

FIG. 3. PLAN OF TRANSCRIPT FILECASE NO. 1, SHOWING LABELS ON DRAWERS.

Scars. L. Fingers.	Tattoos. L. Shoulder. L. U. Arm.	Tattoos. R. Shoulder. R. U. Arm.	Moles. L. Cheek.	Moles. R. Cheek.	Moles. L. L. Abdo- men.	Moles. R. L. Abdo- men.	Moles. L. Buttock.	Moles. R. Buttock.	Colored. Scars. Head.
Scars. L. Thumb. Under 67.	Tattoos. L. F. Arm. Under 68.	Tattoos. R. F. Arm. Under 68.	Moles. L. F. Neck.	Moles. R. F. Neck.	Moles. L. U. Scap.	Moles. R. U. Scap.	Moles. L. Thigh.	Moles. R. Thigh.	Colored. Scars. Arms.
Scars. L. Thumb. 67 and over.	Tattoos. L. F. Arm. 68 and over.	Tattoos. R. F. Arm. 68 and over.	Moles. L. B. Neck.	Moles. R. B. Neck.	Moles. L. L. Scap.	Moles. R. L. Scap.	Moles. L. Leg. L. Foot.	Moles. R. Leg. R. Foot.	Colored. Scars. Trunk.
Tattoos. L. Hand.	Tattoos. R. Hand.	Moles. Nose, Lip, Chin, Ears, F. & B. Head.	Moles. L. Chest.	Moles. R. Chest.	Moles. L. I. Scap.	Moles. R. I. Scap.	Moles. L. Shoulder.	Moles. R. Shoulder.	Colored. Scars. Legs.
Tattoos. Head, Trunk.	Tattoos. R. F. Arms. Under 68.	Moles. R. and L. Groin.	Moles. L. Breast.	Moles. R. Breast.	Moles. L. U. Lum- bar.	Moles. R. U. Lum- bar.	Moles. L. U. Arm.	Moles. R. U. Arm.	Colored. Moles.
Tattoos. Thighs, Knees, Legs, Feet, etc.	Tattoos. R. F. Arms. 68 and over.	Moles. R. & L. Knee.	Moles. L. U. Abdo- men.	Moles. R. U. Abdo- men.	Moles. L. L. Lum- bar.	Moles. R. L. Lum- bar.	Moles. L. F. Arm. L. Hand.	Moles. R. F. Arm. R. Hand.	Colored. Tattoos. Scars both Thighs.

FIG. 4. PLAN OF TRANSCRIPT FILECASE NO. 2, SHOWING LABELS ON DRAWERS.

quire the most space, and are arranged, first as to location; for example, L. B. Head (left back head), etc., and then according to height, those on individuals under 67 inches being placed together,

including birthmarks; and finally, a small division for the colored soldiers. It has been found useful to keep a special filecase for peculiar tattoos, indexed under objects represented, as prompt identi-

fication is thus sometimes secured without search in the regular way. The man's signature on his enlistment papers, and his replies to the questions asked, assist in his identification.

The classification, therefore, runs as follows: (1) As to race, white or colored; (2) as to kind of mark, scar, tattoo or mole; (3) as to region in which the marks are found; (4) as to height of the individual. There are 120 drawers in the file-cases, each one having the capacity of 400 cards. The number of transcript cards on March 31, 1901, was 43,363; for 20,277 deserters and dishonorably discharged soldiers. The cards of recruits and re-enlisted men numbered 204,160. Time had to be given for the accumulation of cards from recruits, but the plan went into operation in July, 1890, slight changes only in the system having been required. Originally the data on the cards for whites were transcribed into two books, one for men with blue eyes and another for men with brown eyes, the leaves of the book being tagged to indicate height in quarter inches, and the pages ruled in perpendicular columns, in which were entered the more important marks. This arrangement was found defective, as the color of the eyes was liable to be given differently by different observers, and was abandoned for the plan of filecases now in use, which has been found to work satisfactorily. Now, briefly as to its practical operation:

The outline figure card of the recruit is, when it comes in, inspected to see if he states he has had previous service. If he does, it is placed in the alphabetical file with his prior card, with which it is compared, as he might, though a deserter, have re-enlisted under his own name, or have personated some other man. If he denies prior service, his card is then compared with the cards of deserters and other undesirable men in the transcript files. The examining clerk first observes the race of the recruit, and his most conspicuous marks, noting several of the latter. For instance, a white recruit, 68 inches tall, has, besides smaller marks, a scar on his left forearm, 2 inches long, a raised hairy mole on his left breast, and 2 depressed scars, $\frac{1}{4}$ inch in diameter, on his right knee. In making the comparison, the clerk will take the most conspicuous mark, the scar on the forearm, first. He will withdraw from the transcript cabinet the drawer containing the cards of white deserters who are 67 inches tall and over, with scars on the left forearm, and, beginning his comparison at 67 inches, will continue it to 68 $\frac{1}{2}$ inches. Should the examination on this line be fruitless, he will make a similar examination for each of the other marks noted, after which, if the man is not identified, his outline card will be replaced in the alphabetical file. If, however, the man is identified in the progress of the search, copies of the outline cards of his present and former enlistments, together with copies of the examination papers pertaining thereto, will be transmitted to the adjutant-general with a letter reporting the identification. If the man is a deserter, the adjutant-general will telegraph an

order for his arrest, sending the papers in the case by mail. When the papers reach the post where the recruit is stationed, the case will be investigated by the commanding officer, with the assistance of the surgeon. If the investigation satisfies this officer that the recruit is identical with the former soldier, charges are preferred against him, which, when approved by the department commander, will be tried before a general court-martial. Quite frequently, the War Department simply orders the repeater to be dishonorably discharged, thus saving the delay and expense of a court-martial. About 12% contrive to escape before their cases are disposed of, thus practically confessing their guilt. Some 25% of the recruit cards that come in are for the soldier's second or later enlistment, and therefore take their place at once in the alphabetical file, with his previous card or cards, and the same disposition is made of cards of recruits of 21 years and under, as such are unlikely to have seen prior service. To relieve the accumulation of cards in the transcript files, the cards of all men who have reached the age of 45 are withdrawn, since 35 is the limit of enlistment, and it is presumed that no recruit would be accepted who is more than 10 years older.

The following are interesting cases of identification: Wade L. Shields enlisted June 9, 1892, and was discharged without honor from Co. A, Fourth Artillery, early in 1893. He next presented himself for enlistment at Cincinnati, Aug. 9, 1894, with the discharge paper of Walter B. Dent, formerly a sergeant in his battery, who had been discharged Oct. 1, 1893, and was re-enlisted as Dent. On receipt of his card at the surgeon-general's office, it was discovered that he was Shields and not Dent, and he was discharged without honor early in 1895. The genuine Walter B. Dent re-enlisted a few weeks later. Shields next appeared at Fort Warren, Mass., where he was enlisted Feb. 20, 1896, as Lee W. Shields, concealing his former enlistment. He was in due course identified, tried, convicted of fraudulent enlistment, and served out his sentence at Fort Columbus, N. Y.

John H. Anderson, colored, enlisted Jan. 22, 1891, and deserted July 11, 1891, from Co. II, Twenty-fifth Infantry. He was soon apprehended and tried, and served a term of imprisonment at Fort Snelling, Minn. Set at liberty in October, 1892, he, it appears, began to drink heavily; and finally, failing to get work, and desperate from hunger and privation, surrendered himself as Felix Newsome, who had deserted from the Twenty-fifth Infantry in August, 1891. He was brought to trial as Newsome; pleaded guilty; no witnesses of his identity being brought forward, in view of his plea, and sent to Leavenworth Prison. Soon after his incarceration there, in January, 1894, he applied for release, setting forth the above facts. An outline card, forwarded from the prison, established beyond doubt that the prisoner was Anderson and not Newsome, and he was accordingly set at liberty.

Michael Jones, a military convict, was released from confinement at Alcatraz Island, Cal., May 15, 1890. He enlisted again at Fort Douglas, Utah, July 26, 1890, as William Brady, was identified by outline card, and acknowledged his identity; but pending the receipt of the order for his discharge he deserted. He next appeared at Fort Monroe, Va., where he enlisted Dec. 22, 1890, as Michael A. Jones, concealing former service. He was identified by the cards as William Brady, alias Michael Jones, and admitted that he was ex-convict Jones, but denied that he had enlisted and deserted at Fort Douglas as Brady. This denial he persisted in, until upon trial he was confronted by witnesses from Fort Douglas, who recognized him; and he was thereupon sentenced to dishonorable discharge and 3 years confinement at Leavenworth.

The following are more recent cases: William C. Bowie enlisted March 29, 1899, at Fort Crook, Neb., stating he had seen prior service, ending July 27, 1898. On comparing the two cards, it was found that they were not made from the same person, although the man just enlisted had the discharge papers of the former soldier. The transcript cards revealed the fact Bowie had had prior service, but it was under the name of William James; that he had enlisted Jan. 8, 1897, and been dishonorably discharged July 8, 1897.

March 9, 1901, the Hon. Page Morris, Member of Congress, enclosed a letter from the superintendent of the Minnesota State Reformatory, requesting the identification of George Willard, alias Powers, alias Porter, who had broken parole Aug. 30, 1900, and was reported to have gone to Manila on the transport *Kilpatrick*. An examination of the outline cards of the men who sailed on the *Kilpatrick* showed him to have been among them, and that he had enlisted Oct. 22, 1900, at Pittsburg, Pa., under the name of William Allen. He had been identified before in the surgeon-general's office as Willard, Powers and Porter.

The results of the work have been as follows: From July, 1890, when the first identification was made, to March 31, 1901, 2,168 cases have been identified; in which number are not counted 27 cases, which were reported as possibly identical and were not proved. The number of identifications fell off from 214 in 1892, when the system was fairly started, to 104 in 1893, showing that the repeaters had been deterred by the probability of detection. This number remained reduced until 1898, when the army was increased from 25,000, the limit for some years, and the repeaters probably believed that in the rush of recruiting they might escape detection. In 1898 there were 317 identifications; in 1899, 180; in 1900, 358; and in the first 3 months of 1901, 135.

Not only has the return of undesirable men to the ranks of the army, and the contamination of recruits, been prevented, but the number of desertions, and the consequent financial loss to the government, has been lessened. The adjutant-general of the army, in his report for 1891, states

that from Jan. 1, 1867, to June 30, 1891,—24½ years,—the number of desertions was 88,475. It is estimated that the expense to the government of each deserter for pay, clothing, subsistence, and transportation is \$260, and as most of these deserters had rendered little or no service, the expense of replacing these 88,475 deserters amounts to the large sum of \$23,003,500,—an actual loss without compensating advantage.

The following is taken from the report of the surgeon-general for 1898: In 1891, the first year of the full operation of the card system, the number of desertions was reduced from 2,344 in the preceding year to 1,593. Comparing the number of desertions for the 7 years, from 1884 to 1890, just preceding the introduction of the outline card system, which averaged 2,650 per annum, with the number which occurred from 1891 to 1897, the 7 years succeeding, which was 1,317, it is seen that there is a difference of over 1,300 per annum in favor of the years in which the card system was used.

ON THE ESTABLISHMENT OF MEDICO-LEGAL DIPLOMAS.¹

BY WYATT JOHNSTON, M.D., MONTREAL, CAN.

THE points I wish to discuss are:
Is there a need for such diplomas?
What should be the standard adopted?
How can the teaching be provided for?
How is the diploma to be recognized?

1. NECESSITY FOR MEDICO-LEGAL DIPLOMAS.

The selection of medico-legal experts may be arrived at in three ways: First, *partisan selection*, or leaving the choice to the litigants. This has the inevitable result of a conflict of opinion, and has led, in America and elsewhere, to the development of a class of men whose ingenious, though perverted, ideas of medico-legal matters have had a maximum tendency to bring the subject of medico-legal expert work into general disrepute, with a minimum amount of compensating benefits in the way of addition to our scientific knowledge.

The second plan, or *arbitrary selection* by the judicial or state authorities, which has been followed until recently in France, and is being constantly advocated with us as a panacea for the existing evils in connection with medico-legal testimony. This plan has the great advantage of developing a number of skilled officials, to whom as a class we owe most of our recent progress in medico-legal knowledge. The drawbacks are: That it is only applicable under specially favorable conditions, as regards the constitution of courts in regard to stability and freedom from bias; also it has a tendency to limit the rights of litigants, beyond what is consistent with our legal traditions and usage. In France this method has proved so defective, owing to the egregious blund-

¹ Read before the Massachusetts Medico-Legal Society, June 11, 1901.

ers of individual experts, that its abandonment has been recently decreed by the Cruppi Law, regulating the appointment of official experts for the defense in criminal cases.²

The third plan, that of *selection by special qualification*, has been successfully followed for the last fifty years in Germany and Austria, and has now been introduced into France by the establishment of a post-graduate diploma course in legal medicine. It is difficult to see how any system of selection of medico-legal experts can be successful, unless some adequate, defined and reasonable standard of technical training be established. This has the advantage (1) of ensuring that all who receive appointment as experts will have had suitable preparation; (2) of permitting the individual selection by state and judicial authorities from among these; (3) of affording a means whereby any one desiring to take up such work can show that he possesses the necessary training; and (4) of protecting properly qualified persons from the competition and rivalry of the unqualified.

Thus the establishment of medico-legal diplomas would appear to be the first step in any scheme for reforming expert testimony, whatever the particular methods followed in making appointments.

II. STANDARD OF MEDICO-LEGAL DIPLOMAS.

Under the German system, the required qualification for official medico-legal work is the passing of the *physikats-examen* subsequent to graduation and licensing. The amount of special study required is about six months, and the standard demands fitness for the performance of official public health, as well as medico-legal work, the appointees, as official government physicians in small centres of population, being entrusted with both kinds. This is inapplicable where (as with us) the public sanitation and medico-legal matters are under separate and independent control, and it has not been found in any case that the exaction of the double qualification in State Medicine has much in its favor, as the sanitary districts are as a rule much smaller than the medico-legal ones.

The best standard for general adoption in medico-legal diplomas is that recommended by Professor Brouardel, in 1884, for adoption in France, but only accepted in 1900, and which is fully explained in the published report by Professor Brouardel.³

The qualification demands a full academic year (nine months) post-graduate study in legal medicine, including practical autopsy work, elementary toxicology, study of nervous diseases, medico-legal methods in examination of stains, questions of sex, etc., and a knowledge of medical law and responsibility. Courses in legal medicine are not compulsory for medical students in France or Germany, whereas most of our teaching bodies go to the opposite extreme — of supposing that all medical students are qualified for the work on

graduation, by the too often very inadequate courses in legal medicine provided for in the ordinary medical curriculum.

In arranging (jointly with Prof. George Wilkins of Montreal) the schedule for the medico-legal diploma⁴ which was adopted by the Medical Faculty of McGill University in November, 1900, we followed the requirements of the Paris diploma as regards the scope of the course and length of study required. We selected, however, the model followed in the British diploma of public health, of demanding at least six months' practical training as assistant in medico-legal work, of all candidates, a precaution which seems very necessary. We also included among the requirements a practical training in the medico-legal study of disability after injury. This branch of legal medicine I consider to be really more necessary to the ordinary medical student than the medico-legal autopsy training which he usually receives, since the majority of practitioners will rarely, possibly never, have to make medico-legal autopsies in their practice, whereas in each year they will almost certainly have on several occasions to examine or testify in reference to personal injury cases.⁵

The amount of instruction provided for on toxicology and mental diseases is intended rather to qualify the expert to co-operate intelligently with a skilled analyst or alienist, than to undertake the work independently. For independent work in either of these branches, at least a year's additional special study and practice as assistant would be needed.

One of the difficult problems to settle is that of establishing a standard of special training in pathology, to qualify as a specialist in medico-legal autopsy work. It would seem that we have the choice of training either a type of medico-legal specialist in one line of work, or a type of all-round medico-legal practitioner, and the question of deciding what options of study are permissible, after the general work is covered, is a new one. The exaction of a year's additional

⁴ Candidates for the diploma must possess a degree in medicine, or other qualification for practice, and present certificates of having attended the following courses: (1) A course of six months' scientific study in legal medicine, consisting of systematic lectures and practical medico-legal and toxicological instruction in laboratories and elsewhere. (2) A course of six months' training as assistant in medico-legal practice. The candidate shall produce a certificate, or certificates, satisfactory to the faculty, that he has continuously and actively assisted in the regular duties of some medico-legal expert recognized by the faculty. Of the two six-months of courses referred to in this and the preceding paragraph, not more than three months shall be concurrent. (3) A special course, or courses, of lectures in legal medicine and mental diseases. (4) A practical laboratory course in toxicology. (5) A course in instruction in the law relating to medicine, and to the status, rights and responsibilities of the physician. (6) A series of short courses, with demonstrations upon the following subjects: (a) methods of conducting medico-legal autopsies; (b) the medico-legal microscopic examination of the organs; (c) the examination of blood stains, etc.; (c) methods of skiagraphy; (d) methods of procedure in cases of wounds and injuries; (e) method of procedure in cases of assaults upon women and children; (f) methods of procedure in cases of abortion and infanticide; (g) methods of procedure in cases of the determination of sex and paternity; (h) methods of procedure in cases of offence against morals; (j) methods of procedure in the study of mental conditions; (k) methods of procedure in examination for life and accident insurance; (l) estimation of compensation for injury. No candidate shall be admitted to any portion of the examination for this diploma until at least one full academic year has elapsed since his graduation in medicine.

⁵ Prof. F. W. Draper of Harvard has for years included instruction in this branch in his course to medical students, the work being in charge of Dr. Dwight.

² Semaine Méd., July 5, 1900.

³ Bulletin of the Paris Faculty of Medicine, February, 1900; and *Annales d'Hygiène Publique*, Nov. 11, 1884.

study for the medico-legal specialist seems to be a reasonable minimum.

III. ARRANGEMENTS FOR GIVING COURSE.

Most medical schools have the means of giving the necessary instructions, provided that, by co-operation with the courts, sufficient access to material can be had. It will be found as a rule that an offer to give free instruction to official nominees, in return for the privilege of utilizing the material for instruction, will be effective. It is very desirable that the practice followed in Germany, by which those who have received official appointments return at intervals of three years for a three-months' supplementary course of instruction at government expense, should be introduced. The plan of giving medico-legal clinics on groups of selected cases makes an interesting method of teaching, and the pupils have an opportunity of studying the cases independently. Enough suitable cases generally occur in the routine material of any large hospital.

It is a relatively simple matter to secure among the teaching staff some who are specially interested in legal medicine, and who have special knowledge of neurology, chemistry, obstetrics and other topics, on which strict practical courses have to be given. One often wonders why our numerous post-graduate schools and polyclinics have not established a high standard of post-graduate instruction with rigorous examinations. They would probably find the hospital and other authorities ready to support them by exacting such qualifications in making appointments.⁶ Our post-graduate instructors, being free from the burden of under-graduate teaching, might be fairly expected to make a better showing in this direction than is actually the case. The time must be past when a simple degree or license adequately guarantees fitness for all medical positions.

IV. RECOGNITION OF THE DIPLOMA.

While it is hardly to be expected that the State authorities would be at once disposed to recognize officially the possession of a diploma as indispensable for all medico-legal experts, yet the influence of recognition by medical societies, medico-legal societies, bar associations and the bench, would in itself probably be sufficient to make the qualification worth obtaining by those engaged in medico-legal work. The want of any such qualification would also tell somewhat against the amateur expert.

It would thus appear that, pending general official recognition, those engaged in medico-legal work would be aided by the establishment of medico-legal diplomas.

DR. R. MEADE BOLTON of Johns Hopkins University has been elected director of the newly opened laboratory of the Marion-Sims-Beaumont Medical College. *Philadelphia Medical Journal*.

⁶ In London the higher qualifications of F.R.C.S. and M.R.C.P. are prerequisites in all candidates for appointment on the attending staff of any first-class hospital.

THE ERICKSON MURDER.¹

BY F. H. BAKER, M.D., WORCESTER, MASS.,

Medical Examiner.

I REPORT this case before the society, as this murder and the subsequent trial present several interesting legal and medical phases; namely:

(1) Murder was not committed with premeditation, but when the assailant was in the act of robbing a house at night.

(2) The prompt arrest of the murderer in a neighboring town on a rather meagre personal description.

(3) The finding of blood upon the shoes and clothes worn by the accused.

(4) Trial and conviction of murder in the second degree in less than four months after the tragedy, the evidence being chiefly of a circumstantial nature, as no one identified the prisoner in the house where the murder was committed.

At 2.30 A.M., Nov. 10, 1900, I was notified that a murder had been committed at No. 10 Catherine Street. Upon my arrival I found the body of Gustaf A. Erickson lying upon the kitchen floor in the top tenement of a three-story house. There were then present: Mrs. Erickson, three police officers, the ambulance surgeon, driver, and two men from the middle tenement.

It is unfortunate, in a case of this character, for the first police officer who arrives upon the scene to allow anyone to enter until the arrival of the medical examiner, for it is plainly evident that valuable evidence may thus be lost.

I found the body dressed in a thick undershirt and drawers, lying upon the back, with the head pointing toward the back door of the kitchen. His arms were slightly bent at the elbows and lay at his sides, his legs were nearly parallel, and his right foot was under the edge of the kitchen stove. The undershirt and drawers, especially the former, were extensively soaked with fresh blood. Around the body on the floor were several large, irregular pools of blood, and on the right side of a double bed in a small room off the kitchen was a large pool of blood, with many spatters over the bed-clothing, especially on that side. There were numerous traces of blood on the floor, between the right side of the bed and the wall, and spatters over the adjacent paper and woodwork, also on the floor, from the right lower corner of the bed to where the body was found.

Those present, chiefly Mrs. Erickson, had tracked the blood around the kitchen to a slight extent, and there were a few blood tracks on the back stairs, down which Mrs. Erickson had gone after the stabbing.

There were evidences of robbery, for on the kitchen floor lay an open pocketbook, and an overcoat folded once lay on the floor of the front room, near the hall door.

An examination of the body showed it to be still warm. I found a clean-edged, vertical incised wound, $\frac{3}{4}$ of an inch in length and gaping

¹ Read before the Massachusetts Medico-Legal Society, June 11, 1901.

at its middle $\frac{1}{4}$ of an inch, with its lower end situated $1\frac{1}{2}$ inches above the level of the left nipple, and 1 inch to the left of the median line. There was no bruising of the skin around this wound. In the undershirt was a clean cut, corresponding in shape, size and position with the wound in the chest.

The clothing which the man wore, and the bed-clothing and pieces of woodwork, were turned over to the chief of police for evidence at the trial, and the body was removed in the police ambulance to the City Hospital morgue, where I performed an autopsy at 9 A.M., Nov. 10.

The body was that of a well-developed, muscular man, a Swede, 5 feet, 8 inches in height, and estimated to weigh 165 pounds. The surface of the body was pale, and rigor mortis was beginning throughout the body.

An interesting fact in the stab wound was, that it was $\frac{1}{8}$ of an inch shorter at this time than at the time the body was first viewed, with the relative increase in the gaping of the wound. The only other marks of violence upon the body were several linear abrasions on the back of the right elbow-joint, probably caused by falling.

The stab wound in the chest passed directly backward, and penetrated the pulmonary artery in the middle of its anterior surface, making a clean-cut, $\frac{3}{4}$ of an inch in length, with its lower end $\frac{1}{2}$ inch above the pulmonary valve, but it did not pass through the artery or nick the posterior wall.

There were 2 or 3 ounces of fluid blood in the right pleural cavity, and 4 to 6 ounces in the pericardium, but none in the left pleural cavity, on account of old adhesions, which obliterated the cavity and bound the lung to the pericardium and to the chest wall.

The brain and all other organs of the body, except as otherwise stated, were in an apparently normal condition, except for the anemic resulting from the severe hemorrhage. The stomach contained about 5 ounces of a dark, thick, viscid fluid, in which were a few pieces of potato, with no odor of alcohol.

I questioned the murdered man's wife, who was greatly excited, and she stated that both she and her husband had gone to bed about 7 o'clock, and that he slept on the inside of the bed, next to the wall; that previous to his going to bed he had been carving a box, and had left the knife upon the kitchen table. It was their custom to leave a lamp burning low in the kitchen, which they did that night. About 2 A.M. the husband waked and said "What is it?" and a man reached over her and stabbed her husband once. Her husband jumped up, walked into the kitchen, and died in a "minute or two." His assailant ran out of the kitchen. She went down the back stairs crying out, and notified the tenants. She furthermore stated that the overcoat was hanging in the closet at the head of the bed when they retired, and that the pocketbook found on the kitchen floor had been in a pocket of the trousers which lay on a lounge at the foot of the bed.

The knife with which he had been working in the evening, and which had been on the kitchen table, was missing, but was found the following morning in the front yard. It was an ordinary shoe knife, with a blade much worn down, being $\frac{3}{4}$ of an inch in width and $2\frac{1}{2}$ inches in length, with a handle $3\frac{3}{4}$ inches in length. There were evident blood stains upon the blade of the knife.

Mrs. Erickson could not identify the assailant, but a woman and her two sons, living in the lower tenement, heard Mrs. Erickson's screams, and on opening their hall door saw a short, thick-set man open the front door and run out. They did not see his face, but did see that he wore a brown derby hat and a dark suit, and this fact was of much importance. During that morning Mrs. Erickson was arrested as a suspected accomplice, for it was found that she had not lived happily with her husband, and that she had given birth to an illegitimate child by another man before her marriage.

The police immediately started in to find this man. They obtained from two railroad employees a description of a Swede, a short, thick-set man, who had appeared in the freight yards about one hour and one-half after the murder had been committed; who had made several inquiries; and this description corresponded with that of a man who had been inquiring in two different parts of the city, the day before, for a man whose name he did not know, but who lived "on a hill behind a schoolhouse," and who had been directed to the neighborhood where the murder occurred. These descriptions were at once telegraphed in every direction, and on Sunday night, 40 hours after the murder occurred, the man was arrested by the chief of police of Clinton, Mass., at Clinton. He was then found to be not the former lover of Mrs. Erickson, whom they thought they were tracing, but an entirely different man, Oscar Nelson. The former lover was traced and was found to be married and living in a neighboring town. His whereabouts at the time of the murder were satisfactorily accounted for, and Mrs. Erickson was discharged in the lower court.

Nelson was indicted by the Grand Jury at the January term for murder. His trial began Feb. 25, and lasted one week, and the following interesting chain of circumstantial evidence was introduced against him, mainly through the intelligent industry of Chief of Police Stone of Worcester:

Two days before the murder Nelson left the farm in Palmer, where he had been working, and came to Worcester. He there met several Swedes, until that time unknown to him, and spent the day drinking with them, and the night at the house of one of them. He drank the following day and visited several saloons. At half-past nine he went to the same house, where he spent the preceding night, and wanted to stop there. He was refused admission, as all of his drinking companions were afraid of him on account of the stories he told of the deeds he had done. After this he inquired where the "tall Gottlander" lived, meaning one of his drinking companions. He was told that this man lived in the second

house around the corner, on the top floor. This direction was wrong, as his acquaintance lived in the third house. Unfortunately, Erickson, who was wholly unacquainted with Nelson, lived in the second house, and it happened that on that night the lower door and the door of his own tenement were unlocked.

The government theory is, that Nelson entered the apartment, expecting to see his acquaintance of the day before, but, finding no one awake, as his money was all gone, Nelson determined to rob the house, first taking the knife, which lay upon the kitchen table, to be used if necessary. While in the act of robbery, Erickson awoke and cried out, and Nelson immediately stabbed him. Then, after a short delay, Nelson went through the kitchen and down the stairs, where he was seen by the people on the lower floor, but who did not see his face so as to identify him. In fact, no one saw him enter the house, or while he was in it, or as he was leaving it. He was not accounted for between the hours of 9.30 in the evening and 3.30 in the morning.

He did not go to the house next to Erickson, where he was directed at 9.30. The first trace of him, aside from a man's hearing steps running down a nearby street a little after the murder, was one and one-half hours later, when he was seen and positively identified in the freight yards. Later, he was seen in Sterling the following morning, and then in Clinton, where he stopped at a house and asked for blacking. They had none, but he obtained a brush and rubbed his shoes. A little later he stopped at another house and blacked his shoes, and did it again about an hour later at another house. He visited a Swedish family there, and they referred him to another family for information, which he desired. Again he mistook the house,—this time a serious thing for himself, as, instead of calling on the Swedish family, he stopped at the house of the chief of police, which was next door to where he wished to go. When the chief of police of Clinton found that a Swede had been at his house making inquiries, he noticed the similarity to the description of the man wanted, and in a short time had him under arrest.

Nelson's shoes and clothing were sent to Prof. E. S. Wood, together with a piece of woodwork, and in spite of the blacking which the shoes had received, and in spite of the fact that they had been worn several days, he found blood spatters upon them, and blood which was consistent with that found in a human being.

At the trial the accused did not take the stand in his own defence, and no alibi was attempted. The defence maintained that Mrs. Erickson and some man were the guilty parties. It was known at the time of the trial that Nelson had served two terms in state prison for robbery, but of course this could not be introduced in the evidence, but may have been the reason for Nelson's not taking the stand. The jury, after a moderate deliberation, returned the verdict of murder in the second degree, and he was given life sentence.

Clinical Department.

ARTIFICIAL NOSES AND EARS.

BY ROBERT H. UPHAM, BOSTON.

This brief article is written in the hope that it may stimulate members of my profession in developing this line of work, for which their educa-



FIG. 1.



FIG. 2.

tion and mechanical skill should naturally fit them.

I began making artificial palates, noses and ears twenty years ago, in connection with my regular dental practice. My idea in the beginning was to see if I could not relieve the neces-

sity for glasses on the nose, or wearing a veil, as women were accustomed to do in those days, to hide poor workmanship.

I can assure my colleagues that, with practice and patience, dentists of fair mechanical skill can make artificial noses, ears and palates that in fit and appearance are practically indistinguishable from the genuine article.

Vulcanized rubber is the best material to use. It is easily worked, has no odor, and is not easily



FIG. 3.



FIG. 4.

broken. Celluloid is harder to work, is easily broken, and readily catches fire if the wearer of a nose happens to be an absent-minded smoker. Aluminum is too hard to work, and so is silver.

A cast of the face has to be taken, if a nose is to be made, the artificial member being fitted to it first, and to the face afterwards. Usually a picture of the nose before injury can be secured as a guide. In the case of an ear, a plaster cast of the side of the head has to be made, and the opposite ear copied and fitted. Casts of the roof of the mouth are made after the usual custom.

Artificial ears are kept in place by a fine wire cage running over the head through the hair to the opposite ear. The ear in the cut presented is held in this instance by a button that turns in the slit-like opening in the soft tissues seen in the picture (Figs. 1 and 2).

Noses are best held in place by springs made of silver wire, adjusted to meet the indications. I have never had a case of atrophy or absorption of the tissues from the use of these springs. They usually make a little bed for themselves, and that is all. They are never painful, when once they are properly fitted.

I have made artificial noses and palates, for the same individual, that react upon each other by means of elastic bands, and in this way are held in place (Figs. 3 and 4).

Artificial members should be so wired that they can be removed and replaced at will; the necessity for this is obvious, especially for a nose when a handkerchief has to be used, and on retiring in all cases. Noses have to be painted once a month, ears once in six months, or both according to usage. Skill in this particular is easily acquired by the wearer; the performance simply becomes a part of the morning toilet. Duplicates should always be carried.

Medical Progress.

REPORT ON THORACIC DISEASE.

BY JOHN W. BARTOL, M.D., BOSTON.

CLINICAL INVESTIGATIONS OF PHTHISIS.

STADELMANN¹ has availed himself of the large number of patients coming under his care to control some statements made by other observers, which did not seem proven beyond a reasonable doubt. Michaelis and Meyer, for instance, have reported a large percentage of cases, where hectic was a prominent symptom, in which organisms could be demonstrated in the blood, and they have therefore claimed that there exists in such cases a genuine pyemia. Stadelmann, however, basing his conclusions on examinations in 68 cases, in only 1 of which was the blood found infected, sides very strongly with those who maintain the great rarity of a genuine pyemia and still cling to the theory of a toxemia from mixed infection in the cavities.

In regard to the diazo reaction to which not so long ago great importance was attached, he differs very strongly from the findings of Michaelis.

¹ Deutsch. Med. Woch., June 20, 1901.

The latter at first claimed that the reaction, when present, had sufficient prognostic value to rule out a case from admission to a sanatorium. When it was shown, however, that many cases running a favorable course gave a positive reaction, the claim was changed so as to read that only those cases which showed a persistence of the sign should be excluded. As a result of Stadelmann's studies it appears that the reaction has no diagnostic value whatever, and only a limited prognostic one; that is, if it is absent, no conclusion as to probable course of the disease can be drawn; if it is constantly present, the outlook is not good; and cases of otherwise favorable condition, but with positive reaction, should be especially carefully watched. There are, moreover, a comparatively small number of cases of favorable course which show the reaction, and some of rapid advance in which it is absent. In answer to the claim of Teichmüller, that the number of eosinophiles in the sputum, taken in relation to the number of tubercle bacilli, has a bearing on prognosis, he maintains that no conclusion can be drawn, as to the probable course of the disease or its present severity, by the absence or presence of the eosinophile.

VULNERABILITY OF THE PULMONARY APOICES.

Colbeck and Pritchard² advance an ingenious theory to explain why the great majority of cases of phthisis originate at the apex of the lung, why the lung usually first to be affected is the right one, and why the early lesions are apt to be situated about an inch below the actual tip. They consider as insufficient the usual explanation that, owing to the comparative rigidity of the upper portion of the chest, the movements of the contained lung are curtailed; nor does this at all account for the above definite localization. Their own idea of the mechanics of the infection is that, owing to anatomical situation, the apex lacks the support that is given to the rest of the lung by the firm thoracic wall; above the clavicle there are only the muscles, fascia, and skin to maintain the support. Under ordinary conditions this is sufficient to permit the inflation of the apices during inspiration. If, however, the support afforded by the soft parts is diminished, the inflation becomes lessened; and if the loss is progressive, a time will come when the movement of the apices becomes inverted. To show that such a condition obtains in practice, and is a factor in the production of disease, they adduce as striking features in the chest of the ill-developed youth, or in the *habitus phthisicus*, the forward displacement of the scapulae and the under-development of the muscles supporting the shoulder girdle, especially sterno-mastoid, trapezius, and pectoralis major. By the carrying forward of the acromial end of the clavicle the supraclavicular fossa is widened, and through the weakness of the muscles their "trap-door" value is much lessened. In this way are produced the conditions that may lead to an inverted movement of the apices;

and that such inversion is an actuality is shown by the sucking in of the supraclavicular spaces during inspiration and the change of percussion note, which, while resonant at the end of expiration, becomes flat or greatly impaired during inspiration. The localization of the beginning lesion at a distance of one to one and a half inches from the apex is simply the result of this region being the meeting point of two opposing currents of air,—one from the inverting apex, the other from the normal lung; also the apex, from its comparative immobility, is less resistant. The right apex, rising higher in the neck, is more liable to become inadequately supported, and consequently is more vulnerable.

The practical bearing of the theory is the great importance of developing the muscles of the shoulder girdle.

BRONCHIAL GLANDS AS A CAUSE OF PYEMIA.

Schlagenhauser³ reports three instructive cases, all of young women previously in good health, who died from suppurative meningitis after a short illness (four to seven days). In all three there were multiple brain abscesses which had resulted from a suppurating gland lying below the bifurcation of the trachea against the right primary bronchus. In all the cases tuberculosis was the cause of infection, the site of the disease being in each largely glandular and in one entirely so. The importance of looking for like origin in the cases of so-called idiopathic brain abscess is emphasized.

RESPIRATORY MOVEMENTS OF THE PRECORDIAL AREA IN HEALTH AND DISEASE.

Aikman⁴ calls attention to a point which may be of service in diagnosis of early stages of pericarditis or endocarditis. Careful inspection in a normal case will show that the third left intercostal space moves appreciably less at its sternal end during respiration than does the right (lateral curvature or rachitic deformity will mask the sign). The area of limited movement is very small, not extending to the left beyond the junction of rib and cartilage, and not usually upward to the second interspace, except in children; it usually does extend to the fourth interspace, being masked below that by apex beat. In pericarditis a marked diminution in the movement of the third space precedes the stethoscopic signs by a period varying from one to four days; quite promptly the limitation of movement extends to the second and even the first space, and increases less markedly to the left. At this time there may be no other physical signs, but these are never lacking more than four days. The marked limitation disappears with recovery and reappears as a sign of relapse. In endocarditis the variations of chest movement are less in degree, the decrease is less upwards and more outwards, the return of movement follows more slowly the diminution of stethoscopic signs, and more limita-

² Lancet, June 8, 1901.

³ Wien. Klin. Woch., No. 23.

⁴ Lancet, May 1, 1901.

tion remains as a record in cases of permanent damage.

DISEASES OF HEART AND ARTERIES IN MIDDLE AND ADVANCED LIFE.

In the Lettsomian lecture, Bruce gives a compact summary of facts and conclusions in regard to the senescence of the circulatory system which, while presenting nothing essentially new, gives, under the following headings, a useful reminder: (1) Normal heart at the age of 40. (2) Injurious influences in middle life: (*a*) physical stress; (*b*) nervous influences; (*c*) extensive poisons; (*d*) disturbances of metabolism, including gout; (*e*) syphilis; (*f*) acute diseases; (*g*) chronic diseases; (*h*) complex causes. (3) Old standing organic heart disease. (4) Family heart.

COMPENSATION IN AORTIC INSUFFICIENCY.

Drasche⁵ illustrates with several cases the possibility of re-establishment of function in diseased semilunar cusps under certain conditions. In this possibility is to be found an explanation of the complete disappearance in occasional cases of the regurgitant murmurs after the establishment of compensation, and also of the lack of anatomical evidence of insufficiency found at autopsy in some cases which had at some time previous shown unmistakable physical signs of valvular incompetence. He first draws attention to the marked disproportion between the area of the valve curtains and the diameter of the normal aorta, and suggests that to this surplus must be added the recognized power of stretching which the individual cusps possess. In these factors rests the power which the uninjured portions of the valve have of adapting themselves to supply the deficiencies brought about by disease in other portions.

Such compensation — that is, the assumption of additional burden by portions of the valve — is more likely to take place where incompetence is the result of endocarditis than where arteriosclerosis is the cause. If there exists, then, only a partial insufficiency, we may hope that, through the effect of back pressure, the healthy portions of the valve will be so stretched and modified in shape as to entirely or partly compensate for the defect; in this way single cusps are sometimes stretched to double their normal dimensions; while, if it is the edge of the valve that is thickened and non-elastic, it is possible for the portion of the valve still elastic to be so stretched as to bring forward a new portion to serve as edge. Another possible explanation for the disappearance of the diastolic murmur and the failure to substantiate former physical signs by the post-mortem report, is found in the adduced likelihood of absorption or sweeping away of soft vegetations, which had for a relatively short time interfered with the function of the valve.

* Accompanying the especial points is a more or less general discussion of the subject of aortic in-

competence in general: the diagnostic points, the compensation by muscular hypertrophy, and the detail of several suggestive cases.

GONORRHEAL ENDOCARDITIS.

It is, perhaps, superfluous to refer again to the steadily increasing number of cases in which the gonococcus has been demonstrated in cultures from diseased valves, but the slowness with which gonorrhea takes its appropriately prominent place in the textbooks and teaching, as a causative factor in endocarditis, seems to justify reference to the report by Harris and Dabney,⁶ of one proven, and three undoubted, cases coming to autopsy within a reasonably short time at the hospital. A review of the literature, since the paper by Thayer and Lazear, is given.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

REGULAR meeting, Monday, May 6, 1901, Dr. F. W. Goss in the chair.

DR. C. H. ALDEN read a paper entitled

UNITED STATES ARMY SYSTEM OF PERSONAL IDENTIFICATION.¹

DR. CHAMBERLAIN: Why is not the metric system used for the measurements?

DR. ALDEN: At the time the card system was devised, the metric system had not been made obligatory in the medical department of the army, and I presume that was the reason it was not thought of at that time. This was before the coming in of the present surgeon-general, who instituted the use of the metric system in the army in 1894, and the card system came into effect in 1890. Possibly, if it were done over again, the measurements would be made in the metric system.

DR. OTIS: I should like to ask whether there does not occur occasionally a case in which there are really no defects, blemishes or moles which can be noted, and, if so, what do you do?

DR. ALDEN: I know that such a thought would naturally occur, has occurred to a good many; but actual experience has shown that such a man never exists. You always can find some peculiarities, and I think, if the doctor will try himself, he will find it true. One who has trained his habits of observation will see things that would escape casual observation. Sometimes, in the early days of the system, and sometimes, when a new officer takes hold of the matter, he sends on a card with only one or two scars or moles, and perhaps makes the remark that he cannot find any more. The card is usually sent back to look again, and see if he cannot find more. He then gives closer attention, and usually has no trouble

⁵ Bulletin, Johns Hopkins Hospital.

¹ See page 513 of the Journal.

⁶ Wien. Med. Woch., Nos. 22 and 23.

in finding five, often more. Five is practically the lowest number that comes in.

DR. BUDGEFF: I would like to ask if there is a frequent or occasional attempt on the part of the person to be identified to have produced other marks or scars between the enlistments, in the hope to materially change or alter the identification card which had been made out at the time of the former enlistment or enlistments?

DR. ALDEN: I do not think there is a record of such a case, and although it might seem that such a man might be skilful enough, and shrewd enough, to modify the marks on his person to such an extent that they would not be recognized, yet when you come to consider that it is not a single mark, but marks in different regions of the body that are examined, and then that the new card and the old card are placed side by side, so that in the new card you could see the old marks as well as the new ones, you see he would not be likely to escape. Then the physical examination form, with its questions and answers, comes in, and the signature. The man is not apt to think of changing his handwriting. He would hardly be apt to very carefully give different answers to all the numerous questions asked him. Even depending upon the marks themselves, I think he would not be able to hide the original scars, though he might make new ones.

DR. BEYER: Apropos this question, I would like to add,—I see Dr. Alden's point,—the man would be identified without any record of the new scars; but some men in the service contract scars from injuries. In the navy, before discharging a man, we take note of those additional scars, which he has acquired during the service, and add them to his former record.

DR. WESTON P. CHAMBERLAIN, U. S. Army, read a paper on the

MEDICAL AND SANITARY CONDITIONS IN THE PHILIPPINES.²

Recent Literature.

A Treatise on Mental Diseases. Designed for the use of Practitioners and Students of Medicine. By HENRY J. BECKLEY, M.D., Clinical Professor of Psychiatry, The Johns Hopkins University, etc. New York: D. Appleton & Co. 1901.

This work not only deserves to be thoroughly read by all students of psychiatry, but well repays careful study. Except where it is necessary to set forth accepted clinical facts or pathological results, the author does not follow the lead of most writers on mental diseases, who treat the subject chiefly from the standpoint of the asylum physician. For, while he gives hospital and other advanced cases sufficient attention, he adequately recognizes the practical importance of the vast number of outside cases, as well as of early symp-

toms and stages of disease, allied disorders, etc. This makes the book of especial value to the general physician. As might be expected, therefore, neurasthenia finds here a large place. He regards it as a "symptom-complex" and synonymous with nervous exhaustion of every form and degree. Under this head he describes the various "phobias" and abulic states of the mentally diseased, and although we may question such a classification, the clinical pictures not alone of these but of all other neurasthenic manifestations and in particular his well-considered and detailed advice as to their treatment, make most profitable reading. His recognition of, and emphasis upon the frequency of neurasthenia in the prodromal stage of general paralysis, brings to the front a feature of this disorder which has received but scant recognition from most writers on insanity. His exposition also of the pathology of general paralysis, by which its symptoms in the order of their appearance are explained by progressive alterations of structure and function in the brain, is a masterly one. He gives most cogent reasons for preferring the vascular to the nerve cell theory of the origin of that disease. The relation of delirium acutum to general paralysis has to our knowledge never been so plainly shown, although often suspected. The chapter on etiology, inadequate by the author's confession, is certainly not on a par in thoroughness with the rest of the book. His treatment of insanity, in its insistence on the vital importance of tonic and supporting regimen for the mass of acute cases, is sure to be approved. He advocates the employment of a variety of drugs,—chloral, etc.,—probably because of the necessity for their use in most cases that are treated at home. They are certainly not found to be needed to such an extent in the hospital for the insane, nor is alcohol there thought to be so much of an aid in treatment. Opium, on the other hand, which the author discards as useless and even harmful, is held by the highest German authorities to be the sheet-anchor in pronounced melancholia, if administered according to a systematic method adapted to such cases exclusively.

The drawings are admirably executed, and the general appearance and make-up of the book is attractive and in keeping with the high order of the work.

Laryngeal Phthisis, or Consumption of the Throat. By RICHARD LAKE, F.R.C.S., Surgeon Laryngologist, North London Hospital for Consumption, etc. With 36 illustrations. Philadelphia: P. Blakiston's Son & Co. 1901.

This small book of 90 pages covers the subject admirably. The chapter on diagnosis is aided by many good illustrations, 21 of which are colored. The chapter on treatment is excellent. It is to be noted that the author uses oily intratracheal injections, with pigments of formalin and protargol, in many cases in which operative measures are not indicated. In operating he finds the instruments of Heryng generally sufficient. His recommendation of Kirstein's autoscope, in-

² See page 507 of the Journal.

stead of reflecting mirrors and angular instruments, when possible, is a useful hint. The whole book should be read by all who are called upon to treat this distressing disease.

A Textbook of Embryology for Students of Medicine. By JOHN CLEMENT HEISLER, M.D. Second edition, 8vo. Philadelphia: W. B. Saunders & Co. 1901.

The new edition appears to have been printed from the same plates as the previous one, with some trifling modifications, and with a real revision of the chapters on the decidua and placenta. It remains, therefore, very much as before, a compilation and condensation of larger standard works. The style is clear and succinct, but as the author appears to have given very little attention to the study of embryos, his work not only lacks originality, lacks original illustrations, but also lacks accuracy and authoritativeness. There are numerous errors, but as the more important data are better known and better formulated than the details, we find that the book is perhaps sufficiently accurate for the uncritical use of students. In brief we see no occasion for altering our published estimate of the first edition.

Students' Manual Series on Diseases of the Skin. Eczema, with an Analysis of 8,000 Cases of the Disease. By L. DUNCAN BULKLEY, A.M., M.D. Third Edition. New York and London: G. P. Putnam's Sons. 1901.

This book has now reached its third edition, having been entirely rewritten, with many additions. The writer states, however, that the 20 years that have elapsed since the first edition appeared have only served to confirm him in the views there expressed as to the true nature of the disease; that is, that it is a manifestation of constitutional disorder and not a purely local disease of the skin. Much space is devoted to differential diagnosis and treatment, very little to the histological and bacteriological advance of the last 20 years.

The Ready Reference Handbook of Diseases of the Skin. By GEORGE THOMAS JACKSON, M.D. With 80 illustrations and 3 plates. Fourth edition thoroughly revised. New York and Philadelphia: Lea Brothers & Co. 1901.

We are glad to notice the appearance of the fourth edition of Dr. Jackson's handbook of dermatology. It has been added to and pruned with the care and attention that characterize all of this writer's work.

Diseases of the Skin. By JOHN V. SHOEMAKER, M.D., LL.D. Fourth edition, revised and enlarged, with chromogravure plates and other illustrations. New York: D. Appleton & Co. 1901.

This work has just reached its fourth edition, which does not call for comment other than that we have expressed on the appearance of former editions.

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DISPENSARY RELIEF FOR CONSUMPTIVES.

VERY much has been accomplished within the past five or ten years in the way of providing special treatment and care, in hospitals and sanatoria, for consumptives who are poorly provided with such treatment and care in their own homes. But, even with such provision as has already been made in Massachusetts and in other states, by means of private and public institutions, it appears that only a small fraction can yet be admitted to such institutions, and this must plainly be the case for a long time to come.

The number of deaths from consumption in Massachusetts is about 5,000 per year, and if we place the number of living consumptives at 4 times as many, or 20,000, the estimate is probably within the bounds of truth. A very large proportion of this number, probably more than half, needs much better care than can possibly be given them in their homes, since most of them live in cities and crowded tenements, where the best care is impracticable. Added to this is the fact that consumptives living under such conditions constitute a menace to all around them.

In order to provide for treatment in special hospitals and sanatoria designed for this class of invalids, there are in Massachusetts not more than 400 beds in all public and private institutions established for receiving consumptives.

It seems desirable, therefore, that measures may be taken for attacking the disease in its most prolific habitat, the homes of the poor, the crowded tenement houses, the densely settled rookeries, where the best soil exists for the spread of the disease. Many people must be shut out from the sanatorium, either for want of room, or for want of the slender pittance which is charged for their board and medical care. It is for this class that a new measure is now being adopted in some of the crowded manufacturing cities of France and Bel-

gium, which is worthy of consideration. Dr. Calmette of Lille, director of the Pasteur Institute of that city, contributes to the *Revue d'Hygiene* of July, 1901, a paper describing the methods pursued at the recently established dispensary in that city, which he entitles an Antituberculous Dispensary, and bestows upon it the name of his distinguished confrère, Emile Roux. The purpose of the institution, he says, is partly educational and partly charitable. The number of tuberculous workmen in the manufacturing city of Lille and the neighboring towns of Roubaix and Tourcoing is so large that very few among them can ever find opportunity to stay three or four months in a sanatorium for treatment.

In the city of Lille alone, with about 220,000 inhabitants, there are 6,000 tuberculous poor, who are objects of charity, and every year the deaths of these amount to 1,000 to 1,200. The charitable organizations cannot sufficiently provide for this class. Through the aid of friends, and of the public press, Dr. Calmette raised the sum of 46,000 francs, to which the city council added 30,000 more, together with the use of a lot of land for the purpose of a dispensary. At this establishment, which has been in operation since last February, two physicians give gratuitous attendance every morning from 10 to 12. The sick who apply for aid do not appear to be repelled by the knowledge that the dispensary is intended for the exclusive aid of consumptives.

The applicant is examined by the attending physician, who puts the usual questions as to name, age, address, occupation, family history and social condition. He also makes a physical examination, and if the patient is believed to be tuberculous, after the first examination, and has had no medical treatment, a card of admission to the dispensary is given him. On the back of the card is written the date at which he is expected to call again. A flask is given him to receive a specimen of sputum, to be brought at the next visit for examination.

An assistant accompanies him to his home, to make inquiries as to his surroundings. Dr. Calmette considers the choice of this assistant as a matter of great importance. He should be intelligent, active, of prepossessing appearance, kindly disposition, able to converse in several languages, and the devoted coadjutor of the attending physicians. At Lille an old workman, a flax-carder, who possessed these qualifications, was chosen for this important position, with a moderate salary. This assistant fills a blank, containing about 70 questions in each case, for the information of the dispensary.

The work-even extends to the payment of rent and other expenses, when the consumptive is

threatened with expulsion from his dwelling; clothing and other necessary articles are also redeemed from the pawn-shops; beds, bedding and clothing are furnished, and provision is often made for the consumptive to sleep alone. His food and fuel supply is also made the subject of inquiry. The assistant visits the consumptive twice a week, to be sure that the advice is properly followed, and that the financial aid which is given is used for legitimate purposes. Instruction is given in regard to bathing, ventilation, and the proper disposal of sputum.

Dr. Calmette prefers lysol as a disinfectant, because of its composition, its antiseptic power, and its unobjectionable odor.

Each patient is provided with a circular of instructions, which is a model of good advice. Recognizing the danger which may arise from washing the linen of consumptives, an operation which is often performed in the living-rooms of crowded tenements, the dispensary has organized a laundry service for this class of patients, providing each one with a tin box, in which he brings the linen to the dispensary, where it is disinfected in a building erected for the purpose, and then washed and returned to the owner.

The plan of sending incipient consumptives into the country to board in the families of farmers, or others, was abandoned, for the reason that proper care and food, and all the details essential to the recovery of the sick, are liable to be neglected when the patient is not under close supervision. The managers of such small boarding establishments were found to be more thoughtful for their own pecuniary interests than for the welfare of the invalids entrusted to their care.

The building which Dr. Calmette has erected adjoins the Pasteur Institute of Lille, is built of brick and cement, and is one story in height. It is 10.5 by 8.5 metres (about 34½ by 27¾ ft.) and has 6 rooms; a waiting-room for the patients, 2 consulting-rooms, a dark-room for laryngoscopic examination, a laboratory, and an office for the assistant (or all-around man). It is heated with steam and lighted by electricity. An additional building is provided for the laundry, and the cost of the whole establishment was within the 30,000 francs donated by the city.

During the 4 months from Feb. 1 to June 1, 1901, 236 persons received advice at this dispensary, 157 of whom proved to be tuberculous; 67 received other material assistance in addition to advice. Everyone was provided with cuspidors, pocket flask and disinfectants, with instructions how to use them. The actual expenses at the dispensary averaged about 1,427 francs (\$285) per month, including the salary of the assistant.

Dr. Malvoz of Liege, Belgium, also contributes an article to *La Presse Medicale* (March 2, 1901, p. 97) in which he details the operations which have been conducted in that city and province for the relief of persons suffering with tuberculosis. A sanatorium has been established in a park of about 70 hectares (173 acres) capable of accommodating 400 to 500 patients. In addition to this, a dispensary is maintained, where sanitary advice and assistance is given to the tuberculous poor. At this dispensary, 4 physicians give gratuitous advice to consumptives 3 times a week. The work is under the charge of a charitable organization, one of whose members acts as a superintendent of the dispensary. Hygienic care and advice is distinguished from medical care, since the patient remains under the charge of his own physician. The dispensary furnishes 2 quarts of pure milk each day to each patient, and pays the attending physician, if circumstances require it. Some one is also sent to visit the lodging of the patient, and advise him how to make it healthful. If it is found that the advice given in regard to ventilating his room, taking proper care in the disposal of sputum, and especially in abstaining from the use of intoxicating drinks, is disregarded, further assistance is refused. The great advantage in this line of charitable work is the searching for the consumptive poor, in the early stages of the disease, at a time when a cure is practicable, and when at the same time measures may be taken which diminish very much the danger to his relatives and friends.

Similar institutions are contemplated at Mons, at Huy and Verviers in Belgium, and at Nantes and Arras in France. Dr. Brouardel of Paris, in commenting upon the same subject in his address at the Tuberculosis Congress at London in July last, stated that there were polyclinics in Germany in the large towns, where a physician is in attendance with special reference to this class of patients. A committee, composed of large numbers of benevolent men and women, looks after the patient at home, tells his wife what to do, sees that his house is kept clean, and looks after necessary prophylactic measures. As far as possible, the poverty due to the bread-winner being out of work, is relieved from a bank, kept up to assist such cases.

He then quotes Dr. Calnette's words, published in 1899, wherein he says: "I should like to be able to hunt out tuberculosis as soon as ever it has begun, and to be able then and there to give the sufferer advice, and the care necessary, while generally keeping him in his own family circle.

"Dr. Bonnet founded a similar dispensary in Paris, in the Montmartre quarter, and others are to be established, one of them at Vaugirard, with

municipal aid. Experience has shown that workmen do not shun these dispensaries; some come because they have a cough, others because they know they have contracted tuberculosis. As far as I can see, the best way to ferret out the disease would be to have one or two agent-workmen,—foremen, if it were possible. They are the ones to notice when their comrades cough; they could advise them to go to the dispensary. Alive to the dangers of a badly kept workshop or yard, they will superintend its being kept clean and in order, they will actually carry out antituberculous education."¹

ANNUAL REPORT OF THE BOSTON CITY HOSPITAL.

THE thirty-seventh annual report of the Trustees of the Boston City Hospital, which has recently appeared, is a pamphlet of 207 pages, very largely statistical. The work of the hospital increases year by year, although its capacity is 828 beds, including the South Department, which is the same as last year. The daily average of house patients was somewhat less than the preceding year, but the total number of patients treated 121 more, being in all 8,578. This demonstrates what appears to be a growing tendency in our large hospitals for acute disease, to reduce as far as possible the length of stay of individual patients in the wards. For example, the average time of stay of patients for this last year was somewhat less than 18 days. This also clearly shows the great amount of work accomplished, and likewise emphasizes the need of institutions in which persons suffering from chronic ailments may be treated over longer periods of time. Four hundred and fifty-seven patients were treated in the Convalescent Home. There were 11,951 applicants for admission to the hospital, of which 3,820 were rejected.

The number of out-patients treated during the year was 27,328, the total number of visits being 99,125. It is expected that an enlarged building upon the site of the present Surgical Out-Patient Department is soon to be constructed, which will no doubt relieve what is now regarded as inadequate provision for the large number of patients treated.

The work of the South, or Contagious, Department has continued on the high plane of efficiency which it has always maintained. Over 4,000 patients have been treated during the year, with 508 deaths. Owing to the increasing demands upon this branch of the hospital work, it has been necessary during the year to reject 155 applicants for admission for want of accom-

¹ *Public Health*, September, 1901, p. 809.

modulations. The following statistics are of interest:

At the beginning of the year there were 298 patients, against 258 the previous year. The number of patients admitted was 3,831, against 2,787 the previous year. The largest number on any one day was 335, against 323 the previous year. The daily average number of patients was 287, an increase of 37 over the previous year. The average days' stay was 25. The total number of weeks' board was 14,978. Of the total number of patients admitted, 508 have died, including 151 who died within 48 hours after admission, or 29% of all deaths. The death-rate of diphtheria during the year was 11.03%.

The figures of expenditures, and details regarding hospital management, should be of value to those interested in the conduct of a large hospital. Over 100 pages are taken up with medical and surgical statistics, classified according to the nomenclature of diseases as published by the Royal College of Physicians of London and the American Medical Association. Elaborate outpatient statistics are included in these tables. Evidently, pains have been taken to do more than merely give a list of diseases treated in the various departments of the hospital. In certain cases remarks are appended, and in general the statistics may be regarded as of positive value in themselves, and as indicating the work of the hospital.

The report brings home to us again how well the City Hospital is fulfilling its function as a municipal institution in which the interests of the sick are paramount to all other considerations.

MEDICAL NOTES.

AN INTERNATIONAL SANITARY CONGRESS.—At the last Pan-American Medical Congress, held in Havana, it was voted to hold next year an International Sanitary Congress in the same city. In accordance with this vote, the organizing committee has named the 15th of February, 1902, as the date for such a congress. The chief subjects of discussion will be port sanitation and control, and the methods of propagation and of control of various diseases, among which are prominent those especially affecting tropical and subtropical America.

PRECAUTIONS AGAINST PLAGUE.—Because of the appearance of bubonic plague in Liverpool and Glasgow, the Boston Board of Health will take special precautions to guard against the introduction of the disease into this city. A more careful examination will be made of all immigrants who enter at this port, and those whose condition causes suspicion will be closely watched.

NEW REQUIREMENTS FOR THE MEDICAL DEPARTMENT, UNIVERSITY OF CALIFORNIA.—Beginning

with the academic session of 1905-1906, the Medical Faculty of the University of California will demand at least two full years of college work from all applicants for admission.

PROFESSOR PACKARD A MEMBER OF THE LINNAEAN SOCIETY.—A. S. Packard, Ph.D., M.D., LL.D., of Brown University, has been made an honorary member of the Linnaean Society of Great Britain, for his work on geology and zoölogy.

VICTIMS OF BAD ANTITOXIN.—According to reports in the daily papers, 11 children are said to have died as the result of the injection of contaminated antitoxin. Of these deaths 9 are said to have been due to tetanus.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Nov. 6, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 49, scarlatina 25, measles 73, typhoid fever 19, smallpox 12.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending Nov. 2, was 178, as against 186 the corresponding week last year, showing a decrease of 8 deaths, and making the death-rate for the week 16.2. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 63 cases, 3 deaths; scarlatina, 32 cases, 2 deaths; typhoid fever, 20 cases, 3 deaths; measles, 50 cases, 3 deaths. The deaths from consumption were 24; pneumonia, 16; whooping cough, none; heart disease, 15; bronchitis, 4; marasmus, 4. There were 14 deaths from violent causes. The number of children who died under 1 year was 37; under 5 years, 53; persons more than 60 years 35; deaths in public institutions, 61.

REPORT OF INFECTIOUS DISEASES IN MASSACHUSETTS FOR OCTOBER.—The number of cases of scarlet fever reported in Massachusetts during the four weeks in October, ending Nov. 2, is 270, diphtheria 775, typhoid fever 477, measles 268 (exclusive of the late cases in Danvers), and smallpox 44. In every instance these figures are higher than the corresponding figures for the preceding month, but there has been a general decrease during the last ten days.

SMALLPOX.—A case of smallpox has occurred at Concord, Mass. The source of contagion is obscure, but is thought to have been contracted in Boston, or possibly from a patient in Newton, Mass. A death has occurred in Newport, R. I., and several new cases have developed. General orders for vaccination are being given. New cases

are appearing in Boston, but no special focus of the disease appears now to exist. There was one death at least from the disease during the week.

BEQUESTS FOR HOSPITALS.—By the will of Mrs. Emeline Balch of Manchester, N. H., \$3,000 is left to the Elliott Hospital at Manchester, and other sums to various charities. After these are paid, the balance of the estate has been left to five trustees to found a hospital in Manchester, to be known as the Balch Hospital. The estate is estimated at \$500,000.

MEASLES IN DANVERS, MASS.—More than a hundred cases of measles have recently occurred in Danvers, Mass., probably as the result of a small outbreak which occurred in that town a few weeks ago.

NEW YORK.

MANUFACTURE OF SELTZER WATER.—An action brought by Caroline Glazer against Wm. E. Seitz and others, to recover damages for injuries sustained by the explosion of a bottle of seltzer water has been dismissed by Justice McAdam of the New York Supreme Court. After citing instances of this character, he says: "There is no pretense in this case that the siphon of seltzer water sold was misnamed, or that any deceit was practised on the plaintiff. Indeed, it was an ordinary, well-known article of merchandise sold in large quantities every day. It is common knowledge that bottles containing seltzer or vichy water, or champagne, or ginger ale, or cider, will sometimes explode, and that barrels containing cider may explode. But it does not necessarily follow that the vender of these commodities in such bottles or barrels is liable for the explosion, in the absence of misconduct on his part, which misconduct must be affirmatively proved."

A TUBERCULOSIS HOSPITAL FOR NEW YORK CITY.—All the insane patients have now been removed from Blackwell's Island to the new buildings of the Manhattan State Hospital at Central Islip, L. I., and the work of preparing the Blackwell's Island pavilions, hitherto occupied by them, for a great tuberculosis hospital, to be in charge of the City's Department of Public Charities, is now in process. Among the extensive alterations and improvements to be made, will be the opening of many new windows, so that the wards will be as light and airy as possible. It is estimated that when the new hospital is opened, about Dec. 1, there will be not less than 1,800 patients for it, as that number of consumptives is now under the care of the Charities Department, scattered about the city in various hospitals.

APPROPRIATIONS FOR 1902.—The budget for 1902 was finally passed upon by the Board of Esti-

mate and Apportionment at a meeting held Oct. 30. The Department of Public Charities, which, under the amended charter of the city, will be under the direct control of the mayor, was allowed \$1,598,884. The Department of Health, the apportionment of the heads of which will also be made by the mayor, was given \$961,372. For the new Tenement-house Department, which comes into existence on Jan. 1, \$403,480 was appropriated. In this department there will be a sanitary police force of 43 members and a considerable number of sanitary inspectors.

COMPLIMENTARY DINNER TO DR. T. GAILLARD THOMAS.—A complimentary dinner will be given at Sherry's on Nov. 21, by members of the medical profession, to Dr. T. Gaillard Thomas, on the occasion of his seventieth birthday.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCT. 26, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria and croup.	
New York . . .	3,457,292	1,217	402	26.95	10.43	2.05	7.16	3.04	
Chicago . . .	1,698,575	—	—	—	—	—	—	—	
Philadelphia . . .	1,263,497	358	95	20.37	10.32	1.12	.28	2.51	
St. Louis . . .	575,285	—	—	—	—	—	—	—	
Baltimore . . .	569,892	182	55	19.65	13.10	1.63	6.00	2.18	
Cleveland . . .	381,768	—	—	—	—	—	—	—	
Buffalo . . .	352,387	—	—	—	—	—	—	—	
Cincinnati . . .	325,992	—	—	—	—	—	—	—	
Pittsburg . . .	321,676	116	33	31.89	14.65	6.03	1.72	4.97	
Washington . . .	287,718	—	—	—	—	—	—	—	
Milwaukee . . .	285,315	—	—	—	—	—	—	—	
Providence . . .	175,397	80	22	26.25	12.50	2.50	8.75	7.50	
Boston . . .	569,892	208	62	25.76	12.48	1.92	9.12	4.80	
Worcester . . .	118,421	26	11	15.40	26.95	3.85	3.85	—	
Fall River . . .	104,863	32	11	34.37	6.25	3.12	15.65	—	
Lowell . . .	94,968	48	16	20.83	8.33	—	—	12.49	
Cambridge . . .	91,886	30	9	35.33	6.67	—	3.33	—	
Lynn . . .	68,513	—	—	—	—	—	—	—	
Lawrence . . .	62,559	13	5	7.70	7.70	—	—	—	
New Bedford . . .	62,442	18	5	27.77	11.11	—	—	—	
Springfield . . .	62,069	12	4	25.00	25.00	—	8.33	—	
Somerville . . .	61,643	—	—	—	—	—	—	—	
Holyoke . . .	45,712	12	4	35.33	—	8.33	—	—	
Brocton . . .	40,963	14	3	7.14	—	—	—	—	
Haverhill . . .	35,175	13	1	15.40	—	—	—	7.70	
Salem . . .	35,065	13	6	23.10	15.40	—	—	—	
Chelsea . . .	34,072	10	3	—	—	—	—	—	
Malden . . .	33,664	7	3	14.30	14.30	14.30	—	—	
Newton . . .	32,587	4	2	20.00	—	25.00	—	—	
Fitchburg . . .	31,531	8	4	12.50	12.50	—	—	12.50	
Taunton . . .	31,056	12	2	—	25.00	—	—	—	
Gloucester . . .	26,241	9	3	22.22	—	—	—	—	
Everett . . .	24,336	5	1	—	—	—	—	—	
North Adams . . .	24,200	6	1	33.33	20.00	—	—	16.67	
Quincy . . .	23,899	—	—	—	—	—	—	—	
Waltham . . .	23,481	4	—	50.00	—	25.00	—	—	
Pittsfield . . .	21,766	—	—	—	—	—	—	—	
Brookline . . .	19,935	—	—	—	—	—	—	—	
Chicopee . . .	19,167	4	12	25.00	—	25.00	—	—	
Medford . . .	18,214	4	1	75.00	—	—	25.00	—	
Newburyport . . .	17,478	6	1	16.67	33.33	—	—	—	
Melrose . . .	12,962	4	—	—	—	—	—	—	

Deaths reported 2,520; under five years of age, 775; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumptions) 633, acute lung diseases 279, consumption 303, scarlet fever 18, erysipelas 3, typhoid fever 53, whooping cough 13, cerebrospinal meningitis 5, smallpox 13, measles 6, diarrheal diseases 135.

From whooping cough, New York 5, Philadelphia 2, Pittsburg 2, Boston, Holyoke, Salem and Waltham 1 each. From scarlet fever, New York 7, Pittsburg 9, Salem and Medford 1 each. From typhoid fever, New York 25, Phil-

Original Articles.

MEDICO-LEGAL EXAMINATION OF BLOOD STAINS.¹

BY EDWARD S. WOOD, M.D., BOSTON,

Professor of Chemistry in the Harvard Medical Society.

I REGRET that I have not been able to prepare a carefully written paper upon this subject. I shall not attempt to treat it exhaustively, but shall endeavor to limit my remarks to some of the more practical points in connection with the medico-legal examination of blood stains.

In the first place a great many different substances and a great many different kinds of stains are submitted for medico-legal examination. We may have stains which are pure blood stains, or we may have stains which contain blood mixed with other substances. They may contain chiefly pure blood, mixed with a small quantity of other substances, or they may consist chiefly of some foreign material, mixed with a little blood; good illustrations of these stains are nasal and menstrual stains. In both cases, when the hemorrhage is abundant, the stain may consist of pure blood with no mucus or cells mixed with it. On the other hand, with a nasal blood stain, if the hemorrhage is very slight, the stain may consist chiefly of mucus and colored more or less with blood, and in the case of menstrual stains, at the beginning and end of the flow particularly, the stain may consist chiefly of vaginal cells and secretion with very little blood, and if there happens to be a leucorrhœal discharge, the stains may contain a good deal of pus.

We also have submitted for examination, stains which are called washed stains, caused by an attempt to wash out the blood from a stain with water. This is usually ineffective. It is, of course, possible to thoroughly remove a blood stain from cloth by washing, but in most cases which require medico-legal investigation, the washing is more or less imperfectly done. Blood stains on white cloth, when subjected to the action of water, have a very peculiar appearance; the pigment is carried along by the water over the surface of the cloth, and deposited in a thicker layer upon the edge of the wet space than it is in the centre. When a blood stain has been sufficiently exposed to the action of water, the red blood cells are altered in their form, size and composition, and in such a stain we can only determine the blood pigments, but have no means of determining the nature of the stain, whether the blood comes from a human being or from some animal. It often happens also that stains are brought for examination, which consist of the products of supuration, in which cases they contain chiefly pus mixed with more or less blood.

Preliminary examination.—One of the most important parts of the medico-legal examination of blood stains is the preliminary examination, which

consists of a very careful observation of the gross appearance of the stains. This may throw a great deal of light upon the case, particularly with reference to the age of the stains and to the direction from which the blood came which made the stain.

In the first place, the color of the stain should be observed. A blood stain, when exposed to the ordinary action of light and air, grows perceptibly darker for a period of about 10 days. The blood color changes from the bright light red of a fresh stain to a distinct brownish color at the end of 10 days, as may be seen by these specimens (exhibits shown). If a blood stain has been exposed to the action of direct sunlight, it quickly becomes changed to a deep brown, owing to the decomposition of the hemoglobin to hematin. If this exposure is continued sufficiently long, still further decomposition of the blood pigment will occur, and hematoporphyrin will be formed. This same change will be caused by the action of heat also. In this case the color is still darker. Thus we can tell, from the color of a blood stain, whether it is perfectly fresh, or whether it is an old stain.

The next point of importance is the exact form of the blood stain. In some cases, after the blood has been spattered, the shape of the stain will sometimes show very accurately the direction from which the blood came, with reference to the object upon which the blood stain is situated. When a drop of blood strikes upon a smooth surface at an angle more or less acute, the form of the stain assumes more or less the shape of a pear,—the portion farthest away from the source of the blood forming the stem of the pear, while the broader end of the stain, corresponding to the body of the pear, will be nearest the point from which the blood came. Under certain circumstances, also, the largest volume of the blood in the stain will be found at the end of the stain farthest from the point from which the blood came. Thus, when the surface upon which the blood drop impinged be horizontal, the largest amount of the blood will be found at the stem end of the pear-shaped stain, so that the dried stain will be thicker at this end than at the broader end. If, however, the surface upon which the blood impinged be vertical, then the fresh stain is influenced by the force of gravitation, and the bulk of the blood will gravitate back to the lower part of the stain, in case the point from which it came is below the point upon which it has been formed. If the surface upon which the drop of blood has impinged is a very rough surface, it will coagulate so quickly that, even though the surface be vertical, the bulk of the blood in the stain will remain at the stem end of the pear-shaped stain, and will not gravitate back to the broader end, in case the direction of the blood drop was from below upwards. This point has been very important in some cases, as, for instance, when the blood has spattered from a body lying upon the ground, the spatters striking upon the surface of a shaggy overcoat, or other garment, worn by the person committing the assault. If the drop of blood strikes any object at

¹ Read before the Massachusetts Medico-Legal Society, June 11, 1901.

right angles to the object, the form of the stain is usually round.

In fresh blood stains it is sometimes of great importance to observe whether the stain is completely or only partially dry. This is more liable to be of importance in cases in which the amount of blood in the stain is very considerable. This was well illustrated in the famous Borden cases, the difference in the appearance of the blood clots under the bodies of the two victims showing conclusively that between one and two hours must have elapsed between the time of death in the two cases. This difference in the appearance of the blood in the two cases was due to the difference in the extent to which the blood has dried. A drop of blood dries much more slowly than a drop of water of the same size. The drying of the blood stain will be influenced somewhat by the condition of the atmosphere, but only within comparatively narrow limits. In one experiment which I made to determine the rapidity with which a blood stain dries, I allowed one drop of blood to drop from my finger on a piece of smooth pine wood. It made a stain three-eighths of an inch in diameter. At the end of one hour it was just beginning to shrink a little upon the edge of the drop, and the surface was just beginning to glaze over; it did not become completely dry until two hours had elapsed; this experiment was performed in a room which was of the ordinary temperature and ordinary atmospheric conditions, in December. Of course, the process of drying, of glazing over, and of contracting is much slower in the case of a large pool of blood than in a case of a single drop.

In the preliminary examination of a garment or other object for suspected blood stains, it is always necessary to carefully examine each stain first with the naked eye, noting the color, shape and general appearance of the stain, and also its exact position, so that it can be identified afterwards with absolute certainty. In the case of very small stains, which are liable to become partly rubbed off by manipulation of the garment, so that they cannot be readily found afterwards, it is best to mark them in some way. My own habit is to place a pin underneath a small stain which is rather difficult to see, so that it can be easily found afterwards. After examining each stain carefully with the naked eye, it should then be examined with a magnifying glass. This will sometimes enable us to detect foreign matters mixed with the blood. The detection of foreign substances in a blood stain is often of very great importance. Sometimes this can be done by the unaided eye, sometimes it is necessary to use a magnifying glass, and in some cases it is necessary to resort to a microscopic examination for that purpose. Foreign substances which are liable to be of importance in medico-legal cases are: pieces of hair coming from the victim, or a cloth fibre, which may throw light upon the nature of the body from which the blood came, or particles of tissue, such as adipose tissue, muscular fibre, or pieces of bone with the muscular attachment, in

cases in which the body of the victim has been sufficiently mutilated by a club or hatchet to separate portions of these tissues.

In one case with which I was familiar, a blood stain was brought to me for examination, which proved to contain a piece of bone with the muscular attachment. This stain was found upon the side of a barn in which the body of the victim had been dismembered, the legs and arms having been chopped off with an axe. This stain was not found until too late for the evidence to be admitted at the trial. Had it been, it would have resulted in a change in the verdict from one of acquittal to that of conviction, as the defence was that the blood about the barn came from bleeding a horse, and the jury at that time doubted the possibility of distinguishing between the blood of a horse and that of a human being.

The systematic examination.—In the systematic examination of blood stains for medico-legal purposes, we resort to three distinct methods: (1) The chemical tests; (2) the optical method, and (3) the microscopic examination for the detection of the red blood cells. The first two methods serve to detect only the blood pigments, and, if we obtain a positive result by these methods, we are only able to say that the stain contains blood, without any reference to the kind of blood. They do not serve to distinguish between human and animal blood, nor by means of these tests can we determine whether the stains came from a mammal, bird, fish or reptile. To distinguish between the different kinds of blood, it has been customary heretofore to rely solely upon the third method,—the microscopic examination, with high powers for the purpose of recognizing the form and size of the red blood cells.

Chemical tests.—I will not attempt to describe the chemical tests in detail, but will merely mention some of the most important points in connection with the different tests.

The guaiacum test.—This test has been known for many years, and depends upon the fact that when a solution of blood pigment, hemoglobin, is treated with a little tincture of guaiacum, and then with some solution containing ozone, a bright blue color is produced immediately. Formerly old spirits of turpentine, which contains ozone, was used, but more recently this has been replaced by peroxide of hydrogen. This test is of no value scientifically, because a great many other things will give the blue color when treated with these reagents, such as some of the iron compounds and indigo. The great value of this test is as a preliminary one. It is so easily performed, and gives such a marked reaction so quickly, that it is extremely valuable as a preliminary test. Its value also depends upon the fact that, if we obtain a negative result on applying the guaiacum test, we may be sure that the stain tested does not contain any blood, and we need not, therefore, resort to any further examination with that stain. If, however, we obtain a positive result, we are not absolutely sure that the reaction is due to blood pigments, so that this test alone, uncor-

roborated by any other, is of no value medicolegally.

There is a modification of this test, which I have been in the habit of using recently, which is extremely valuable, especially in the case of very old blood stains. A minute fragment of the stain is removed and placed in a small porcelain capsule, and moistened with a drop of a solution of chloral hydrate, which is an excellent solvent for blood pigment. To this is then added a drop or two of a 1% solution of guaiacum in a 70 to 75% solution of chloral hydrate; allow this mixture to stand for some minutes, then a drop of the following solution of peroxide of hydrogen is added: 15 cc. of a 3 to 5% solution of peroxide of hydrogen free from acids, with 25 cc. of alcohol, 5 cc. of chloroform, and 1.5 cc. of glacial acetic acid. If any blood pigment is present, the blue color will appear immediately.

Hemin test.—If the result of the guaiacum test was negative, I do not consider it necessary to perform any other chemical test for blood. If, however, a blue color was obtained with the guaiacum test, it shows that blood may be present in some form or other, in which case it is necessary to confirm the guaiacum test by the other tests for blood. The most important one of all is called the hemin test, or sometimes Teichmann's test for blood crystals. This is a test which I have used for a very long time, and the method of performing it is well described in all of the books, so that I will not mention the method in detail. When the hemin crystals, or so-called blood crystals, form as the result of this test, they are seen under the microscope in groups of very characteristic, brown rhombic crystals, which cannot be mistaken for anything else. A single crystal may possibly be mistaken for a particle of carbon, which happens to have a rhombic form, but when any blood pigment is present, the crystals will form in such large numbers, that there is absolutely no possibility of making any mistake in regard to their character.

There are many agencies which will decompose normal blood pigment to such an extent as to prevent this reaction. Any substances or agencies which decompose the hemoglobin or hematin to the extent of forming hematorporphyrin, which is a decomposition product of hematin, and used to be called iron-free hematin, will prevent naturally both of the above reactions, which depend upon the presence of hematin. The following are among the most important agencies which have this effect, to some of which, you will readily recognize, an ordinary blood stain may be exposed: If the blood stain be exposed to the action of direct sunlight for a sufficient length of time, or if it be heated to a temperature of 140° C., or to 120° C., for twenty minutes or half an hour, the normal blood pigment will become so much decomposed, that it will not give the guaiacum or hemin reaction. If the blood stains be treated with many substances which are used as disinfectants or germicides for the purpose of destroying vermin, the same decomposition of the blood pig-

ment is liable to take place, and the stain will not react with the guaiacum or hemin test. Of the more common substances which will have this effect, are alcohol, naphtha, benzole, turpentine, and some of the disinfectants which contain chloride of aluminum, such as "bromochloralum." These substances, however, fortunately do not destroy the red blood cells, but, on the contrary, tend to fix them so that they are not destroyed or affected afterwards by treating a portion of the stain with water or any aqueous solution. This fixing of the red blood cells is sought after by the clinician in preparing blood slides for the clinical examination of blood. Usually the cover-glasses are heated, but sometimes the blood is fixed by a mixture of absolute alcohol and ether. Many years ago, before the days of the clinical examination of the blood, I learned this fact in following out some investigations connected with the famous "belfry" murder. An individual suspected of having committed this murder was followed to Ireland and brought back to this country. A pair of trousers, supposed to have belonged to him, was found in a vault, covered with filth and containing what looked like blood stains. The officer who found the trousers, in order to disinfect and deodorize them, had soaked them in bromochloralum, using a gill of bromochloralum to a pailful of water. The trousers were then washed and brought to me for examination. I found near the bottom what appeared to be well-marked blood stains, but upon performing the chemical tests, I could not get any reaction. Upon treating a portion of the stain with an artificial serum, and examining the preparation with the microscope, I found perfectly preserved biconcave discs of the red blood cells, which could be accurately measured. On experimenting, I found that fresh blood stains upon cotton cloth, treated with a dilute solution of bromochloralum, were sufficiently decomposed to prevent the chemical tests for the blood pigment from being obtained. Afterwards, on soaking clothing in naphtha to destroy the vermin, I found that the same effect was produced upon the blood stains. In a case recently reported in one of the German journals, the same result was noted in the case of a blood stain upon a piece of cloth which had been ironed with a hot iron.

Sodium tungstate test.—This test I consider of great value in cases of washed blood stains, or in cases in which it is necessary to test a liquid for blood. The solution used for this purpose is a saturated solution in water of sodium tungstate rendered strongly acid with acetic acid. The substance containing the washed stain is soaked in water, or sometimes in water to which a drop or two of sodium or potassium hydrate has been added, in order to dissolve out the blood pigment. This solution is filtered, rendered acid with acetic acid, and a little sodium tungstate solution added, which will produce, if any blood pigment is present, a precipitate; the mixture is then heated to boiling, which will cause the precipitate to aggregate together and become chocolate brown in

color. This precipitate can be collected on a filter, washed, a part removed to a glass slide, and the hemin test performed with it, when the characteristic hemin crystals will be obtained, if any blood pigment was present.

The spectroscopic test.—This is the so-called "optical" method used for the medico-legal examination of blood. Unfortunately, the application of this test requires that we have a considerable volume of blood to deal with. Extremely minute stains do not furnish a sufficient amount of material to enable us to apply the spectroscopic test. The only practical instrument for use in medico-legal examinations is the spectroscopic eyepiece, which can be set into the tube of a microscope, sometimes called the microspectroscope. By means of this method we are able to detect the hemoglobin or any of its decomposition products. I will only briefly mention the results which can be obtained by this method. As you all know, a dilute solution of oxyhemoglobin, examined by the spectroscope, shows the two absorption bands described in all books upon this subject. If the solution of oxyhemoglobin be deprived of its oxygen by treatment with some reducing agent, like sulphid of ammonium, these two bands are merged into each other, forming a single band, which is the spectrum of hemoglobin. There is another compound of hemoglobin with oxygen, in which the oxygen is more firmly fixed. This compound is methemoglobin, which is produced in the body in cases of poisoning by potassium chlorate, and is formed also after death in the body as the result of putrefaction. A solution of methemoglobin gives a characteristic spectrum. If a solution of hemoglobin, or a little dilute blood, be treated with acetic acid, the color changes to a deep brown, owing to the formation of hematin. The acetic acid decomposes the hemoglobin into the colored product, hematin, and the proteid, globin. This solution examined with the spectroscope gives a characteristic spectrum of acid hematin. Alkaline solutions of hematin examined with the spectroscope give also a characteristic spectrum. If the alkaline solution of hematin be treated with a reducing agent, another decomposition product is formed, called hemochromogen, which also has a characteristic spectrum. The next decomposition product is hematoporphyrin, which is of great importance both medically and medico-legally. Hematoporphyrin is produced from ordinary blood pigment, if it is subjected to the action of any agencies which will deprive the hematin of its iron. This is the product which is formed by means of all of those agencies mentioned above as preventing the hemin reaction. Hematoporphyrin is formed in the body sometimes, and appears in the urine, as in some cases of sulfonal or trional poisoning, and in some cases of chronic lead poisoning. It can be obtained from blood, or a blood stain, by heating it with concentrated hydrochloric or sulphuric acid. This is the decomposition product which we find in very old blood stains, or in blood stains which have been heated; and the only chemical test of any value in

such stains, where we cannot obtain the guaiacum or the hemin reaction, consists in the recognition of the hematoporphyrin by means of the spectroscope. If a little of the stain be dissolved in a dilute alkali, we may obtain the spectrum of hematoporphyrin in alkaline solution, or, if it be dissolved in a drop of concentrated sulphuric acid and diluted, we may obtain the spectrum of hematoporphyrin in acid solution. Another compound of blood pigment, which is sometimes important medico-legally, is the compound of hemoglobin with carbon monoxide, called carbon monoxide hemoglobin. This is the compound which is formed in cases in which persons are poisoned by carbon monoxide gas, as from inhaling the fumes arising from burning charcoal, or in the much more common form of poisoning by inhaling illuminating gas. The carbon monoxide hemoglobin spectrum is pretty nearly the same as the oxyhemoglobin spectrum, but it differs from the oxyhemoglobin in that, when treated by sulphid of ammonium, it does not change. The two bands still remain, and are not merged into a single band, as is the case with oxyhemoglobin.

Microscopic examination.—All of the tests and methods mentioned above enable us to state only whether blood of some kind or other is present or not. They give us no information, however, as to the kind of blood,—as to whether it comes from a mammal, bird, fish or reptile. In order to obtain any information as to the kind of blood, we must resort to such a microscopic examination of the blood stain as will enable us to see the form and the size of the blood cells. For this purpose it is usually necessary to use the higher powers of the microscope. By means of this examination we can always distinguish with certainty between the blood of a mammal and that of a bird, fish or reptile, because the red blood cells of birds, fishes and reptiles have a distinct nucleus, and most of them are oval in shape, while the red blood cells of the mammals are round biconcave discs, with the exception of those mammals belonging to the camel tribe, whose red blood cells are oval in shape, but do not have any nucleus.

To distinguish between human blood and the blood of other mammals (except that of the camel tribe), the only method used, up to recently, has been the determination of the size of the red blood cells by measuring their diameter, by using a micrometer eyepiece in connection with high power objectives, so as to get the average diameter of a large number of the red blood cells in any given stain. If this average falls within the limits of the average measure of human red blood cells, from $\frac{3}{100}$ to $\frac{1}{100}$ of an inch, we may report that the blood cells in this stain are consistent with their being of human origin. If we find that the average diameter of the red cells in the given stain is less than $\frac{1}{100}$ of an inch in diameter, we are warranted in reporting that the red blood cells in this stain are inconsistent with their having been of human origin.

Fortunately, the average diameter of the red blood cells of most of the domestic animals is less than $\frac{1}{1000}$ of an inch. The dog is the only domestic animal whose red blood cells approximate in size those of the human being. The red blood cells of the dog average $\frac{3}{1000}$ to $\frac{4}{1000}$ of an inch. Of other animals, whose red blood cells might be mistaken for those of the human being, are the monkey, opossum, guinea-pig, kangaroo, muskrat, rabbit, rat and mouse, with a few other wild animals, such as seal, prairie wolf and woodchuck. The red blood cells of the pig, ox, horse and cat average between $\frac{1}{2000}$ and $\frac{3}{1000}$ of an inch, those of the sheep $\frac{3}{1000}$, and of the goat less than $\frac{1}{1000}$ of an inch in diameter.

The most important detail of the medico-legal expert's work is the preparation of the blood stain for this microscopic examination, which has for its object the detection and measurement of all of the red blood cells which have preserved their normal shape and size, and the prevention of such normal red blood cells from becoming swollen, so that the diameter becomes changed. First, in removing a portion of the blood stain for microscopic examination, we should endeavor to select that portion of the stain which has dried most quickly, because, with any stain of considerable size, the blood dries so slowly, particularly in the centre of the stain, that the vast majority of the red blood cells become altered in form and size. In such a stain, therefore, it is always best to remove a portion from the edge, where the drying has taken place most quickly. If the blood stain is upon a piece of cotton or linen cloth, the fibre of which absorbs the blood rapidly, it does not make much difference, although, even in this case, I generally select a fibre near the edge for the microscopic examination. Before treating the portion of the stain, which has been removed, with an artificial serum, and mounting on a glass slide, I have of late years been in the habit of setting the red blood cells by one of the methods which are in common use in the clinical examination of blood. The stain may either be heated to 120° C. for 15 or 20 minutes in a hot air bath, or it may be treated with a drop or two of a mixture of equal parts of absolute alcohol and ether in a watch glass for about the same length of time. Then a minute fragment of the stain thus prepared may be transferred to a glass slide, treated with some artificial serum, which may, or may not, contain some staining fluid which would color the red blood cells, so that it is somewhat easier to see their border. I am in the habit of using a normal salt solution, or a solution of potassium acetate of about 1.030 specific gravity, to which a little eosin has been added, for the purpose of staining the red blood cells. This brings out the borders of the cells a little more sharply, so that it is a little easier to measure the diameter. When a fragment of a blood stain, or a fibre of cloth containing it, is placed in the artificial serum on a glass slide, it may be gently picked to pieces by means of needles, then covered with a No. 1 cover-glass, and

sealed with some cement, which will prevent the evaporation of the fluid. It may then, at any convenient time, be examined with the microscope, using an oil-immersion lens and an eyepiece micrometer, the value of the divisions in the eyepiece micrometer having been previously ascertained by means of a standard object micrometer. (Photographs shown of perfectly preserved red blood cells from a stain of dog's blood, which had been dried three weeks, and also of cells from a human blood stain, which had been dried on paper 16½ weeks at the time when the preparation was made.)

It is well to make quite a number of slides from the different blood stains, for the purpose of finding foreign substances, which may be of importance, mixed with the blood. In the case of blood coming from the nose, we usually find mixed with it a large amount of mucus, and we may find some epithelium coming from the Schneiderian mucous membrane. In the case of some menstrual stains, we usually expect to find squamous epithelium from the vagina mixed with the blood, particularly at those times when the flow is not profuse.

The agglutination test.—This is a new method. I have not had time to investigate this method personally. It is stated, however, on very excellent authority, that it is possible now to distinguish with accuracy between human blood and that of any other animal by what is sometimes called the agglutination test.

The principle upon which this test depends lies in the fact that, if a clear human blood serum be treated with a dilute solution of other human blood, a cloudiness or precipitate occurs. If clear human blood serum be treated in the same way by a solution of animal blood, no precipitate or cloudiness occurs, but the mixture remains perfectly clear. If the clear blood serum of any animal be treated with the solution of the blood of one of its own kind, the precipitate will occur, but if treated in the same way with the solution of human blood, the mixture remains clear. But it has been found that an animal may be what is called humanized, so that its blood serum will react when treated with the solution of human blood. Any of the domestic animals may be humanized, but a rabbit is usually selected. This is done by injecting into the peritoneal cavity or blood vessels of the animal about 10 cc. of human blood, or human blood serum, five or six times, at intervals. If a little of the clear blood serum of the humanized animal be treated with a solution of human blood, a precipitate will be formed. It is found that this test is just as applicable to a dried stain as it is to fresh blood. It is necessary to make a solution of the dried blood in sterilized normal salt solution. A little of this solution added to the clear serum of the humanized animal will give a precipitate, if the blood stain was made with human blood.

A WIDESPREAD epidemic of typhoid fever is reported prevalent in Westphalia, Germany.

THE CORRECTION OF OLD LATERAL DISPLACEMENTS OF THE NASAL BONES.¹

BY J. L. GOODALE, M.D., BOSTON.

THE object of the following paper is to present a method of operation which I have employed in a series of 22 cases of old lateral displacement of the nasal bones. The technique is based essentially upon the procedure, which I first described in 1898, for the correction of the convex deformity of the nasal bridge, ordinarily known as Roman nose. In both operations one seeks to obtain mobilization of the nasal bones *en masse*, with the object, in the case of the Roman nose, of depressing them, and in the case of lateral displacement, of restoring them to a median position.

In the case of lateral deformity, this mobilization is effected in the following manner: The patient is etherized and placed in the Rose position or in a sitting posture. I usually prefer the latter, as bleeding is much less, and if the head is

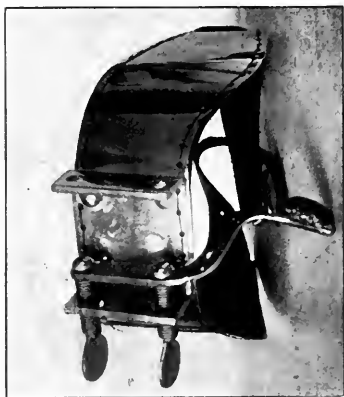


FIG. 1.

held well forward, the blood escapes almost wholly through the anterior nares. After application of a solution of suprarenal extract to the roof of the nose, a pair of short-bladed, straight scissors is introduced into the left nasal vestibule. One blade is made to penetrate the triangular cartilage at its anterior extremity immediately beneath the skin, and a cut is made through the septum, parallel to the external outline of the bridge of the nose and about 1 cm. below it, terminating at the junction of the perpendicular plate of the ethmoid with the cribriform plate. The septum is thus divided by this cut into two parts, a narrow upper strip connected with the bridge of the nose, and a large inferior portion attached to the floor of the nose. In young persons the cut is readily made with the scissors through the ethmoid plate, but in older individuals it may be necessary to use a short-bladed saw.

The next step consists in freeing the nasal bones from their lateral attachments to the nasal processes of the maxillary bone. A small, strong nasal saw is introduced, with its teeth uppermost, into one nasal passage, and the articulation of the nasal and maxillary bones sawn through from below upwards,—nearly, but not quite, through,—the fingers of one hand being placed on the skin over the articulation, to feel when the first saw teeth make their appearance through the bone. I have found it advantageous to stop the saw-cut before the articulation is completely divided, leaving the bones somewhat loosely joined by a few spicules, which serve later as splints to retain the bones in the desired position. The saw-cut is next repeated on the opposite side through the corresponding articulation. By the foregoing procedure, the nasal bones are freed from their articulations, with the exception of their attachment to the frontal bone. One or two careful blows with a mallet on the convex side of the displacement usually suffice to loosen the fronto-nasal articulation, rendering it possible to carry the nasal bones into the median line. The upper strip of septum, attached to the roof of the nose, slides at the same time laterally a short distance upon the lower part, attached to the floor of the nose. As there is generally a slight lowering of the nasal bones *en masse* by their replacement, the upper strip of septum overlaps the lower portion to a corresponding degree, and is thereby to a certain extent retained in position. In uncomplicated cases of lateral displacements the operation is now completed. It often happens, however, that a considerable depression of one nasal bone was caused by the original injury. In young persons, where the articulations are not too rigid, it is possible to elevate the depressed bone by a short, stout, blunt pair of scissors, introduced into the nose and pressed forcibly upwards. I have occasionally, however, been obliged to separate the depressed nasal bone from its fellow by an extra saw-cut before I could elevate it.

An external splint is always necessary. I have found very useful one devised several years ago by Dr. Coolidge, consisting of a metal forehead-plate, from which descend two parallel brass rods, each with an adjustable button so arranged that one can be placed against the original point of convexity of the deformity, the other against the cartilaginous tip of the nose. I have lately used with much satisfaction a splint devised by a patient. As seen in the diagram, it consists of a broad, metallic forehead-plate, from which a finger-like projection extends downwards, and is adjusted to press upon the desired part of the nasal bridge. The pressure is regulated by two screws in the manner of a carpenter's vice. This is an extremely useful feature of the apparatus, as it frequently becomes necessary, for a day or two following the operation, to relax somewhat the pressure, on account of the swelling, and increase it later on. (Fig. 1.)

In one instance the operation was done under local anesthesia. Here the roof of the nose was

¹Read before the Boston Society for Medical Improvement, March 18, 1901.

thoroughly cocaineized, and cocaine in 1% solution was injected under the skin about the site of the operation. The various steps of the operation were attended with only moderate pain, up to the blow on the nasal bones with the mallet. This caused so much pain that the patient was unwill-



FIG. 2.

ing to have the blow repeated, and fracture with the frontal bone was consequently not completely effected. The splint above referred to was then devised for purpose of forcing over gradually the nasal bones by constant pressure. The screws were tightened every few days, and within a week the bridge had been slightly overcorrected. The splint was then worn at night only for 3 weeks longer, and then left off. The bony bridge was found firmly fixed in the middle line, and showed



FIG. 3.

no tendency to return to its old position. It should be said that local anesthesia was employed in this case only at the urgent request of the patient, who refused to submit to general anesthesia. It is certainly not to be recommended.

The case shown in the illustration (Fig. 2) was a young man, 18 years of age, referred to me by

Dr. Cutler of Waltham. The deformity was the result of an injury 6 years previous. There was in addition a deviation of the septum to the left. The nose was straightened externally, as above described, and the septum refractured by a stellate punch. In addition to the external splint an Aesch splint was introduced into the left nasal passage to hold the septum in place. Fig. 3 is the photograph of the patient, taken 1 year after the operation.

CLEFT PALATE.¹

BY J. S. STOSE, M.D., BOSTON.

THERE is a fairly general agreement that a hare-lip should be operated upon in the early months of life, as soon as the child's general condition will allow. Of course, where the intermaxillary bone projects forward, though even on one side only, the operation means much more than where the lip alone needs to be united.

Opinion is divided regarding the age at which a cleft palate should be operated upon. Those who use obturators after operation, as a temporary guard to protect the line of sutures from the tongue, must wait until the sixth year molars give a point of attachment for the plate. Others wait until about the same age, because up to that time it is usually impossible to secure any co-operation from the child in the after-treatment. All admit the desirability of earlier operations. Almost all hesitate because of the large number of failures.

Wolf is the strongest advocate of early operations, doing them successfully in the first years of life, at an age when most others fail. He operates according to Langenbeck's method, freeing up two lateral mucoperiosteal flaps. The essential point in his technique is, that in very young children he divides the operation into two or three stages, separated by intervals of five to eight days. He first frees the flaps and later unites them. He is careful to control bleeding by pressure. He also sutures the uvula and the back of soft palate on its upper posterior, as well as on its lower, surface. Any operation which may be done with success in early life is to be welcomed. There is usually no difficulty in obtaining the consent of the parents to operation, because the deformity is so repulsive to them. It is often difficult to persuade them to wait until the child is strong enough to bear an operation well.

In 1893, before the World's Dental Congress, Dr. Truman W. Brophy of Chicago proposed a radically new operation for the closure of clefts of the hard palate, which is described in "Park's Surgery" nearly as originally proposed. It consists essentially of a sliding together of the two alveolar processes and palatal plates. He describes the operation thus:

After refreshing the edges of the cleft, including the surfaces of bone to be apposed, the cheek

¹ Read before the Boston Society for Medical Improvement, March 18, 1901.

is raised, and well back toward the posterior extremity of the hard palate, just back of the malar process, and high enough to escape all danger of not being above the palatal plate, a wire suture is carried through the substance of the bone, so as to come out in a corresponding position on the opposite side. Another wire is carried through the front portion of the superior maxillary in the same way. These two wires pass over the palate, one in front of the malar process and the other behind it. The free ends are passed through lead discs, and the wires twisted so as to approximate the palatal plates.

If it is impossible to close the fissure with these wires, owing to lack of tissue or firm resistance of the parts, a knife is inserted through the mucous membrane, just over the malar process, and swept around horizontally so as to cut a maximum amount of bone through a small opening. After this is done on each side, the bones are readily drawn toward the middle line. The separation of the bones is attended with little hemorrhage. A few fine sutures are inserted to insure perfect coaptation of the edges of the wound.

Brophy advocates the performance of the operation in early infancy,—as soon as the functions of the organs of the body are well established.

The arguments for early operation are these: The improved nutrition after operation; the bringing into action and development of the muscles of the palate, which will otherwise atrophy; the learning to speak as other children do, without acquiring the habit of articulating through the nose; the avoidance of the pharyngitis, which always accompanies cleft palate; the diminution of the dangers to hearing; the establishment of normal nasal breathing.

Brophy urges, as additional reasons for early operation, the relatively slight shock in early infancy, before the nervous system is highly developed, and the more easy and successful performance of the operation on the hard palate, before the calcification of the bone is far advanced and before the eruption of the teeth, owing to the readiness with which the bones yield and the tissues unite. He regards it as a mistake to close the fissure in the lip before closing the cleft in the palate, because the fissure in the lip gives the operator more room in which to work upon the palate, and the closure of the cleft in the alveolar process may be accomplished more surely before the lip is united.

Most surgeons do not agree with Brophy's opinion regarding the relatively slight shock of operating in early infancy. Wolff, the strongest advocate of early operations, says the greatest mortality is under 18 months. Of course the mortality of children with a marked grade of cleft palate is at best very high. Any important operation involves serious risk, which must be balanced against the high mortality from disturbances of nutrition.

The objections to the Brophy operation are: The disturbance of the germs of the molar teeth of the temporary, and possibly of the permanent

set; the possibility of contracting the palate to an abnormal extent; and the possibility of abnormal narrowing of the nasal cavities. Resulting dental defects are, as Brophy says, of little importance when offset by the benefits of being relieved of so great a deformity. The development of the alveolar process, and the means of moulding the teeth practised by dentists, will widen the arch.

With a view to studying carefully the anatomy of the parts concerned in the operation, I have made frozen sections of two cases. Both children died within the first few days of life. Both had a marked grade of cleft palate.

One child had the premaxillary bone in its normal position, with a fissure through the alveolar process on each side corresponding to the fissure in the lip. One tooth had erupted.

The other child had what is more unusual, an entire absence of the premaxillary bone and anterior portion of the septum.

The photographs show well the amount of damage which would result from the operation. The great objection to the operation, aside from the danger to life, lies in the amount of mutilation which it must cause. If the results are better than from other operations, the mutilation is more than offset by the avoidance of such a trying defect. In order to establish the operation, however, it must be shown that the functional results are better, or that the proportion of successes is larger, than if other less mutilating operations are done.

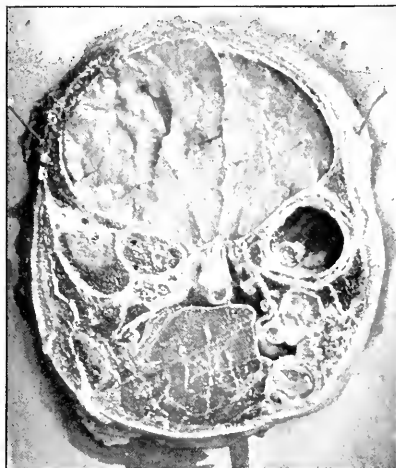
In so far as closure of the cleft in the hard palate is concerned, other simpler operations seem more desirable. If thought best, a portion of the palatal bone may be chiseled off and pried over, together with the periosteum, as suggested by Dieffenbach. If the cleft be very wide, the Davies-Colley operation may be done. In it a mucoperiosteal flap is separated from the bone on the wide side of the cleft, being left attached only by its base at the junction of the hard and soft palate. It is then swung inward, with its raw surface uppermost, resting against the raw surface of a mucoperiosteal flap from the arch on the opposite side of the cleft, which has been turned into the cleft, as if by a hinge along its attachment at the edge of the cleft. When a wide lateral cleft exists, Lannelongue has turned down a flap of mucous membrane from the side of the nasal septum. None of these methods, however, provide any more tissue with which a velum may be formed sufficient to shut off the nasopharynx.

If the Brophy operation, by drawing nearer together the posterior portions of the alveolar processes, enables the edges of the soft palate to be more easily approximated, so that the lateral tension does not cause a shortening from front to back, then this procedure does what none of the other operations so far mentioned can do. The operation might help to do this.

But the hamular process is the most important factor in the consideration of the more anterior muscles of the palate. It is moved only indirectly, when the alveolar process is moved in-



CASE I. FIG. I.



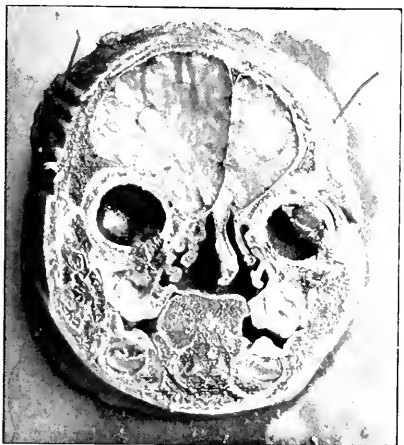
CASE I. FIG. IV.

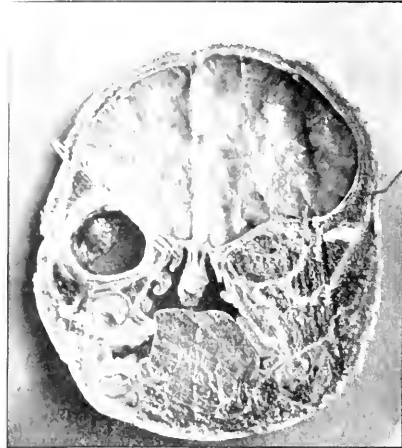


CASE I. FIG. II.



CASE I. FIG. V. Reverse of Fig. I.





CASE I. FIG. VII. Reverse of Fig. III.



CASE II. FIG. III.



CASE II. FIG. I.



CASE II. FIG. IV. Reverse of Fig. I.



ward. Doubtless the tensor palati would be relaxed considerably, while the levator palati and the palatopharyngeus and the palatoglossus would not be affected at all.

When the tissues are so scanty that there is not enough to form a velum sufficiently long, the very free incision of the mucous membrane at the sides of the palate, the division of the muscles as practised by Dieffenbach and Ferguson, tenotomy of the levator palati and the palatopharyngeus muscles, or breaking off the lower part of the internal pterygoid plate, and hamular process as done by Billroth, would seem to accomplish the result desired as accurately as the more destructive cutting through the alveolar process.

If the Brophy operation is to become an established practice, it must be through making a more useful soft palate than the other methods. If it fails to do this, then other operations which cause less mutilation are to be preferred, or, in the more extreme grades of cleft, artificial vela and obturators are to be advised. For from the use of these better functional results are obtained than from a rigid, insufficient, soft palate. Very often, by training and stretching, the mobility of the palate may be so much increased that after an operation, surgically successful, what was at first a tight and functionally useless palate may be made functionally useful. Certainly, judging from the large numbers of cases reported by Woolf, much is to be hoped for through early operation done by stages, with slight mutilation and with great care to prevent loss of blood.

In the more extreme cases any operation on the palate would seem inadvisable. There is a tendency for the cleft to grow narrower, particularly after a hare-lip has been united. With a projecting premaxillary bone which has been put in normal position, the united lip forms an admirable splint with which to keep it in place.

It is usually advised that before operation hypertrophied tonsils, if present, and adenoids, which are practically always present, be removed. It is not wise to remove any tissue which brings the posterior wall of the pharynx forward, and lessens the space which an insufficient velum must close. The space occupied by adenoids is so considerable, that occasionally after their removal it is temporarily difficult for a normal palate to shut off completely the nasopharynx.

DESCRIPTION OF CUTS.

CASE I.

FIG. I. Shows premaxillary in position, but with a cleft separating it.

FIG. II. Section just behind premaxillary bone.

FIG. III. Section 5 cm. behind Section II. Shows almost entire absence of palatal processes.

FIG. IV. Shows palate on the right larger than on the left.

FIG. VII. Shows much longer palatal processes on the right than on the left. Section 8 cm.

FIGS. II and VI show on the right side the very small size of the antrum.

CASE II.

FIG. I. Shows entire absence of premaxillary, with tremendous flattening of the nose.

FIG. II. Shows the large turbinate, with very slight projection of the palatal processes.

FIG. VII. Very slight development of palatal processes. Turbinates large. Germs of the teeth close below the orbit.

Almost all the sections show the close proximity of the germs of the teeth to the orbit, the small size or entire absence of the palatal processes, and the marked hypertrophy of the turbinate bones.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

REGULAR meeting, April 12, 1901, the president, DR. C. B. PORTER, in the chair.

DR. J. W. ELLIOT read a paper on

PROSTATECTOMY.

At the last meeting I reported a case of prostatectomy; but the patient was then in bed, and I could not show him. The interesting thing I pointed out was, that the operation was done by a new method,—the combined method of suprapubic cystotomy and the perineal section. The prostate was rooted out with one finger in the bladder above pushing down, the other finger pushed into a perineal incision. He appeared the other day, and I thought that this society would like to see the ultimate result. He originally came to the hospital with retention due to a large prostate, with symptoms for past 3 years. When I operated, he was passing water about every half hour, and looked very much used up. That was 2 months ago. He now looks 10 years younger. He has improved immensely in his general health. He now has no residual urine, passing about 5 ounces at a time. He sleeps all night without passing water. The urine dribbled away at first, but he now has good control; and that was not an unexpected difficulty, because the urethra and neck of the bladder were opened extensively, and a large space was left after the prostate was removed.

DR. J. W. ELLIOT reported

TWO CASES OF CHRONIC PANCREATITIS CURED BY CHOLYCYSTOTOMY.

In the *Lancet* of July 28, 1900, Mayo Robson reports 17 cases of chronic pancreatitis cured by cholecystotomy. In operating on a patient who had been jaundiced for a long time, he found no gallstones, but a thickened pancreas. Supposing the case to be cancer of the pancreas, he did a cholecystotomy. The patient died, and the autopsy showed chronic interstitial pancreatitis. From this case he was led to believe that a cholecystotomy would be beneficial in the early stages of chronic pancreatitis, and his results from such a procedure have been brilliant, and fully proved the correctness of this idea. Chronic pancreatitis is probably often caused by gallstones. In such cases the gallstones cause a colangitis, which extends into the duct of the pancreas, giving rise to a chronic pancreatitis, which may obstruct the gall duct, giving rise to jaundice, when the gallstones may or may not have wholly disappeared from the gall ducts. Cholecystotomy, by draining the gall ducts and the pancreatic ducts, improves their condition, relieves the back pressure on the pancreas, and finally leads to a cure of chronic pancreatitis.

CASE I. The patient was an unmarried woman, 56 years old, of neurasthenic temperament, first seen in December, 1898. For many years she had had attacks of pain in the upper abdomen. Two years before I saw her she had chills, pain and soreness in the pit of the stomach, clay-colored stools and jaundice, rise of temperature and chilliness at times (colangitis) lasting for months. Lost 15 lbs. in weight, but regained it in the following year. In the last 6 months wakeful, neuralgic, great pain in and about the abdomen, had much trouble with stomach, and got on to a restricted diet. In May, 1898, had jaundice again, with clay-colored stools, no vomiting, but pain in the stomach. These attacks recurred in September, October and November. There was emaciation, almost continuous jaundice, clay-colored stools, pain in the pit of the stomach, and a highly irritable condition of the nervous system. Seen in consultation with Dr. E. G. Cutler, who considered the jaundice due to gallstones, and advised operation. The operation was done on Feb. 14, 1899. The gall bladder was found surrounded by peritoneal adhesions, but it contained no gallstones. The ducts were carefully palpated, but no gallstones were found. The head of the pancreas was decidedly enlarged and much harder than normal. I drained the gall bladder, thinking the jaundice probably due to cancer of the pancreas. The gall bladder discharged a very dark, thick bile, which came out in clots for several days. In a week or 10 days the bile became more normal in color, and the jaundice gradually faded. The patient slowly improved. The gall bladder drained until May 7. She took phosphate of soda and salol pills with benefit, at Dr. Cutler's suggestion. After a decided improvement in general condition, attacks of pain and jaundice recurred, so that another operation was advised, which was refused by the patient. In June, 1899, a severe attack of pain and jaundice. In October, 1899, there was a decided improvement in her general condition. A little later another attack of pain, with slight jaundice. In January, 1900, there was a marked improvement in her nervous condition. After that she had a few slight attacks of pain, with slight jaundice. The last attack occurred in April, 1900. Since then no pain or jaundice; a great improvement in general health; gained 25 lbs. in weight. In April, 1901, she was perfectly well.

CASE II. The patient, a man 45 years old, entered the Massachusetts General Hospital on Feb. 15, 1901. With the exception of typhoid fever, 7 years before, he had always been a healthy man. During the last 5 years he has had attacks of severe pain in the epigastrium, accompanied by vomiting, and lasting 2 or 3 days. During 3 attacks he has been jaundiced. The pain started in the middle line and radiated up through both shoulders, and required from an eighth to a quarter of a grain of morphia. He has also had distress after eating, and occasional vomiting. The last attack occurred in the middle of December, and he has remained jaundiced ever since, the color becoming deeper during the last 10 days. He has noticed clay-colored stools for the last 4 weeks. The attacks of pain have become frequent in the last few weeks. He vomits regularly now after any solid food, so that he is obliged to live upon liquids; often raises gas from stomach. Pain usually comes on after eating. Has lost 30 lbs.

He was a large man, with a full abdomen, which was not distended. There was some tenderness in the epigastrium, on deep pressure. The liver area was normal. The pulse was full and slow, expression was dull. Cholemia was well marked. I waited several days, hoping the symptoms would improve, but the cholemia became more profound, and the operation was done on Feb. 19, as a last resort. The gall bladder was found moderately distended and contained about half a dozen small, mulberry-shaped gallstones. A stone was also removed from the cystic duct. The common duct was palpated, but contained no stone. The pancreas was found twice as large as normal, with exaggerated lobes, and more dense than normal. I

was in doubt whether this was malignant disease or chronic inflammation of the pancreas. The gallstones were removed, and a rubber drainage tube was fastened into the gall bladder. Bile came freely, and the jaundice slowly disappeared. The stools became normal in color on the sixth day. Pulse rose from 60 to 80 on the eighth day; the general condition was much improved. Two weeks after the operation the stools became clay-colored again, and the jaundice deepened. The drainage of the gall bladder continued for 1 month. The jaundice slowly disappeared, and the stools again became normal in color. He left the hospital 5 weeks after the operation, in fairly good condition.

Two months after the operation the patient reported in splendid health, having gained 13 lbs., and able to eat anything without distress.

In this case the chronic pancreatitis was undoubtedly caused by a colangitis, which had been set up by gallstones, a few of which were found in the gall bladder.

DR. E. G. CUTLER read a paper on

MYXEDEMA.

I have a patient with myxedema, whom I should like to show. The history is very brief. She has been under treatment for 2 weeks merely, and yet she presents a wonderful improvement. I have here a recent picture of the woman, which I will pass around. Her hair was very brittle, and coming out a good deal, the skin of her hands was dry, and of her face also. Her eyelids were puffy, and she had a flush on her cheeks, and pale elsewhere. The history is as follows: Fifty-eight years old. Entered the hospital March 21. Present illness began 15 years ago, after burns from the explosion of a kerosene lamp. There were general pains, listlessness, unambitions, headaches, irritable nerves, dizzy, and she had fainting spells, poor memory, voice harsh and masculine, and she was very susceptible to cold, and often wanted to sit with her feet in the oven, even in summer. She said she never could sweat. There has been a gradual increase in size and weight. When she came in, her hair was coarse, skin dry and rough, nails brittle, hands large, the face was very broad and large, and the very characteristic appearance of the nose, which was very broad, was quite marked, and her eyelids also were puffy, and her nostrils and lips were thick. She has been under treatment now since the 21st, with a three-grain tablet of thyroid every 8 hours, and she has got remarkably better.

DR. CUTLER: How do you feel compared to what you did when you first came in?

PATIENT: I feel very much better, sir, in some respects.

DR. CUTLER: In what way?

PATIENT: Well, the bloot is all out of my limbs. They are very much smaller.

She had great tabs of skin at the base of the neck. That is entirely gone, and her lids look a great deal better; also her hair looks better. Her hands are quite different from what they were. Still, they are not by any means perfect. She did not seem to be suspicious or troubled in that way, as some of these myxedematous people are; simply was irritable. Her looks have improved

wonderfully. Her cheeks have the color of health, which they did not have before, and the expression about her eyes has changed very markedly.

DR. SHATTUCK: She said she was better in some respects. In what respects is she not better?

PATIENT: I am troubled with inflammation considerably, troubled with my kidneys.

DR. CUTLER: Do you sleep better than you formerly did?

PATIENT: I think I do. My appetite has been poor these 4 or 5 days. I do not feel the cold as much as I did. I perspire a little occasionally. I have some hot flashes. If it was not for this inflammation I have, I feel as if I could do quite a day's work.

DR. CLARK: Was there any enlargement of the tongue when the patient came in?

DR. CUTLER: None was observed.

DR. CLARK: Was speech affected?

DR. CUTLER: It was rather scanning, not thick. She was rather deliberate in utterance; instead of being quick she was rather slow, rather dwelt on her words.

The other case is one in which I am very much interested indeed. He is a man from Finland, and he is the subject of tapeworm, bothriocephalus latus. I have never seen but one other case, so I thought I would show it. His history is as follows: He is a longshoreman, 24, born in Jacobstadt, Finland, and has had this tapeworm 12 years. Removal has been attempted 5 times, and at different times from 3 to 27 feet have come away; never, however, the head. As you remember, this worm has short, broad segments, and I have here some of them. If you hold them close to the light, you will see very nicely how the segments are narrow. I have here under glass a rather better showing specimen; on the right is one of the common beef tenia segments, and on the left is the bothriocephalus latus, showing the uterus and the ovary in the centre as little red dots. This worm is said to grow from 5 to 12 metres in length. It has a pencil-shaped head with 4 sucking discs and no hooklets, and it has from 3,000 to 4,000 joints. A pretty long worm. Twenty-seven feet coming away and no head shows his worm must be a pretty large one. Apparently it occurs in Switzerland and Northeastern Europe, and also it is found in Holland and Japan; said to be common in Munich. The worm is found in the intestine of man. The first development of the eggs takes place in water, and months afterwards an embryo develops armed with hooklets and covered with minute cilia. It has as intermediate host the pike or tadpole, and either in the muscles or intestines of these fishes develops as a sexless tapeworm. The mease of the bothriocephalus latus, according to some Italian observations in Italy, is found in the pike and in the river perch. It is found in a certain one of the Japanese fish, and quite a variety of fish in the lake of Geneva, most frequently in the tadpole and in the perch. The mease may also be brought to its development in the dog or the cat.

We have started on this man with the usual method of treatment, which we pursue in the tenia saginata or the tenia solium, the beef or the pork tapeworm, and we hope to get some sort of result. He has had no symptoms from the presence of the worm. There are some cases reported of pernicious anemia, where the blood characteristics — at least certain blood characteristics — have been found to follow when this beast has inhabited the intestine, and when he has been driven out the person has recovered from the symptoms of pernicious anemia. Exactly how the anemic condition is brought about in such instances is not clearly explained.

(To be continued.)

Medical Progress.

REPORT ON THE PROGRESS OF SURGERY.

BY HERBERT L. BURRILL, M.D., AND H. W. CUSHING, M.D.,
BOSTON.

EXPERIMENTAL AND CLINICAL RESEARCH ON THE APPLICATION OF PEROXIDE OF HYDROGEN IN SURGERY.

DR. B. HONSELL (Tübingen)¹ in this article represents his praiseworthy efforts in having placed on a scientific basis the status of H_2O_2 in surgery. As to its physiological and pharmaceutical properties, the author states that a 3% (weight) H_2O_2 causes marked changes in both fresh and defibrinated blood, provided it is mixed in sufficient quantities with ether. It kills infusoria and probably other isolated cellular elements. Living tissues suffer none by virtue of any chemical influence of the peroxide of hydrogen. Any damage may be traceable merely to mechanical action of liberated oxygen gas. The injection of H_2O_2 into the circulation, the peritoneum, or connective tissue, kills the animals, if sufficient peroxide be introduced. Death is caused by gas embolism of the lungs, nor could it be proven that death followed from any other cause. The application of H_2O_2 (5%) on free surfaces or open cavities causes neither local nor constitutional disturbances, no matter what quantities be used. More to the point, in its bearing on the modern antibacterial treatment of wounds, are the following conclusions of bacteriological experiments. A 3% H_2O_2 is the equivalent of a 1 to 1,000 sublimate solution acting on bacteria suspended in aqueous solutions, but H_2O_2 is superior to it in media, rich in albuminous fluid, and poor in cells; where the latter predominate, it is again on a par with solution of sublimate. The bacterial properties of 1.5% H_2O_2 is inferior to aqueous solutions of sublimate, but in media rich in albumin wanting in cells, it is superior to it. A 2% solution of acetate of alumina can in no way compete with H_2O_2 . If the bacteria are in organic fluids, the antiseptic power of H_2O_2 dimin-

¹ Annals of Surgery, 1901.

ishes in direct proportion to the extent of the catalysis of H_2O_2 effected by the respective solutions. In so far as we can draw conclusions from test-tube reactions, the powerful antiseptic action of H_2O_2 can be developed in urine and drinking water, provided decided quantities of albumin are not present; on the other hand, in conditions met with in wounds whose catalytic tendencies will be marked, no more effect will attend its application than the use of H_2Cl_2 , or acetate of alumina under like conditions.

At the clinic of Tübingen 1% solutions were used on granulating and suppurating surfaces. The experience of the author concurs in the main with the practical results claimed by L. Champignière for H_2O_2 , whence he concludes that H_2O_2 exerts a beneficial influence on the course of suppurating wounds, particularly putrid and gangrenous processes. On fresh operating wounds it causes neither local nor benign remote consequences. Foremost as the cause of its influence on septic processes is its mechanical action of foaming the secretions. The chemical action however of H_2O_2 , by virtue of its nascent oxygen, was not proved. Perhaps a direct action of H_2O_2 on the tissues may exist. The foaming effects a cleansing of the wound surface without any injurious action, wherefore its superiority over acetate of alumina or sublimate solutions. Whilst its hemostatic properties may make it available to the otorhinologist and the gynecologist, in the strictly surgical field a chemical hemostatic is no longer sought. As a deodorizer, it is instantaneous, powerful, and has no equal.²

SUBCUTANEOUS USE OF PARAFFINE.

An article by Mosskowitz³ describes the use of paraffine in this manner for various purposes. The writer attributes its alleged undesirable toxic effect to impurities. The inflammatory reaction to infection before encapsulation, he states, does not cause the clinical characteristics of inflammation. He reports 30 cases in which it has been used by his method, among which are noted the following: A case of incontinence of urine due to absence of the vesical sphincter. To restore speech in case of cleft palate. Imperfect sphincter and following rectal resection for cancer. To shut off the nasal from the oral cavity in hard palate defect. Two cases of cavities resulting from "fistula ani" operations. To close the inguinal canal in hernia cases. For cosmetic purposes with depressed cicatrices, sunken noses, smallpox scars, etc. (in the latter case a mixture of paraffine and olive oil was injected). Finally, to restore the contour of the chest, after rib-resection.

The technique of the operation and material used is thus described. The paraffine should melt at 26° to 10° C. It should have consistency at the ordinary room temperature. To consolidate it in the subcutaneous locality the site should be kept at rest. For this purpose pressure-motion,

etc., must be avoided. The article states that at present Gersuny is using ordinary vaselin, known as paraffine ointment, having the above-stated melting point. White vaselin of the shops is the same preparation. It is sterilized by boiling. In this state the syringe is filled, and the vaselin is then allowed to cool. Fine needles are used, and all injections made through a single opening. In this state the substance is forced out of the needle in a fine thread and is only to be used, in this state. The injections are made under local anesthesia. In denser tissues the anesthesia by Schleich method was produced before the paraffine was used.

WOUND INFECTION.

Genevet⁴ has, after studying this subject, written an article giving his results and describing his investigation.

In reading the article two points attract attention. He states that the aseptic condition of the hand ceases as soon as the perspiration begins, and that in this way many wounds are infected. That great care should be taken to prevent the infection from the cutaneous glands in the edge of the skin incision; to prevent access of their secretion into the wound. To prevent danger from the former source, he soaked the hands in a solution of tannin (20 to 1,000 solution) for 10 minutes before operating, or used rubber gloves where great manual dexterity was not required. Staphylococcus albus (pure culture) was found in the perspiration.

These results corroborate the investigations of others, notably Freeman.⁵

REMOTE RESULTS OF EXTIRPATION OF THE GASSERIAN GANGLION.⁶

F. Krause reports the treatment of 27 patients with excruciating trigeminal neuralgia by extirpation of the Gasserian ganglion. All were between 47 and 72 years of age, except 2 who were 30, and 3 between 41 and 46. In several the neuralgia has lasted for 22 years, and suicide seemed the only relief. All have been completely cured, without a twinge of neuralgia since. The first 6 cases were operated on in 1893. Ligature of the middle meningeal artery requires but a few seconds, while it affords much better chances for success and the avoidance of complications. The length of the operation depends on the hemorrhage,—in one case it prolonged the operation for 3 hours. The average time was 1½ hours, but some were completed in 20, 25 and 33 minutes. If the bone is sacrificed, 15 minutes are saved, and this is important in much debilitated patients. Three patients died, 1 from collapse in a few hours, an elderly woman, much debilitated and a great sufferer from chronic nephritis. The second death occurred 6 days after the operation, the patient, a man of 72, with pronounced arteriosclerosis and irregular heart action, which had

¹ Gaz. hebdom. de méd. et de chir., March 3, 1901.

² Transactions American Surgical Association, 1899.

³ Journal American Medical Association, Aug. 10, 1901; Muench. Med. Woch., July 9, 1900.

⁴ Beitr. zur klin. Chir., Bd. xxxvii, H. 1.
Klin. Woch., June 29, 1901.

compelled the postponement of the operation. The wound was healing smoothly, and the death occurred from heart failure. No cause could be discovered for the third death, which occurred 20 days after the operation,—a woman of 72,—the wound healing normally. In all the patients a portion of the trigemini had been previously resected with transient, if any, effect on the neuralgia. The resulting lagophthalmus rendered the condition unfavorable for the later operation, and caused trouble in a few cases; but he found that corneal ulcers, and even severe hypopyons, may finally heal. To prevent paralysis of the lower lid, Krause incises parallel with the fibres of the facial nerve. The cornea has to be protected only for the first few weeks. In several cases neuralgic pains have appeared in the other side, but the only sensory disturbances on the side of the operation are occasional twitchings and itching, with a rare brief burning sensation. Two patients complained of the absence of sensation in the half of the mouth and tongue, as a hindrance to mastication. In one case a mental disturbance was cured by the operation. In all cases in which the neuralgia is of a hysteric or neurasthenic nature, Krause refuses to operate. The details of each case are described in full in the article, which is concluded from the two preceding numbers.

WOUNDS OF THE VENOUS SINUSES.

H. R. Wharton⁷ gives an analysis of 75 cases of wounds of the venous sinuses of the brain, and makes the following deductions: (1) Wounds of the venous sinuses should be classed as among the more serious injuries, being followed by a high mortality from both extra- and intracranial hemorrhage and from infection; (2) they are especially liable to infection resulting in septic thrombus and pyemia; therefore, the greatest care must be exercised to render them aseptic, and to keep them so; (3) the most satisfactory and usually aseptic method in controlling the bleeding is by gauze packing; (4) ligation of the venous sinuses is a procedure of peculiar and definite difficulties, which prevent its employment, except in those free wounds where the sinus is fully exposed, and forbid its application in the ordinary accidents to the sinuses; (5) the tying of lateral ligature upon a sinus is much easier and less dangerous, but is available only in small wounds; (6) the suturing of small wounds of the sinuses is also a very valuable means of hemostasis, but cannot be used, except when a small wound is freely in view; (7) forceps pressure is a very ready means of controlling hemorrhage from one of these channels, but has its own peculiar dangers, and has really no distinct advantage over the other methods.

DIFFERENTIATION OF A DIVERTICULUM IN THE ESOPHAGUS.

W. Zweig⁸ gives the following: Systematic rinsing out of the diverticulum is the only means to prevent stagnation of food in it and consequent

disturbances. Faradization, sounding and all other measures are useless, according to Zweig's experience. The cardiospasm causing the so-called idiopathic dilatation of the esophagus, on the other hand, should be treated by systematic, repeated sounding, and the atony of the esophagus dispelled by local faradization. The existence of a diverticulum is frequently suggested by the anamnesis, and study of the sounds made in swallowing shows that the second sound is absent or much modified. The diverticulum can be easily diagnosed by inserting two stomach-tubes with several perforations at the tip. The first almost inevitably finds its way into the diverticulum. When the second is then introduced, it passes directly into the stomach. The capacity of the diverticulum is determined by estimating the amount of stagnated food evacuated from it. The same quantity of a solution of methylene-blue is then introduced through the first tube into the diverticulum, where it remains. Slowly withdrawing, then, the second tube,—which has passed into the stomach,—not a trace of the blue fluid will be evacuated through it, and the tube will not be stained with the blue at any point. In case of a mere dilatation of the esophagus, on the other hand, the colored fluid will pour out from the top of the tube as it enters the esophagus, and the stain will be very conspicuous at the tip.

SEPTIC ENDOCARDITIS.

Lenhartz⁹ asserts that 4 recovered out of 38 cases of septic endocarditis at the Hamburg General Hospital, and 1 patient is still under treatment. In 22 cases the endocarditis was acute, lasting from 4 days to 8 weeks, 11 days being the average of 18 cases. In 16 cases the disease assumed a chronic course of between 3 and 7 months. Few physicians are aware of the fact that septic endocarditis can run such a protracted course. In Huebner's wide experience he has seen but 4 chronic cases, the duration ranging from 4 to 9 months. In 12 patients there were evidences of old valvular defect, but in 2 of these the recent extensive vegetations were at points remote from the old, once at the aorta and once at the tricuspid. In 3 other cases of severe sepsis, the blood swarming with streptococci during life, and innumerable metastases, in spite of old, extensive endocarditis, there was no trace of recent valvular lesions. In 11 cases the fatal endocarditis followed an injury of the urethra, in 7 from the introduction of a catheter, bougie, or something of the kind, and in 4 fresh gonorrheal lesions. In 5 it followed the puerperium, in 5 croupous pneumonia, and in 2 each, angina and cholecystitis, with inflammation of the portal vein. Loeb has recently collected 62 cases of endocarditis after gonorrhea, including a number of recoveries. Lenhartz observed 1 case,—a housemaid, 16 years old, with violent, acute gonorrhea for 8 weeks, when suddenly severe general symp-

⁷ Annals of Surgery, July, 1901.

⁸ Wien. klin. Woch., March 7; Journal of American Medical Association, May 4, 1901.

⁹ Journal American Medical Association, Aug. 10, 1901; Muench. Med. Woch., July 9, 1900.

toms appeared, dyspnea and oppression in the cardiac region, with an unusually loud systolic and diastolic murmur at the base of the heart, chills and intermittent fever. Gonococci were still numerous in the secretions. The abnormal murmurs disappeared on the tenth day, and the patient recovered. In another, a fatal case, the autopsy—after 8 weeks' illness, with high, intermittent fever, chills and abrupt changes in the temperature, of 4 to 5° C.—showed extensive ulcerative endocarditis of the pulmonary valves, from which pure cultures of the gonococcus were derived. In 1 of the 5 cases of endocarditis subsequent to croupous pneumonia, the patient, a woman of 54, had apparently recovered from the pneumonia by the eleventh day, although pneumococci had been found in the blood the seventh day. After 5 days of almost normal temperature and 2 days of the prodrome, a severe chill was followed by fever of 40.6° C., and a loud heart murmur was audible above the sternum.

The autopsy revealed an ulcerative endocarditis of the tricuspid, with enormous thrombotic deposits and fresh suppurative meningitis. Pure cultures of pneumococci from the blood developed 1,000 to 2,000 colonies in 1 c.c. In 3 other cases the endocarditis followed a nonfebrile period of 2 to 5 days. The patients were all between 48 and 54 years of age. Bacteriologic investigation of 28 cases disclosed the staphylococcus in 8, the pneumococcus in 9, the streptococcus in 10, and the gonococcus in 1, as the cause of the endocarditis. In the chronic cases the blood showed the same bacteria each time, after intervals of 2 to 4 weeks, the number of colonies ranging from 68 to 450 in 1 case, consecutive to the puerperium; from 98 to 276 in another, consecutive to a mechanical injury to the urethra; and from 75 to 2,000 colonies of the streptococcus parvus in a case consecutive to angina. The streptococcus parvus was found 6 times.

Anemic and suppurative infarcts may coincide even in the same organ, and consequently do not differentiate any special infection; but if the above-mentioned bacteria are found in the blood, the septic character of the infection is established; while their absence classifies the endocarditis as of rheumatic origin. In genuine rheumatism the investigation of the blood and joint effusions has always been negative, but the symptoms indicate a specific agent. Pseudorheumatism may be induced by various germs, and complicate numerous diseases,—scarlet fever, diphtheria, etc.,—but has nothing to do with genuine rheumatism. In chronic septic endocarditis the affection commences occasionally with a chill, but more often with merely general depression and fatigue in the limbs. Circumscribed pains are at times noted in the vicinity of the joints, aponeuroses and similar points. The illness of the subject early impresses those around him, but he may resist the increasing prostration until chilliness or severe erratic chills, with violent fever, compel him to keep his bed. The pal-

lor, enlargement of the spleen, heart murmurs and general appearance are the only objective signs that can be detected, except the frequent retinal hemorrhages.

DEORTICATION OF THE LUNG FOR CHRONIC EMPYEMA.

Dr. George Ryerson Fowler¹⁰ gives the following conclusions: (1) Decortication of the lung is an operation adapted to all cases of old empyema, in which extensive and preoperatively discoverable tuberculous lesions of the lungs are not present, and in which the patient's condition will permit of a major operation; (2) it may be advantageously substituted for Estlander's operation, in the majority of instances in which the latter has been considered, up to the present time, as being indicated, since it is a more rational procedure, in that it combines the advantages of restoration of function of the lung, so far as this is possible, with closure of the empyemic cavity; (3) it should replace Schede's operation in all cases; (4) the method by extirpation of the diseased portion of the pleural membrane, including the visceral, cortical and diaphragmatic portions, is the operation of choice; (5) failing this, visceral pleurectomy should be selected; (6) pleurotomy, with simple detachment of the visceral layer of the diseased pleural membrane, gives sufficiently good results to warrant the surgeon in resorting to this procedure in cases in which the condition of the patient will not permit of the application of the other and more desirable methods; (7) whatever operative method is adopted, as complete access to the cavity of the chest as possible should be obtained, and rapid closure of the opening in the chest wall afterward secured, since the complete re-expansion of the lung must depend largely upon the normal respiratory movements; (8) pulmonary and respiratory exercises should not be neglected in the after-treatment, since these aid greatly in the restoration of the function of the lung.

OPERATIVE TREATMENT OF PULMONARY TUBERCULOSIS.

Sarfert¹¹ reports, in regard to the results of surgical treatment, that they are not encouraging. Too much must not be expected. Effort should be made in case of concealed foci to avoid, if possible, mixed infection. After this is present, the focus should be removed if possible. In case of cavities the small ones may heal spontaneously; the large ones do not. The caseous coating of the wall contains various micro-organisms. The dilated vessels also are liable to rupture and hemorrhage. The result is extension of infection. Attempts at local disinfection are more injurious, according to the writer, than beneficial. Drainage causes outlets either too small to be efficient or so large as to interfere with expectoration. Sometimes a small cavity is opened and a large one missed; also, pyopneumothorax produced. In other cases the disease has been too

¹⁰ Medical News, June 15, 1901.

¹¹ Deutsch. Med. Woch., Feb. 11, 1901.

far advanced. If the operation is to be successful it should be done (as has been advocated by some surgeons in cases of joint resection) in the early stages of the disease. The resection of a rib (preferably the first), so as to open well the thorax, is advocated.

Examination by dissection of 150 tuberculous cadavera, to determine the operative conditions and indications, resulted in the recommendation of the following method: An incision over the second rib, from the sternal border, 10 to 11 cm. long. The space (the acute angle) between the fibres of the pectoralis major and minor opened, the divided vessels ligated, and the origin of the serratus magnus separated from the rib. The second rib is then exposed as far as the border of the axilla, which exposes the axillary artery and vein. The periosteum of the rib is now incised in its long axis, elevated on its external and pleural surfaces, the cartilage, as well as the bone, exposed. Next the rib is resected, care being taken to avoid opening the anterior mediastinum. The pleura is next separated from the thorax by blunt dissection, usually with the finger. This procedure at times requires considerable force. The pleural cavity is not to be opened. As a rule it has already been obliterated by the disease process. When the lung apex is exposed extrapleurally, it is to be examined to determine the site, size and other characteristics of the cavity. This examination is made by inspection, palpation and exploratory puncture. The cavity is opened by a Paquelin cautery. Its interior is inspected, especially its relation to bronchi and other cavities. If necessary its parietal vessels are ligated. The cavity is now packed.

Safert reports a case in which this technique had been followed. The conditions were found to resemble those seen in the cadaver. The patient was a woman, aged 40; site of disease, the right apex. The loss of blood was slight. There were dense adhesions found after the resection of the second rib. The size and position of the cavity was determined by palpation. The main cavity and a smaller one were packed. The result was that the space between the apex of the lung and the thorax wall filled with granulations. The hectic fever ceased. There was no more hemoptysis. The wound healed by granulation, till at the end of 3 months a small depression in the centre of the granulating area, 3 cm. in diameter, alone marked the site of the operation. The patient died 5 months after the operation; cause: intercurrent pneumonia in the left lung, lower lobe. Post-mortem, was found at the right apex a mass of connective tissue and a few scattered tubercles.

(To be continued.)

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

REGULAR meeting, March 18, 1901, Dr. E. H. BRADFORD in the chair.

Dr. J. L. GOODALE read a paper entitled

THE CORRECTION OF OLD DISPLACEMENTS OF THE NASAL BONES.¹

Dr. LANGMAD: I can only say that these photographs show the amount of correction and what the cosmetic value of it was. It seems a very perfect condition.

Dr. DEBLOIS: I think Dr. Goodale's minutiae of operation is wonderful; the results that he has obtained also. The only trouble is that in this very delicate operation very few men can do it. Dr. Roe of Rochester, a great surgeon on the nose, did wonderful operations in sliding the septum in different directions; but no matter how minute his directions, nobody else could ever follow them. This matter of sliding bones has probably been done better by the dentist, Dr. Goodwillie of New York, than by anybody else. Of course the great danger in all these operations, where the septum is cut through *entirely*, is that of sloughing. In perforating the septum with the ordinary comminutor, I think it is the usual custom to introduce wire between the blades, so that they shall not close entirely. Dr. Goodale, I think, carried that out with his idea of following the soft teeth with the finger. I should think, however, by the time you *felt* the teeth, the teeth would be through the mucous membrane, it being so delicate. It is a most interesting operation, and one requiring a great deal of mechanical skill, besides surgical tact.

Dr. COOLIDGE: I congratulate Dr. Goodale upon this operation; it marks an advance in our dealings with nasal bones. We used to hammer them with a mallet, without previous sawing; they looked very straight at first, but six months after the splints were off they had often returned almost to their original position. By this operation the lines of fracture are just where they are wanted.

Dr. CLARK: I saw one of the cases which Dr. Goodale reports. It was the one in which he made the ingenious use of a septal ridge, to fill a depression of the nose in the manner he has just described. I am very much interested in Dr. Goodale's method of operating on old displacements of the nasal bones. I have here some photographs of two cases, on which I operated last summer for nasal deformity, employing this method. The first was a lateral deviation of the nasal bones, accompanied by a tremendous deviation of the cartilagenous septum. I sawed through the nasal bones in the way described by Dr. Goodale, except that I entered the saw outside the

¹ See page 538 of the Journal.

A CENTENARIAN.—Caleb Baldwin, stated to be the oldest man in Newark, N. J., died in that city on Oct. 27, at the age of 102 years. He was born at East Orange, N. J., and was the son of a soldier in the Revolution.

nasal bone, under the skin, and sawed inward. The result in this case is a much straighter nose, although the tip still turns a little to the left. This could be remedied by a slight operation on the cartilaginous septum, if desired.

The second case I have already reported at a clinical meeting at the Massachusetts Hospital this winter. The members of this society who were not present at that meeting, may be interested to see the photographs. It was an operation for exaggerated Roman nose by Dr. Goodale's method, and, as the photographs show, the result was very satisfactory.

DR. LANGMAID: I would say that any one who has not come in contact with the patients whom Dr. Goodale operated on, probably has no idea of the length of time consumed in doing his operations. That is not said with any idea of criticising the operations, but they are not done at one fell swoop. They are worked over for weeks and literally for months, a little done today and a little tomorrow. I speak of it, because by knowing it we may be able to interpret some of his methods of operation and know how he gets his results.

DR. GOODALE: The only thing I have to say is in regard to Dr. Langmaid's remark about the cases he has seen which have been operated on by Dr. Roe. In my own cases a certain number have shown a moderate discomfort afterwards; they felt as if they had had a blow on the nose; the feeling passed off in 36 hours. The young man with lateral displacement, whose photographs I have shown, I operated upon one afternoon, leaving directions for him to stay in bed until I returned. When I went to the house the next day the family were away. He rode up on his wheel while I was waiting for him.

Internal derangement of the nasal tissues does not result from the operation. I do not believe a rhinologist examining the nose after the operation would find anything out of order; that is, not anything more than before the operation. The nasal bones are simply brought into the middle line; there is no loss of tissue, and no scar-tissue visible.

In answer to a question by Dr. Langmaid, whether he had seen any tendency to closure of the nostril from agglutination of the parts, Dr. Goodale said that, after the operations on lateral displacement, he had seen nothing of the sort. In a case with bilateral depression there was a tendency for passage to close by a fibrous strand. This strand was cut, and the passage remained open.

In answer to a question by Dr. Cobb, whether in the case of lateral displacements he had found it necessary to use any sort of splint, except in the one case spoken of, Dr. Goodale said he thought a splint was always required, and that the success of the operation depended very largely upon the faithfulness with which the splint was worn.

DR. J. S. STONE read a paper on

CLEFT PALATE.²

DR. C. B. PORTER: I do not know that I can add anything to what Dr. Stone has given, except possibly personal experience. I think it is very important, before an operation for cleft palate is done, that the cavity of the nose should be rendered as clean as possible, and after operation the nose and the mouth especially as clean as possible. I have done the Langenbeck operation almost exclusively, but in swinging the flaps inward, I have in two or three cases relieved them entirely in front because, when the arch is high, it is very difficult to insert stitches just behind the alveolar arch.

I always use a diaphragm, and have felt it was the secret of the success I have had. That necessitates, as Dr. Stone has brought out, waiting till the child has teeth enough to keep the plate in place. I think an important point is that, until the child has reached the age of having teeth, you can get no assistance from them in regard to the after-treatment.

I have never cut the bony hard palate. I have always been able to lift up a sufficient flap so that, when thoroughly released from its attachment from the hard palate, it would come together on the middle raphe.

There are a few practical points in reference to the operation: First, to see that the flaps shall be made to swing readily towards the middle, so that when stitched together they adhere without tension. Another important point is not to tie the sutures too tightly. They cut through if tied too tightly. The swelling of the soft tissues causes the threads to cut through, and you often have a number of little openings, which will close, to be sure, afterwards by granulation, but that is one of the faults.

I have had one experience in operating on a baby without teeth, and in which no diaphragm was used. That patient was watched with the greatest possible care, and was about to leave the hospital with a fairly good palate, and not under the nurse's eye at the time, as the child had been up to that time. The mother had come to take the child home, and gave the child a crust of bread to suck, with the result that the palate was suddenly torn open. I made up my mind I would never again operate on a child so young.

I think great care should be used in keeping the mouth clean. Dr. C. A. Porter has recently operated successfully on cleft palate, in which he stuffed the nostrils, to make the child breathe through the mouth constantly. The child had to keep the mouth open, and that kept the wounded surface dry. I should think it was an important addition to the technique of the operation.

I have heard from a number of cases from time to time, the friends expressing the greatest satisfaction. I remember a symposium on this subject in the old building a few years ago, when some of the dentists showed their artificial appliances, and some of my cases were shown. One of the cases was a teacher in another city. No one suspected she had been operated on for cleft palate, her enunciation was so perfect. She was operated on in girlhood, when 14 or 15 years old.

² See page 539 of the Journal.

I have heard recently from a case in Vermont, where a small boy was operated on, just old enough to carry the diaphragm; the mother wrote me that for the first few years after the operation she had taught him herself at home, because she did not want to have the children make remarks about his speech, but during those years he had learned to speak with such perfection that he now went to school, and neither his teachers nor playmates had any idea he had had an operation done for the closure of the palate.

I think the closure of the hare-lip should be done at the very earliest time possible, perhaps the first week after birth, if the child is strong. I have operated in recent years in the Rose position, and, although the hemorrhage is more troublesome than in the upright position, the conditions are certainly to my mind much better. The field of operation is much larger. There is no danger of the blood getting into the trachea. I certainly feel it is an operation which brings a great deal of comfort, even if the soft palate is pretty rigid. I have one case in mind where the patient did not speak very well at first, but he said the relief of not having his meals get into the nose three times a day was sufficient to make him willing to go through the operation again. Dr. Stone spoke of massage. I have used it in a number of cases, having the patient learn to put the thumb into the mouth and push the soft palate back, gaining a great deal of flexibility of the soft palate, and thereby in the perfection of the speech. At first massage cannot be used, but later, when the wound is firm, a great deal can be gained by its use.

DR. LANGMAD: At one time I was so disappointed with the results of operation for cleft palate that I ceased to recommend it, and preferred the appliances, but a case of Dr. Porter's, shown in this society perhaps a year ago, among others very imperfectly done, was enough to convince any one that the operation, properly done, as that was, was the thing to be done. In that case there was no tension,—the only case I ever saw in which the palate hung loosely, as the palate should, and the velum was without tension, also. There is no doubt that that child, with proper instruction, perhaps without any, would speak as if he never had cleft palate. I am glad to publicly express my admiration of such a result.

Dr. Stone has said that in all cases there is posterior adenoma. I don't know how true that may be in childhood. It is not so in adults, because I have seen many cases where an obturator has been used, and in only a few cases have I seen much adenoma. In almost every case there is tremendous hypertrophy of the lower turbinates, and Dr. Stone is quite right, according to my idea, in saying that if the adenoma was there it would be better not to take it out, because it would help in approximation of the veil of the palate to the posterior wall of the pharynx. I have long been of the opinion that this hypertrophy of the turbinates has been of great me-

chanical service when an obturator was used, and therefore I let them alone. I have thought that, after the apparatus had been worn long enough, it might be well to remove some portion of the turbinate, but I have not seen such a case.

DR. COOLIDGE: The question of removing adenoids in these cases is important. We used to suppose that, if there was an adenoid, it should necessarily be taken out. The main body of the adenoid hypertrophy is above the part of the pharynx with which the soft palate comes in contact, but the removal of a mass perhaps half an inch thick will make a larger naso-pharyngeal cavity. I am persuaded that in these cases it is better to leave the adenoid alone, to keep the space between the back wall of the pharynx and the palate as small as possible.

Recent Literature.

Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. By W. SIMON, Ph.D., M.D., Professor of Chemistry in the College of Physicians and Surgeons of Baltimore, etc. Seventh edition, thoroughly revised, with 66 illustrations, 1 colored spectra plate and 8 colored plates representing 64 chemical reactions. Philadelphia and New York: Lea Brothers & Co. 1901.

This book is intended for the use of medical students. It treats of most branches of chemistry, including inorganic chemistry, qualitative and quantitative analysis, organic and physiological chemistry, and also physics. All of these are treated in a very elementary, and at the same time incomplete and unscientific, manner. It is too elementary for an advanced student who has had previous chemical training, and too incomplete to be serviceable to an entirely untrained student.

The first part, devoted to physics, is not scientific or systematic. So important a subject as energy receives but a few lines of consideration, while space is taken up with other topics of minor importance. With the exception of the law of gravitation, Boyles Law, and the law of conservation of energy, the fundamental laws of physics are omitted. The very important laws of motion, which lie at the foundation of physical science, are not even mentioned. In his statement of the law of the conservation of energy, the author states "that all the different forms of energy are convertible one into the other without loss," thus ignoring totally the very important second law of thermo-dynamics.

In the chapter on electricity the explanation of the galvanic cell is unintelligible. In the same chapter, in the author's explanation of the electrolysis of water, he says that what appears at cathode is cathion, while what appears at anode is anion. We know that what does appear at the

cathode is molecular hydrogen and not the ion hydrogen; what appears at the anode is molecular oxygen and not the hydroxyl ion. This chapter is written for an absolutely ignorant student; still the aim is not reached, as such a student could not get a clear idea of physics from it.

The chapter on general and inorganic chemistry is fairly good.

Analytical chemistry is treated in a very unsatisfactory manner. In his introduction the author says that this book can be used as a laboratory guide. Only 4 pages are devoted to the qualitative separation of bases, while but 2 are devoted to the detection of acids. The methods are given in a tabular form. Every one knows how unsatisfactory these tabular forms are for students.

Organic chemistry is treated in a very unscientific and unsystematic manner. The author endeavors to give definitions for certain classes of bodies, such as alcohols, aldehyds, acids, etc. These definitions do not give any idea of the relation of the different classes to each other. The modern nomenclature of organic bodies is not described at all. The alkaloids are not classified, and nothing is said concerning their chemical constitution. The section on physiological chemistry contains numerous misstatements and errors.

The Principles of Hygiene. A Practical Manual for Students, Physicians, and Health Officers. By D. H. BERGEY, A.M., M.D., First Assistant, Laboratory of Hygiene, University of Pennsylvania. Philadelphia and London: W. B. Saunders & Co. 1901.

This illustrated octavo volume of 495 pages is intended to meet the needs of students of medicine in the acquirement of a knowledge of those principles upon which modern hygienic practices are based, and to aid physicians and health officers in familiarizing themselves with the advances made in hygiene and sanitation in recent years. The book is based on the most recent discoveries, and represents the practical advances made in the science of hygiene up to date.

Among the important subjects considered are: Ventilation, Heating, Water and Water Supplies, Disposal of Sewage and Garbage, Food and Diet, Exercise, Clothing, Personal Hygiene, Industrial Hygiene, School Hygiene, Military and Naval Hygiene, Habitations, Vital Statistics, Disinfection, Quarantine, etc. The idea of the book is to give the reader a clear understanding of the general principles of this broad subject.

The table on page 253 should have been omitted, as having little or no sanitary significance. It was abandoned a dozen years since in the reports in which it first appeared. According to this table the average age of students at death is 23.7 years, and that of inn-keepers 51.6 years, or more than twice as great. But as a matter of fact students constitute a far healthier class than inn-keepers, when measured by the true standard of healthfulness; that is, the ratio of the number of deaths out of the number enrolled or occupied in any given class or occupation.

Syphilis and other Venereal Diseases. By H. DE MEYER, Member of the Royal College of Surgeons of England; Surgeon to the French Hospital, London; Member of the Société d'Hygiène de Paris; Corresponding Member of the Société de Dermatologie et de Syphilographie de Paris, etc. New York: William Wood & Co. 1901.

This is a small book which contains 15 short chapters, each devoted to some stage or complication of one of the 3 venereal diseases. These chapters have no systematic arrangement, and bear no relation to one another, so that the book is made up of a series of short talks on various topics pertaining to venereal disease. It contains little that is new, and much that most surgeons of today would not approve; for example, the treatment of acute urethra discharges with bougies of iodo-form; but all the chapters bear testimony to the author's large experience and complete familiarity with his subject.

The last two chapters in the book, on the Prophylaxis of Syphilis and the Contagious Diseases Acts, are of interest and value, and really justify the publication of a book which surely cannot hope to attract a very large class of medical readers.

Nervous and Mental Diseases. By ARCHIBALD CHURCH, M.D., and FREDERICK PETERSON, M.D. 8vo, pp. 869, with 322 illustrations. Third edition, thoroughly revised. Philadelphia: W. B. Saunders & Co. 1901.

The fact that a third edition of this work has been called for within two years indicates that it has attained to a considerable degree of popular favor. The changes in the new edition are confined chiefly to the section on nervous diseases, and consist of the addition of a number of illustrations, several useful tables, and paragraphs on some of the rarer nervous affections, such as asthenic bulbar paralysis, family periodic paralysis and the like. The section on mental diseases is practically unchanged, except for the insertion of a paragraph containing Mott's views as to the relation between general paralysis and syphilis. In spite of the fact that the work has reached its third edition, it is by no means a satisfactory manual on the subject, the section on mental diseases being especially defective.

Grundriss der Schulhygiene. von OTTO JANKE. Hamburg and Leipsic. 1901.

This excellent work, now in its second edition, presents the subject of school hygiene, first from the standpoint of the environment of the scholar, to which six chapters are devoted upon the location, the school edifice, water supply and drainage, the schoolroom, the furniture, instruction, (hours of attendance, vacations, home study, etc.). The second portion (chapter seven) is devoted chiefly to the diseases of children of school age, infections and otherwise, the care of the eyes, etc.

The book is concisely written, yet every topic relating to school hygiene appears to be included in this work of about 300 pages.

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ADMINISTRATIVE EFFICIENCY IN MEDICAL DEPARTMENTS.

WITH the time approaching for a change in the executive heads of the medical departments of the army and navy, it is important to recognize the altered conditions which the events of the last few years have brought about in relation to the duties and responsibilities of these offices. Circumstances have determined that both the army and navy shall be much larger and more complete departments of the public service than has heretofore been the case. This means greater difficulty of management of each branch of the enlarged organization, and naturally will demand men of the highest ability, if the work is to be accomplished to the satisfaction of the public at large. In a recent editorial on "Administrative Efficiency," the *Army and Navy Journal*, commenting on the situation, says: "The period is past when simple routine work will be required of bureau chiefs. No longer will it be possible to regard the appointments of professional heads of departments as assignments that can be given senior officers in rounding up their tour of active duty."

It is clear that the qualifications demanded of these highest medical officials in the service of the government are diversified, and with difficulty obtainable in the person of any one man. This fact, however, should stimulate to greater, rather than to less, care in the selection.

If one were to attempt to designate the qualifications of such an officer, the following attributes would at once suggest themselves: In the first place, he should be not merely an executive man of detail, but also be capable of looking into the future with sufficient clearness to define a policy of development in his department. The ability to initiate intelligently, and carry out successfully, far-reaching plans for the improvement of a med-

ical service is a qualification which is sure to be demanded. To this end it is necessary that the incumbent of the office should be in perfect sympathy with scientific methods of research, and, so far as possible, be himself a man habituated to accurate thought and close reasoning. Otherwise the ability to inspire good work in subordinates, and to be critical of their methods and results, could not be expected. The ability to select subordinates with judgment, and to direct their work into useful channels, can only come from a personal apprenticeship in research, and from a man who, through experience and training, has come to be a good judge of other men. Such an ability is, in a measure, a natural consequence of familiarity with questions of large public concern. He should also be a man still in the active period of life, whose ideas are capable of readjustment to changing events. For example, he must, through actual experience or special study, be familiar with the exigencies of war, as well as with the exacting, but wholly different, conditions of peace. His department from top to bottom should be maintained in a state of preparedness for sudden, and perhaps unexpected, outbreaks of hostility. The versatility which is demanded by the sudden change from the routine of peace to the extraordinary emergencies of war is possibly not easy to find, but is none the less essential on that account.

It is becoming more and more evident, as experience accumulates, that the needs of the future medical department of armies and navies will require men skilled not only in surgical technique, but particularly in the broader fields of prophylactic medicine, which may be included under the general heading of hygiene. To prevent disease, and if it appears, to check its spread with energy and intelligence, is the absolute essential of a well-organized medical department. The officer in chief control should therefore be a student of practical hygiene, and be able from personal knowledge to understand the requirements of his department, that it may have the maximum of efficiency in the difficult task of preventing devastating disease. To accomplish this end the system must be flawless in times of peace, and always forearmed against possible emergencies.

Personal dignity and popularity, the insistence with Congress upon the rights of his department, among which might be mentioned a generous support of the Army Medical Museum and Library, are qualities which will further ensure a successful administration of his office.

As we have before suggested, the attainment of such qualifications in any complete and well-proportioned degree is perhaps not to be expected in one man; nevertheless, it is to such a man, if he can be found, that we may look for a completely

successful administration. The search is worth making.

In view of the manifest difficulties in the way of securing an individual uniting, in an eminent degree, in his single person all the qualifications we have touched upon, it has been suggested¹ that the head of a medical department might find the advice and support of a board of expert councilors, drawn from civil life, of much utility. The action of the British Government in the South African War, and of the German Government in respect to Von Bergmann, tends to show the availability of such a suggestion.

THE CAMPAIGN AGAINST MOSQUITOES.

No doubt it will be many years before there is an appreciable diminution in the number of mosquitoes in the world at large, but it seems none the less apparent that it is possible to eradicate them in definite localities. Work done in Hong Kong, Staten Island, New York and Havana, shows what may be accomplished by vigorous measures, intelligently carried out in the light of our present knowledge. An interesting pamphlet is before us, being the "First Progress Report of the Campaign against Mosquitoes in Sierra Leone," under the general charge of Ronald Ross and the Liverpool School of Tropical Medicine.

After the completion of his work several years ago, regarding the conveyance of malaria by mosquitoes, Ross concluded that the logical method of eradicating the disease was to exterminate the conveyors of the malarial parasite. Efforts to induce the authorities of municipalities to undertake the work proved unavailing, and it was therefore not until May, 1901, that a beginning was made, rendered possible by private liberality. Freetown, Sierra Leone, of 30,000 inhabitants, was chosen as the site of the experiment, and Mr. Logan Taylor of the pathological laboratory of Glasgow University was appointed to superintend the work. Freetown was thought to be especially favorable for the purposes of the experiment, owing to the fact that it had already been surveyed by the Liverpool School of Tropical Medicine and by the Royal Society, and also because the nature of the soil, and the heavy rainfall, rendered the tests conclusive.

On arriving at Freetown, work was begun without delay on all varieties of mosquitoes, but chiefly against the genus *anopheles*, the conveyors of malaria, the genus *stegomyia*, associated with yellow fever, and the genus *culex*, which have long been known to carry *filaria nocturna*, causing elephantiasis. Twenty men were engaged under in-

telligent heads, and a few others, with the necessary carts and implements, were added. One gang, known as the "culex gang," collected from private houses broken bottles and buckets, empty cans, and similar vessels, in which culex and stegomyia are known to breed. A larger gang devoted itself to draining pools and puddles in the streets and back yards of the houses, in which anopheles breed. With the force of men available, it was found that the "culex gang" could clear about fifty houses daily, and destroy the larvae, which were numerous at the rainy season, in which the work was undertaken. The occupants of the houses welcomed the gang, and were gratified to be rid of their rubbish, often a collection of years. The "anopheles gang" had a much more difficult task, since everywhere throughout the town were pools of stagnant water, wholly favorable for the breeding of the mosquitoes. These pools were treated in various ways, by filling them with earth, by draining them, or by treating them with petroleum and creosote, and brushing them out with brooms. In spite of the excessive rainfall during the progress of the work, the results were plainly satisfactory. By the latter part of September the "culex gang" had cleared 6,500 houses, and had removed probably more than a thousand cartloads of rubbish. The total number of workmen finally employed was 53.

With the cessation of the rains, the work must assume a new phase, which will consist chiefly in attacking the drying water-courses, and will involve many problems which the extermination of mosquitoes during the rainy season does not present. So far as results up to the present may be estimated, it appears that there has been a decided diminution in the number of mosquitoes in the town, though any exact statements are impossible to make. Dr. Taylor writes, on the 28th of September: "The mosquitoes are still on the decline, and, in the streets we have been working in, it is exceedingly difficult to find *anopheles* now. Of course in the untouched parts they are still to be got. As for the *culex* (or *stegomyia*, to be correct) they have got a fright. They also are getting very scarce. The true *culex* I seldom see; only now and again. What this means in a tropical town only those who have resided in such can know."

It was certainly a bold undertaking to attempt the extermination of mosquitoes in a town of 30,000 inhabitants in the tropics, practically unaided by the local authorities. The result of the experiment is, of course, not yet apparent, nor can it be for some time to come; nevertheless the feasibility of the methods employed has been demonstrated, and the possibility shown, even under adverse conditions, of exterminating mosquitoes in a whole-

¹ Journal, cxxix, p. 583.

sale manner. Dr. Ross is to be congratulated on the fact that this experiment is the first one ever carried out on a large scale with the object of ridding an entire town in the tropics of mosquitoes. It is also probably the first instance of public sanitary measures being undertaken by private agency and by means of private funds. Remarkings on the work accomplished, Dr. Ross says:

It may be advisable to correct some popular errors regarding the operation of clearing mosquitoes. No one has ever supposed it possible to exterminate mosquitoes from whole continents, or even from large rural areas—the operation must be confined principally to towns and their suburbs. No one imagines that it will be possible to exterminate every mosquito, even from towns—we aim only at reducing their numbers as much as possible. No one supposes that it will be invariably possible to drain, or otherwise treat, every breeding-place of mosquitoes in a town; but even where every place cannot be dealt with, it will always be possible to deal with a very large number, and it often happens that the smallest and most easily drained or emptied puddles or pots breed the greatest number of mosquitoes. Mosquitoes may possibly be carried into towns from a large distance by winds, though I doubt whether there is much or any reliable evidence in favor of this view; but, as a general rule, the vast majority of mosquitoes existing in a town are bred in the streets, yards, gardens, and houses of the town; and if we get rid of these breeding-places we may calculate on at least greatly reducing the insects in the town. These are the simple principles upon which our efforts are based.

Such experiments as the one recorded do much toward encouraging others, and already signs of activity are apparent in various places, looking toward a systematic extermination of disease-carrying mosquitoes. It should also be borne in mind that individuals everywhere may do much toward helping on the good work by learning something of the habits of the mosquito, and how and at what stage it may best be killed.

MEDICAL NOTES.

GLASGOW FREE FROM PLAGUE.—It is believed that bubonic plague, of which a few cases have recently occurred in Glasgow, has been eradicated. The last case of the disease reported was placed in hospital Nov. 1, and the period of incubation has expired.

HIGH DEATH-RATE IN ALASKA.—It is reported that the natives of Western Alaska are rapidly dying from an epidemic disease, at first thought to be smallpox, but later proved to be measles.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Nov. 13, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases:

Diphtheria 63, scarlatina 25, measles 118, typhoid fever 11, smallpox 29.

BOSTON MORTALITY STATISTICS.—The number of deaths reported to the Board of Health for the week ending Nov. 9, was 207, as against 208 the corresponding week last year, showing a decrease of 1 death, and making the death-rate for the week 18.8. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 45 cases, 2 deaths; scarlatina, 22 cases, no deaths; typhoid fever, 19 cases, no deaths; measles, 86 cases, 3 deaths. The deaths from consumption were 30; pneumonia, 17; whooping cough, 3; heart disease, 19; bronchitis, 4; marasmus, 4. There were 12 deaths from violent causes. The number of children who died under 1 year was 32; under 5 years, 46; persons more than 60 years, 51; deaths in public institutions, 64.

SMALLPOX IN BOSTON.—The Board of Health is experiencing considerable difficulty in checking the spread of smallpox, owing to carelessness in reporting, or failure in recognizing, incipient cases. Several cases have been reported to the authorities so late in the course of the disease that many persons have been exposed to contagion, which, with greater vigilance, might have been avoided. A number of new cases have appeared during the week, but there is ample provision for their care, and for all cases that are likely to arise.

BEQUEST TO THE FLOATING HOSPITAL.—The Boston Floating Hospital has received a gift of \$10,000 from the estate of the late Frances Mary Mackay. The money is to be held as a permanent fund, the income to be used for current expenses. Authority is given, however, to the corporation to apply \$5,000 of the above amount to the purchase or construction of a new hospital boat for its own needs, when the corporation shall be in position to make such purchase or proceed with such construction.

NEW GARBAGE CONTRACT.—The New England Sanitary Product Company and the city of Boston have entered into a new 10-year contract for the disposition of the city's garbage. The new plant, as before stated, will be placed on Spectacle Island, Boston Harbor, and construction will be started at once. This action was taken under the order of the City Council appropriating \$140,000 for the removal of the garbage plant from Calf Pasture.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Nominating Committee of the Suffolk District was re-elected *in toto* at the stated meeting of Oct. 26, 1901; namely: Drs. John Homan, J. Collins Warren, J. W. Farlow, C. W. Townsend and

Paul Thorndike. The section secretaries for the year are: Medical Section, Dr. H. F. Hewes; Surgical Section, Dr. F. B. Lund; Obstetrical and Gynecological Section, Dr. W. H. Grant.

NEW YORK.

HOSPITAL NOT BOUND TO FURNISH ITS BEST NURSE.—The action brought by Helen D. Ward against St. Vincent's Hospital, New York, to recover damages for unskilful treatment at the hands of an incompetent nurse, which has been tried twice (the second time resulting in a substantial award for the plaintiff), was passed upon again on Nov. 8 by the Appellate Division of the Supreme Court. The complaint alleged that Miss Ward contracted with the authorities of the hospital to be furnished with a skilful and experienced trained nurse, or an experienced professional nurse, which the defendant failed to do. After an operation, while Miss Ward was still under the influence of an anesthetic, a nurse selected to attend upon the patient applied to her leg a rubber bag, containing water heated to such a degree that serious and permanent injury was caused. Judgment on the first trial was reversed because the trial justice misconstrued the action to be one in tort and not on contract. The Appellate Division, on an appeal from the judgment for the plaintiff at the second trial, now orders a reversal because of errors in the charge to the jury. After the general charge the defendant asked the court to instruct the jury that, no matter what was said by the plaintiff and her sister, Mrs. Howland, and by the sisters at St. Vincent's, the defendant was not bound to assign to the plaintiff the best nurse in the hospital, but only a nurse who was ordinarily well trained and ordinarily competent and skilful. On objection by counsel for the plaintiff, the court refused to charge as asked by defendant's counsel. Justice Patterson, for the Appellate Division, says that this part of the charge was erroneous. "The defendant," he states, "was entitled to the instruction that the defendant was not bound to assign to the plaintiff the best nurse in its hospital. The testimony of Mrs. Howland respecting the higher grade of nurse came into the case only in consequence of it being necessary to prove the whole conversation, and the defendant's counsel was particularly careful in his efforts to prevent its affecting the minds of the jurors. It is quite obvious that testimony of the higher obligation may have been very influential with the jury in producing the verdict."

SMALLPOX AT NEWARK, NEW JERSEY.—There has been a sudden and somewhat alarming increase in cases of smallpox at Newark, N. J., and, in consequence of the overcrowded condition of

the Isolation Hospital, Health Officer Chandler, on Nov. 7, made arrangements to have a large tent erected on the grounds adjoining the hospital, for the accommodation of convalescent patients. At that date there were 63 cases in the wards, the proper capacity of which is less than 50. On the same day the Board of Health had a special meeting, and to meet the emergency it was determined to put up 3 portable buildings at the hospital. In the evening the Common Council placed at the disposal of the Health Department the sum of \$20,000 to fight smallpox, and of this amount \$7,000 will be spent for the portable buildings mentioned.

DISPUTE OVER LOCATION OF A NURSES' HOME.—The refusal of the special term of the New York Supreme Court to grant John Moller an injunction restraining the Presbyterian Hospital from erecting on 71st Street, west of Park Avenue, a building to be used as a home for trained nurses connected with the hospital, has now been upheld by the Appellate Division. Mr. Moller claimed that the property on which it was proposed to build the home was restricted to private houses. Justice Ingraham, who gives the court's opinion, reviews the chain of title and finds that only the property on Park Avenue is restricted to private dwellings. The property in question is free from incumbrances, except a covenant against nuisances. Justice Ingraham says: "The building that is to be erected by the defendant upon this property is to be used as a residence for the nurses engaged in hospital work, and there is nothing to justify the conclusion that a building so used would be any more obnoxious to the neighboring inhabitants than a building used for any other class of persons. . . . It cannot be disputed that an ordinary apartment house or a properly conducted hotel would not be within this covenant. Nothing appears to justify an inference that this use of the property would be any more objectionable than that of an apartment house or a hotel."

Obituary.

J. M. RICE, M.D.

Dr. J. M. Rice died in Worcester, Nov. 11, at the age of 74 years. He was born in Milford, N. Y., took his degree in medicine at Castleton, Vt., in 1853, studied abroad a year, and settled in Worcester in 1854. He went out as surgeon of the Twenty-fifth Massachusetts Volunteers in 1861, and served through the war as regimental, brigade and division surgeon, medical director of the Eighteenth Corps upon the staff of Gen. W. F. Smith, and as medical inspector of the Army of the James. He was a prisoner in Libby, but was subsequently exchanged. He was a member of the Massachusetts Medical Society, Worcester District Medical Society, Massachusetts Legio-Medical Society, American Medical Society of Paris, Royal Geographical Society of London. He was coroner and medical examiner

of Worcester district for 33 years, and chairman of the board of pension examiners for the Worcester district.

Correspondence.

[From our Special Washington Correspondent.]

REOPENING OF THE ARMY MEDICAL SCHOOL IN WASHINGTON, D. C.

WASHINGTON, Nov. 10, 1901.

MR. EDITOR: The sixth annual session of the Army Medical School began on Nov. 4, 24 young medical officers having been ordered up for instruction. The curriculum is planned to supplement the usual course of instruction given in the medical colleges, and render the surgeon, fresh from civil life, better fitted to cope with the conditions peculiar to the military service. The members of the faculty, together with their subjects, are as follows: Col. Charles Smart, Assistant Surgeon-General, Professor of Military Hygiene and Sanitary Chemistry; Col. Calvin DeWitt, Assistant Surgeon-General, Professor of Military Medicine; Maj. John Van R. Hoff, Surgeon, Professor of the Duties of Medical Officers in War and Peace; Maj. Walter Reed, Surgeon, Professor of Pathology and Clinical Microscopy; Maj. L. A. La Garde, Surgeon, Professor of the Results of Gunshot Injuries; Maj. W. C. Borden, Surgeon, Professor of Military Surgery; Capt. F. P. Reynolds, Assistant Surgeon, Instructor in First Aid and Hospital Corps Drill; Capt. E. L. Munson, Assistant Surgeon, Assistant Professor of Military Hygiene. The names of the faculty are well known to the profession, and several of them also hold professorships in civilian medical colleges. A course of auxiliary lectures will also be given the student officers by Gen. George B. Davis, Judge-Advocate General, U. S. Army, on "Military Law"; by Prof. C. W. Stiles, Department of Agriculture, on "Parasites in Man"; and by Dr. Robert Fletcher, F.R.C.S. England, on "The Army Medical Library."

The order of duties, daily except Saturdays, Sundays and holidays, includes instruction in the pathological laboratory, 9 A. M. to 12 M.; instruction in the chemical laboratory, 1 P. M. to 2.50 P. M.; and a lecture from 3 P. M. to 4 P. M. on one of the subjects mentioned above. The hours for instruction in operative surgery and ophthalmology, and for the auxiliary lectures, have not as yet been announced. On Saturdays the class of student officers is instructed at the Army General Hospital, Washington Barracks, D. C., from 9 to 11.30 A. M., in hospital corps drill, first aid and horsemanship. In its character and scope the instruction given is similar to that given to medical officers of the British army at Netley, and to those of the French army at Val-de-Grace. The instruction is continued over a period of 5 months, after which the graduates are sent out into active service with troops.

The location of the school at the Army Medical Museum in Washington, D. C., is very fortunate, since the extensive laboratories maintained in connection with that institution are available for use in the work of instruction, while the resources of the Army Medical Museum and Library, with its vast collection of books and specimens, enables the study of military medicine, surgery and hygiene to be carried on to the best advantage. At the same time, the presence of the company of instruction of the Hospital Corps at Washington Barracks, and the General Hospital at that station, enables the student officers to familiarize themselves with hospital corps drill, the handling of enlisted men, and the methods of military hospital service administration.

The establishment and operation of the school is one of the many advances which have been made under the administration of Surgeon-General Sternberg, and it is much to be hoped that the sessions of the school—interrupted for several years by the exigencies of the war with Spain and in the Philippines—may be continued annually in the future.

METEOROLOGICAL RECORD

For the week ending Nov. 2, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer	Relative humidity		Direction of wind	Velocity of wind	Weather	Rainfall in inches.
	Daily mean.	Daily mean. Maximum. Minimum.	Daily mean.					
			8.00 A.M. 5.00 P.M.	8.00 A.M. 4.00 P.M.	8.00 A.M. 8.00 P.M.	8.00 A.M. 8.00 P.M.		
S...27 30.15	57	65 49 66	74	65	S W	N	12 10	C. O.
M...28 30.53	44	50 39 38	77	75	N W	E	10 5	C. C.
T...29 30.41	45	50 36 32	79	82	N W	S	5 8	C. C.
W...30 30.42	52	64 40 36	74	80	N W	S	2 11	O. C.
T...31 30.24	60	71 49 81	74	75	N W	W	9 12	C. C.
F...1 30.08	57	65 49 40	68	74	N W	W	12 9	O. C.
S...2 30.14	50	57 42 70	69	74	W	N	9 9	C. C.
Mar 30 31	60 43		75					.92

☁ O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall.
☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOV. 2, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria and croup.
New York . . .	3,457,202	1,054	310	26.37	10.81	1.90	6.67	2.75
Chicago . . .	1,686,555	—	—	—	—	—	—	—
Philadelphia . . .	1,293,697	415	85	21.20	11.32	.36	.48	2.80
St. Louis . . .	575,238	—	—	—	—	—	—	—
Baltimore . . .	508,957	178	61	21.91	8.43	1.12	2.81	1.12
Cleveland . . .	314,765	—	—	—	—	—	—	—
Buffalo . . .	362,387	—	—	—	—	—	—	—
Cincinnati . . .	325,902	—	—	—	—	—	—	—
Pittsburg . . .	321,616	125	35	21.40	21.60	7.20	2.40	3.20
Washington . . .	285,315	—	—	—	—	—	—	—
Milwaukee . . .	285,315	—	—	—	—	—	—	—
Providence . . .	155,597	71	22	26.61	8.46	2.82	12.69	1.41
Boston . . .	560,892	178	53	28.10	11.24	1.09	6.74	1.69
Worcester . . .	118,421	40	19	12.50	2.50	2.50	2.50	—
Fall River . . .	104,863	40	19	20.00	22.50	2.50	10.00	—
Lowell . . .	94,969	38	19	39.46	15.78	2.63	7.89	13.15
Cambridge . . .	91,886	22	8	22.72	13.63	—	4.54	13.63
Lynn . . .	68,713	17	4	5.88	11.76	—	—	5.88
Lawrence . . .	62,559	16	7	18.75	6.25	—	—	—
New Bedford . . .	62,442	17	6	5.88	5.88	—	5.88	—
Springfield . . .	62,059	14	4	21.04	5.26	—	—	10.52
Somerville . . .	61,643	16	4	18.75	18.75	—	—	—
Holyoke . . .	45,712	14	8	7.14	14.28	—	—	7.14
Quincy . . .	40,063	8	—	—	—	—	—	—
Haverhill . . .	37,173	9	—	11.11	—	—	—	11.11
Salem . . .	36,056	10	—	10.00	—	10.00	—	10.00
Chelsea . . .	34,072	17	5	17.65	—	5.88	—	5.88
Malden . . .	33,664	6	3	16.67	—	—	—	—
Newton . . .	33,587	1	1	14.30	—	—	—	—
Fitchburg . . .	31,631	4	—	—	14.30	—	—	—
Taunton . . .	31,036	10	—	40.00	10.00	—	—	—
Gloucester . . .	26,121	10	3	30.00	—	—	—	—
Everett . . .	24,236	8	4	25.00	—	—	—	—
North Adams . . .	24,200	4	—	—	—	14.30	—	—
Quincy . . .	23,809	4	—	—	—	—	—	—
Waltham . . .	23,181	1	1	14.30	—	—	14.30	—
Pittsfield . . .	21,766	15	12	80.00	20.00	20.00	—	40.00
Brookline . . .	19,035	—	—	—	—	—	—	—
Chicopee . . .	19,167	1	5	—	—	—	—	—
Melrose . . .	18,244	1	—	—	—	—	—	—
Newburyport . . .	14,758	3	—	33.33	—	—	33.33	—
Melrose . . .	12,962	—	—	—	—	—	—	—

Deaths reported 2,411; under five years of age, 692; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases), whooping cough, erysipelas, fevers and consumption 584, acute lung diseases 263, consumption 285, scarlet fever 20, erysipelas 4, typhoid fever 17, whooping cough 9, cerebrospinal meningitis 9, smallpox 18, measles 8, diarrheal diseases 108.

From whooping cough, New York 6, Philadelphia, Baltimore, Pittsburg 1 each. From cerebrospinal meningitis,

New York 4, Baltimore, Boston, Worcester, Fall River, Lawrence 1 each. From scarlet fever, New York 6, Philadelphia 4, Baltimore 2, Pittsburgh 4, Boston and Salem 2 each. From typhoid fever, New York 20, Philadelphia 4, Baltimore 2, Pittsburgh 3, Providence 2, Boston 3, Worcester, Fall River, Lowell, Salem, Chelsea, Pittsfield and Clinton 1 each. From erysipelas, New York 2, Lowell and Everett 1 each. From smallpox, New York 4, Philadelphia 12, Boston 2.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Oct. 19, the death-rate was 16.8. Deaths reported 3,684; acute diseases of the respiratory organs (London) 195, whooping cough 30, diphtheria 71, measles 81, fever 39, scarlet fever 47.

The death-rate ranged from 10.3 in Derby to 28.9 in Gateshead; Birkenhead 14.5, Birmingham 19.7, Bolton 16.1, Brighton 14.3, Bristol 11.1, Burnley 14.5, Cardiff 11.7, Croydon 11.2, Hull 14.9, Leeds 17.3, Leicester 14.2, Liverpool 19.5, London 16.0, Manchester 18.7, Newcastle-on-Tyne 26.9, Oldham 15.6, Plymouth 15.0, Portsmouth 15.7, Preston 17.5, Salford 21.9, Sheffield 17.5, Swansea 15.4, West Ham 17.8, Wolverhampton 19.9.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING NOV. 2, 1901.

R. T. ORVIS, assistant surgeon. Detached from the "Pensacola" upon reporting of relief, and ordered home and to wait orders.

U. R. WEBB, assistant surgeon. Ordered to the "Pensacola" as relief of Assistant Surgeon R. T. Orvis.

F. ROGERS, medical inspector. Having been examined by a retiring board and found incapacitated for active service on account of disability incident thereto, is retired from active service, Oct. 28, 1901, under the provisions of Section 1,453, Revised Statutes.

D. O. LEWIS, surgeon. Detached from the "Philadelphia," ordered home, and granted sick leave for 3 months.

R. T. ORVIS, passed assistant surgeon. Commissioned passed assistant surgeon from May 27, 1901.

G. L. ANGEVY, passed assistant surgeon. Commissioned passed assistant surgeon from Sept. 16, 1901.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—There will be a regular meeting of the Section for Clinical Medicine, Pathology and Hygiene in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, Nov. 29, at 8 P.M.

Dr. G. C. Smith, "Suggestion in Medicine." Discussion of the value of the various methods of treatment by suggestion by Drs. Putnam, Prince, Baldwin, Taylor. Dr. George Badger, "A Case of Raynaud's Disease."

H. F. HEWES, M.D., Secretary.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of the society will be held in Sprague Hall, Medical Library Building, 8 The Fenway, on Monday, Nov. 18, at 8.15 P.M.

Papers: Dr. W. E. Blodgett "Autoclavation of the Knee Joint"; Dr. George G. Sears and Dr. Larabee, "The Consideration of 900 Cases of Pneumonia."

ARTHUR K. STONE, M.D., Secretary,
543 Boylston Street.

BOYLSTON MEDICAL SOCIETY.—The meeting-place of the society has been changed to the Medical Library. The meetings are held every Friday evening at 8.15 o'clock from October to January. Every other Friday from January to May. Past members are cordially invited to attend.

HENRY L. ROWDITCH, Secretary,
372 Marlboro Street.

RECENT DEATHS.

DR. GEORGE FRANCIS SWAN of New York, a graduate of the University and Bellevue Hospital Medical College in the class of 1899, died on Nov. 5.

JOSEPH MARIE RICE, M.D., M.M.S.S., died in Worcester, Nov. 11, 1901, aged 74 years.

BOOKS AND PAMPHLETS RECEIVED.

A Waiting Opportunity. An Open Letter to Moneyed Americans. Reprint. 1901.

A Method of Blood Antisepsis. By G. G. Taylor, Chicago. Reprint. 1901.

Nasal Surgery. By B. Merrell Ricketts, Ph.B., M.D., Cincinnati. Illustrated. Reprint. 1901.

On Experimental Glycosuria. By F. W. Pavy, M.D., LL.D., F.R.S., Consulting Physician to Guy's Hospital. Reprint. 1901.

Endo-Cardiopathies; with Critical Notes and New Figures. By Thomas E. Satterthwaite, M.D., New York, N. Y. Reprint. 1901.

The History and Work of the Saranac Laboratory for the Study of Tuberculosis. By E. L. Trudeau, M.D., Saranac Lake, N. Y. Illustrated. Reprint. 1901.

General Considerations of Treatment of Placenta Previa. By Charles P. Noble, M.D., Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Reprint. 1901.

The Transactions of the Medical Society of the State of California. Thirty-first Annual Session, Sacramento, April, 1901. Vol. XXXI. Published by the Society.

The Physiological Action of Drugs. An Introduction to Practical Pharmacology. By M. S. Pembrey, M.A., M.D., and C. D. F. Phillips, M.D., LL.D. London: Edward Arnold. 1901.

Twentieth Annual Report of the State Board of Health of New York for the Year ending Dec. 31, 1899, with maps accompanying the same. Albany, N. Y.: James B. Lyon. 1901.

A Textbook of the Practice of Medicine. By James M. Anders, M.D., Ph.D., LL.D. Illustrated. Fifth edition, thoroughly revised. Philadelphia and London: W. B. Saunders & Co. 1901.

Fibroid Tumors of the Uterus, Their Relation to Diseased Adnexa. Origin of Fibroid Tumors. When is the Proper Time for Their Removal? By Mary Dixon Jones, M.D., F.R.C.M.S., New York City. Reprint. 1901.

A Laboratory Course in Bacteriology for the Use of Medical, Agricultural and Industrial Students. By Frederic P. Gorham, A.M. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

The Principles of Hygiene. A Practical Manual for Students, Physicians and Health Officers. By D. H. Bergey, A.M., M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

The Doctor's Fee. A Plea for Honorable Dealing. By John B. Roberts, M.J., Ex-President of the Philadelphia County Medical Society, Ex-President of the Medical Society of the State of Pennsylvania. 1901.

Röntgen Rays in the Treatment of Diseases of the Skin. A Review of Recent Literature and a Personal Experience. By William Allen Pusey, A.M., M.D. Illustrated. Reprint. 1901.

The New Formation of the Female Urethra; with Report of a Case. By Charles P. Noble, M.D., Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Illustrated. Reprint. New York: William Wood & Co. 1901.

Human Physiology, Prepared with Special Reference to Students of Medicine. By Joseph Howard Raymond, A.M., M.D. Second edition, entirely rewritten. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

Atlas and Epitome of Special Pathologic Histology. By Docent Dr. Hermann Dierck. Authorized Translation from the German. Edited by Ludwig Hektoen, M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

The History of the Development of Medical Science in America as recorded in the American Journal of the Medical Sciences. An Historical Study. By H. R. M. Landis, M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in Medicine and Science. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. III, September, 1901. Awarded Grand Prize, Paris Exposition, 1900. Philadelphia and New York: Lea Brothers & Co. 1901.

History of Medicine. A Brief Outline of Medical History and Seats of Physicians, from the Earliest Historic Period, with an Extended Account of the new Schools of the Healing Art in the Nineteenth Century, especially a History of the American Eclectic Practice of Medicine, never before published. By Alexander Wilder, M.D. First thousand. New Sharon, Me.: New England Eclectic Publishing Co. 1901.

Original Articles.

AN INVESTIGATION OF THE BOSTON ICE SUPPLY.

BY HIBBERT WINSLOW HILL, M.D., BOSTON,

Director of the Boston Board of Health Bacteriological Laboratory.

UNDER instructions from the Board of Health, the investigation of the Boston ice supply was undertaken in 1898. In that year a report was made, pointing out 3 ponds the sanitary conditions of which did not meet with approval. Action was taken in these cases. Ice dealers were thereafter required by a regulation of the board to make annual returns to the board.

In 1901 the investigation was continued further. Recognizing that chemical analyses alone would be of no practical sanitary value, inspections of the sources of supply were authorized by the board, and were made by Mr. Jordan, chief sanitary inspector, and the writer. During the course of these inspections the ice-houses were visited, and samples of ice secured for analysis. So much of the analytical work as is of value in arriving at the sanitary condition of the ice supply is given beyond.

SOURCES OF NATURAL ICE IN 1901.

Supply.	Nearest town.	Area. Acres.	No. of tons cut.
MASSACHUSETTS SUPPLIES.			
Charles River.	Boston.....		40,000*
Strong's Pond.	Boston.....	10-15*	12,000
Kibler's Pond.	Boston.....	10*	1,000
Pope's Pond.	Milton.....	20*	12,000
Turner's Pond.	Milton.....	20*	12,000
Hammond's Pond.	Newton.....	24	8,000
More's Pond.	Wellesley.....	38	20,000
Wigwam Pond.	Dedham.....	32	10,000
More's Pond.	Walpole.....	10-20*	2,000
Washakum Pond.	So. Framingham.....	93	20,000
Lake Quannapowitt.	Wakefield.....	264	70,000
Horn Pond.	Woburn.....	91	25,000
Great Pond.	So. Weymouth.....	288	25,000
Warren's Pond.	Littletton.....	40	30,000
Sandy Pond.	Ayer.....	80	30,000
Silver Pond.	Plympton.....	728	20,000
Mirror Pond.	Wilmington.....	38	40,000**
Rock Pond.	Hudson.....	46	40,000
Chebacoo Lake.	Georgetown.....	43	15,000*
Wenham Lake.	Hamilton.....	239	15,000
Maple Spring Pond.	Beverly.....	255	15,000
Great Pond.	Jefferson.....	25	10,000
Massapoag Lake.	No. Andover.....	621	10,000*
Flint's Pond.	Sharon Heights.....	400	30,000
	No. Grafton.....	2	25,000
NEW HAMPSHIRE SUPPLIES.			
Country Pond.	Newton Junction.....	60*	25,000
Lake Paugus.	Lakeport.....	2,600*	18,000
Lovell's Pond.	Sanbornville.....	1,900*	70,000
Milton, 3 Ponds.	Milton, 3 Ponds.....	60*	30,000**

* Estimated.

** Said to be retailed for preserving fish exclusively.

NOTE.—While this list may be considered reasonably accurate as representing the sources of this year's supply of ice, it must be remembered that minor sources occur from year to year, although as a whole the sources of supply remain fairly constant.

Two places listed as ponds in the above (Kibler's and Pope's) are not permanent ponds, but merely hollows which are flooded each year in the autumn.

ponds and the Charles River in Massachusetts. The Massachusetts ponds are nearly all within 30 miles of Boston. Two ice ponds and the Charles River are partly, or wholly, within its limits.

A list of these supplies, giving certain particulars, is shown in the foregoing table.

Outline of natural ice business in Boston.

The natural ice shipped into Boston from a distance is loaded, for retail purposes, into ice-wagons directly from the cars. From the few ice-houses in Boston, the ice is generally taken directly into wagons.

Eight ice companies cut, store and sell their own ice at retail for domestic purposes. Another company cuts its own ice for the fish trade. Four or five buy their ice from outside sources, and three others cut ice for wholesale purposes chiefly. Some of the retail ice dealers sell also wholesale to small companies, who in turn retail it. Thus the ice cut originally by about 15 different companies is sold ultimately through about 23, or more, different companies or dealers. Moreover, the various dealers buy or borrow from each other more or less freely, as they may require ice to meet an emergency shortage.

The total amount sold in Boston annually is estimated at 300,000 to 400,000 tons, representing about 75,000,000 to 100,000,000 gallons of water; about equivalent to 1 to 2 days' tap water consumption in the city of Boston. A large proportion of this is used for domestic refrigerator purposes. Only a small proportion is actually consumed in food or drink.

Pollution of natural ice.—As was pointed out in a former report (1900), ice, unlike water and milk, cannot, practically speaking, become contaminated in transit. Any pollution which it may contain must usually have been incorporated with it at some time during the freezing process. This pollution may be present in the water just previous to freezing, it may be deposited on the surface of the ice and be frozen on, or, if flooding be employed, it may be frozen into the new ice thus formed above the old. Finally, it is a far-fetched possibility that pollution deposited in the ice-houses may, by the subsequent melting and refreezing of the ice about the edges of the blocks, become attached to the blocks. Such contamination, if it occurred, would almost certainly be removed in the process of cutting out the blocks from the houses, and if not then, in the subsequent shrinkage during transit.

Practically, then, only two methods of pollution need be considered,—the freezing of the ice from polluted water; and the flooding of the ice, once formed, with polluted water with the subsequent freezing of the same.

Danger from polluted water supplies.—In this country the danger from polluted waters is practically only that due to the presence of the typhoid bacillus. Other water-born diseases are practically unknown here. Of course, lead poisoning occurs at times, but this does not enter into consideration when surface water supplies, unpiped, are in question. Since typhoid bacilli

The ice supply is derived at present from both natural and artificial sources. The former consist of 4 ponds in New Hampshire, and about 24

are closely associated with sewage, it is properly considered that no water is fit for human use, as a water supply, if human sewage, or the bacteria therefrom, reach it undestroyed.

Sanitary investigation of water supply.—In a populous district no surface water, and little ground (subsoil) water, unless taken from a considerable depth, is absolutely free from some remnants of human waste. The soluble constituents of the human waste, especially in districts unprovided with a thoroughly good system of sewage disposal, leach through the soil and reach the ground and surface waters to a greater or less extent. These soluble constituents are, however, practically harmless in themselves, and are so changed in their passage through the soil as to become largely quite different bodies. The bacteria present in the sewage are usually removed by this process of natural filtration. One of the principal indications of the presence of this filtered and changed sewage in a water is the chlorin content of the latter as compared with the chlorin content of unaffected waters in the same regions.

as to the pollution or nonpollution of the supply by human sewage, the directness or indirectness of the same, and the subsequent purification, if any. It is easy to show that this information cannot be obtained by analysis of the ice, as it may often be done by analysis of water, for the reason that the amounts and proportions of the various constituents in the water, from which the ice came, are very much changed in the ice itself, and changed also according to no fixed rule, so that the chemical composition of the ice, when determined, permits no reliable inference as to the composition of the water from which it came. This point is illustrated by the following ice analyses from our own work, compared with water analyses made by the State Board of Health from the same ponds, and also analyses of water and ice made by the State Board of Health in 1889.

It is true that it cannot be said of any of these comparative analyses, that the ice was frozen from water of exactly the same content as that given for the water, but the error is so slight as to be negligible. The general statement that the water,

TABLE I.
Comparison of Water and Ice from the Same Sources.

Color.	Total Solids.	Loss on Ignition.	Free Ammonia.	Album. Ammonia.	Chlorin.	Nitrates.	Nitrites.	Source.	Kind.	Date.
.74	3.65	1.75	.0008	.0179	.53	.0025	.0000	Great Pond	Water	'89 Av.
1.02	2.40	2.40	.0004	.0220	.40	.0020	.0000	"	Ice	'89 Jan.
.00	1.20	.80	.0000	.0010	.91	.0030	.0000	"	Water	'90 Jan.
.13	5.37	1.70	.0043	.0180	.73	.0063	.0002	Wenham	Water	'90 Av.
.13	5.50	1.70	.0012	.0100	.76	.0030	.0001	"	"	'90 Jan.
.00	2.10	1.50	.0032	.0074	.37	.0040	.0000	"	Bubbly ice	'01 Jan.
.00	.60	.60	.0018	.0010	.91	.0030	.0000	"	Clear ice	'01 Jan.
.03	1.65	1.00	.0042	.0040	.15	.0010	.0000	Mirror	Water	'90 Mar.
.00	1.48	.56	.0018	.0011	.05	.0030	.0001	"	Bubbly ice	'01 Jan.
.00	1.20	1.00	.0008	.0034	.94	.0040	.0000	"	Clear ice	'01 Jan.
.50	14.20	3.00	.0080	.0440	.74	.0050	.0018	Blackstone River	Water	'89
.00	3.25	1.10	.0052	.0176	.10	.0050	.0003	"	Ice	'89
1.10			.0038	.0450	.54	.0010	.0003	Hammond's Pond	Water	'89
.00	.75	.29	.0000	.0012	.00	.0030	.0000	"	Ice	'89
.25			.0172	.0240	.57	.0030	.0007	Horn Pond	Water	'89
.00	1.26	.56	.0010	.0028	.02	.0000	.0000	"	Ice	'89

Sewage reaching a water directly, without passing through the soil, will raise the chlorin content also, but the unchanged, or only partially changed, character of the other constituents, indicated by the ammonias and nitrates principally, serve to show the differences in the manner of access. These distinctions are most important, because of the potential harmfulness of the direct access, and the usual innocence of the indirect, depending respectively on the removal and nonremoval from the sewage of its bacteria. (See Tables II and III for chemical results, indicating the changes in natural and artificial filtration.) So important is the whole matter, that it is by no means sufficient to analyze the water alone. A very careful examination and consideration of all the factors involved, and full information as to the physical conditions existing, is necessary to a conclusion of value.

Ice supply investigation.—The sanitary value of the examination of an ice supply depends principally on the knowledge which can be obtained

and the ice frozen from it, show little relation to each other in chemical composition, holds true. The changes are in favor of the ice, indicating greater or less, but always considerable, purification of the same in freezing.

Confining the discussion still to the relative chemical content of ice and water, it is interesting to compare the degree of chemical purification attained in filtration of a highly efficient form with that obtained by freezing. Here again, it is not possible to make the comparisons directly, but again the differences between the results of direct comparison and the figures given are negligible.

The chemical changes occurring in the Lawrence Filtration Plant are given in the Massachusetts State Board of Health Report for 1899, and are quoted below. It will be seen that the principal changes in the water after filtration are a great reduction in albuminoid ammonia and a great increase in the nitrates. This illustrates also the changes which occur in the natural

process of leaching through the soil, already described, and may be compared with the changes due to freezing already indicated by the figures quoted above (Table I).

An even more striking illustration may be given. Certain of the ice supplied to Boston is taken from the Charles River, opposite the filter gallery used for the Brookline water supply. It is in this instance possible, therefore, to compare directly the water of the river itself with the water after filtration, as supplied to Brookline, and with the ice from the river. It is true that the filtered water does not all come from the river itself, but is mixed with rain water, etc., through the ground. Allowing for this, however, and keeping in mind the Lawrence filter results already given (Table II), it will be seen that

TABLE II.
Comparison of Filtered and Unfiltered Water from the Same Source.

Color.	Total Solids.	Loss on Ignition.	Free Ammonia.	Album Ammonia.	Chlorin.	Nitrates.	Nitrites.	Source.	Kind.	Date.
29	3.59	1.49	0088	0232	24	0656	0003	Merrimac.	Unfil. water	'99 Av.
27	4.44	1.42	0087	0089	28	0205	0001		Fil. water	'99 Av.

ice from the Charles River presents smaller amounts of chemical constituents than the water supplied to Brookline after filtration, and that the percentage of removal is greater than that of the Lawrence filtered water.

TABLE III.
Comparison of Unfiltered and Filtered Water with Ice from the Same Source.

Color.	Total Solids.	Loss on Ignition.	Free Ammonia.	Album Ammonia.	Chlorin.	Nitrates.	Nitrites.	Source.	Kind.	Date.
.47	4.10	1.75	0066	0142	.33	.0110	.0000	Charles.	Unfil. water	'99 Jan.
.03	7.80	.0016	0036	.55	.0229	.0001	"	"	Fil. water	'99 Jan.
.00	2.44	.20	0014	0018	.01	.0040	.0000	"	Ice	'01 Jan.
.00	6.80	.50	0004	0020	.12	.0000	.0006	"	Ice	'01 Jan.

It must be understood, however, that this chemical purification is *in itself* of no sanitary value. The chemical constituents of these waters are *in themselves* harmless, and their presence or absence does not alter the sanitary purity of the water. It is only as they indicate changes in the composition of the water, that they indicate also, indirectly, its character and degree of purity. This principle lies at the root of all interpretation of chemical results. Purification of water by any process, if it is to be of real sanitary importance, must be not chemical but bacterial, consisting in the removal or destruction of the typhoid bacilli. This is the chief sanitary object of filtration.

Turning again to the Lawrence filter, as an example of filtration in general, the degree of removal of typhoid bacilli, should they be present,

has been very carefully estimated. The degree of removal of bacteria in general is well known, the average in 1899 being 99.05%. From Clark's investigations on *Bacillus coli*, which for these purposes is taken as an indicator of the behavior of the typhoid bacillus, the removal of bacteria in general would appear to be rather less than the removal of the typhoid bacilli under the same conditions, and the average bacterial efficiency for typhoid bacilli of the Lawrence filter in 1899 was actually (in round numbers) about 99.5%,—a highly efficient purification.

The reduction of typhoid bacilli in water by freezing has been carefully worked out by Sedgwick and Winslow and by Park. Beginning with a certain number of typhoid bacilli in the ice, after 3 weeks the percentage dead is the same as the percentage purification achieved in the Lawrence filter, and equivalent to a bacterial efficiency of 99.5%. Hence, ice known to be definitely infected with typhoid bacilli might, after standing 3 weeks from the date of freezing, be consumed with no more danger than that involved in drinking infected water after efficient filtration. Moreover, this degree of purification is that attained if the whole number of typhoid bacilli originally in the water be incorporated (as by flooding) in the ice. If, however, the ice be formed by the ordinary process of freezing downward from the surface, the mere act of freezing itself results in a diminution of 90% at least, by physical throwing out of the bacteria. The remaining 10% are reduced in proportion to the diminution above given, and in 2 weeks the percentage remaining in the ice, as compared with the number in the water originally, would give nearly the same purification as that of the filter. In 3 weeks the purification would be much greater.

Finally, Winslow has shown that typhoid bacilli in water kept just above the freezing point for 24 hours are reduced about 90%, thus furnishing an additional safeguard.

These considerations show that ice more than 3 weeks old is as sanitariously safe as a well-filtered water supply. Cases of typhoid fever, due to ice, might naturally be expected to occur, if at all, at the time immediately following the cutting of infected ice, and as this is done in January usually, after March at latest the ice could hardly be held responsible for any trouble, even were it known to be infected. Only a small proportion of ice is delivered to consumers at this time, the great bulk of the trade not beginning until May.

Opportunities for infection of ice.—Notwithstanding all the factors of safety inherent in the ice itself, there can be no question that the safety is not absolute. It is possible for ice to convey typhoid fever, if it should become polluted with typhoid discharges. Are the conditions of the Boston supply such that this possibility has any chance of realization?

The pollution of water with typhoid discharges does not render the water capable of transmitting

the disease for a subsequent period of more than 2 or 3 weeks, for in this time the bacilli die out. A water supply must, therefore, be infected within at most a month previous to the formation of ice, in order that the ice then formed may contain any living typhoid organisms. The ice for the Boston supply is cut about January and February, and the ice begins to form from 1 to 6 weeks earlier. Thus, the middle of November in Massachusetts, and the middle of September in New Hampshire, is usually the earliest date at which infection of a supply could possibly give rise to infection of ice. This practically eliminates from consideration infection resulting from summer residents, leaving for consideration the men employed in the ice-cutting operations, occasional visitors and permanent residents. The first number about 2,500 to 2,700, and most of these are present at the ponds only during the 10 to 20 days of the ice-cutting period, not arriving until the ice is formed, and departing as soon as it is housed. Occasional visitors, such as gypsies, hunters, etc., are not likely to be abundant at this time of the year, nor to be suffering from typhoid fever. Skaters are likely to be abundant, but not likely to be suffering from the disease, or to deposit their discharges on the ice in appreciable amounts. Permanent residents are as a rule few in number, and in no case was direct discharge of sewage from them into the supplies detected, with 1 or 2 possible exceptions. Even in these, the amount and character of the drainage was of little material moment.

Artificial ice.—The artificial ice supply of the city of Boston is derived principally from 2 plants, 1 turning out about 20 tons per day, the other at present about 125 tons. The processes are practically the same in both, although the mechanical devices differ somewhat. The following description applies to both. Two other small plants are also described, neither of which contribute to the retail trade.

The first 2 plants consist of an engine supplying the power for compressing the ammonia, the necessary pumps, etc. The exhaust steam from the engines is condensed by passing through pipes over which water is running. The water resulting is then conducted to tanks, where an outlet at the surface permits the drawing off or "skimming" of the oil from the engines, which comes over with the steam. The water thus skimmed passes to boilers, where it is heated again to drive off any air it may contain, the presence of which would otherwise make the ice finally formed very "bubbly," white and opaque like snow ice. The water is then filtered through charcoal and stored in a tank, from which it is drawn off by a hose into "cans" of copper or galvanized iron, about 40 inches deep and 20 inches wide. The upper open end of the can is about 9 inches across, the bottom slightly smaller for easing the withdrawal of the cake. These cans are set up in rows between lines of horizontal pipes containing the expanded ammonia, and both pipes and cans are surrounded with salt water. The ammonia cools the brine to 14° F. to 18° F., and the brine in turn cools the

water in the cans to about the same temperature, requiring from 45 to 48 hours for solidification. It is stated that, on removal of the ice from the cans, the temperature throughout the block rises rapidly to 32° F., provided that the temperature to which it is exposed is above this point. The water used is generally Boston tap water, although artesian well water is used at times in one plant. The Boston water supply is considered hygienically unimpeachable, and might with safety be frozen directly. It would, however, be opaque white from the contained air, and it is necessary from an esthetic standpoint to heat it to drive this off, if the freezing is to be performed in the time specified. By freezing very slowly the air may be eliminated without previous heating.

Ice plant at terminal station.—This supplies the station itself and the passenger cars at the station.

The city water is filtered through sand and pumped to a height, a slight fall from which carries the water through the freezing tank. It passes between coils of pipe containing the ammonia and flows out to a filter, from which it returns again to the tank. This circulation continues during the whole process of freezing.

Ice forms between the pipes of the coil, making vertical partitions corresponding to the vertical rows of horizontal pipes across the tank. Down the lanes of ice the water passes, a small amount remaining on the surface of the frozen partitions. This process continues until the growing walls of ice on each side nearly meet in the centre. The ice wall, now 6 to 10 inches thick, 6 feet deep and as long as the tank, is cut by a kind of steam-heated chisel into vertical lengths, which are hauled out and further cut up for use or storage. The ice requires 5 or 6 days to form.

No system for the removal of air is used, and the ice, unless frozen very slowly indeed, is apt to be very bubbly.

Ice plant at restaurant.—Two systems are used; one, a very small can system, in which filtered city water is frozen in about 6 hours, coming out very bubbly and opaque; the other similar to that in use at the artificial ice plants described above, except that the water is taken directly from the city taps and is frozen in about 12 hours. None of this ice could be seen, but was described as very bubbly.

Dangers from artificial ice.—The boiling and distillation of the water, incident to its use in driving the engines, of course sterilizes it completely. The re-boiling is done at 162° F., in partial vacuum, and is itself also a process of sterilization. The filtering and storage may, or may not, according to circumstances, encourage the development of bacteria which may reach the water from the air, etc. (it is well known that boiled water supports bacterial life much better than unboiled water), but any typhoid bacilli in the original water would unquestionably be destroyed by the sterilization; and only under very exceptional circumstances could the water be reinfected before freezing. Once infected, however, at this

point,—as from a typhoid fever case among the employes,—the freezing itself would be less efficient as a safeguard than in the case of natural ice, for no mechanical throwing out of the bacteria can take place, and since the ice is used (at present) very soon after its formation, so great a bacterial purification by the death of the bacilli as occurs in natural ice would not be obtained. It is clear, however, that while the likelihood of artificial ice transmitting typhoid fever, if once infected, is greater than that of natural ice, the likelihood of its becoming infected is less; so that practically one is just as safe as the other. If the artificial ice were stored as long as the natural ice usually is, the purification would be practically as great.

Dirt in ice.—Natural ice, after melting, often presents a certain amount of material which tends to settle to the bottom, consisting usually of amorphous brown or black material, and of other matter largely vegetable in origin. This material, being of nearly the same specific gravity as water, floats about readily on slight agitation, and gives to the water a rather disagreeable appearance. Dirt carried down on the ice by light falls of snow, or deposited by winds, etc., is likely, especially if dark colored, to absorb heat and melt its way downward into the ice. Snow ice is apt to be particularly dirty, and often contains a good deal of matter carried out of the air by the snow in falling. It is for this reason that snow ice is not highly appreciated by the consumer. Moreover, when skating is allowed on a pond used as an ice supply, and under all conditions during the ice-cutting season, more or less dirt is deposited on the surface of the ice, and is likely to be incorporated in the snow-ice layer. Where flooding of an ice field, already dirty from these causes, is done, the dirt may be incorporated in the centre of the block.

The snow ice which may form on the surface is usually planed off by the companies before storage, but a layer an inch or two thick is usually left, because it is supposed to render the block less fragile and to lessen the rate of melting. In no case in the present year was more than about this amount of snow ice detected. A few analyses of snow ice compared with analyses of the rest of the same block are given below to illustrate its relatively dirty character. It is proper to say that this "dirt" was largely amorphous. When its character was recognizable, it was evidently vegetable—bits of grass, hay, etc.

Artificial ice may at times be quite free of turbidity, but none of that so far examined in Boston was perfectly so. During the process of freezing, each can, containing the partially frozen water, is covered by an oblong slab of wood, and these are so arranged as to form a floor, upon which the employes walk in filling and emptying the cans. Dirty boots carry an amount of miscellaneous, although usually harmless, dirt on to this flooring. Dust blowing in through windows, and from the wear and tear of the boards, is shaken from the covers and easily reaches uncovered cans. Further, a small quantity of oily matter from the

engines is detectable at times. Careless employes spitting about the board floor also add to the available sources of dirt. Similar kinds of dirt are evident in natural ice, but in the absence of flooding they would not be incorporated with the ice, but merely deposited on the surface, whence they would stand a good chance of being removed by planing or shrinkage.

Summary: Danger.—On theoretical grounds the danger of infection through ice is very small. Practically, and under the conditions of the present Boston supply, danger of infection through natural or artificial ice is almost *nil*. It is not greater than that involved in drinking the Boston tap water, and it is certainly infinitely less than that involved in drinking milk. Careful search of the records has shown that but one presumably authentic case of transmission of typhoid fever through ice is on record. This occurred in France, and resulted from the use in wine of ice taken from a river below the sewage outlet of a town. The fact that there is such a case shows the possibility of such infection; the fact that there is only one shows its extreme rarity. In this country typhoid fever has been attributed to ice in one instance in Connecticut, the evidence being extremely indefinite. In 1876 an outbreak in this country (not claimed to be typhoid, and from the description of very uncertain character) was attributed to ice on grounds which would not in these days be accepted as at all trustworthy.

Bacteria.—Snow ice contains a fairly large number of bacteria. Bubbly and clear ice contain a much smaller number. Artificial ice contains, especially in the centre and bottom of the cake, about as many as the average in natural ice. The outside of the cake is likely to contain very few. While this expresses the facts in a general way, many variations are naturally found, and it is very difficult to foretell in any given case in what part of a block the bacteria will be most abundant. The bacteria present are, except in the extremely rare cases where typhoid bacilli may exist, practically harmless.

Dirt.—"Dirt" is found in both natural and artificial ice, usually more abundant and in coarser particles in the former, finely divided in the latter. Artificial ice made from exhaust steam shows a slight oily scum at times after melting.

LESIONS OF THE BLADDER DURING ABDOMINAL AND VAGINAL HYSTERECTOMY.¹

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

IN bringing the subject of lesions of the bladder occurring during an abdominal or a vaginal hysterectomy before this society, I would say that I have done so because I have long thought that if medical men were more careful to relate to the profession at large their failures or mishaps

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in practice, with reflections and conclusions derived from them, it would greatly promote the common good. It would aid in forming a medical chart in a dangerous navigation, upon which would be discovered the rocks and shoals which will prove of vast importance to subsequent navigators. It is too often the practice for surgeons to report their successful results, and I have sometimes thought that some of them proved too much. They have appeared calculated to lead the sanguine and inexperienced minds of the younger members of the profession into a belief that they had only to go and do likewise; while a moderate acquaintance with the realities of medical life must sooner or later teach some most important and very painful lessons. If a medical man, at the close of a long professional life spent in observing disease, would write a little treatise composed entirely of a detailed account of his unsuccessful cases, he would, in my mind, be conferring an everlasting benefit on the medical profession.

That wounds of the bladder during abdominal or vaginal hysterectomy are not of frequent occurrence, is evinced from the fact that very few cases have been recorded in medical literature; but, without any doubt, this accident does occur oftener than is supposed by those not familiar with abdominal surgery, and I am even cognizant of a case occurring in the practice of another surgeon, where the bladder was opened during an Alexander operation.

Out of some 300 abdominal sections for gynecological affections, I have wounded the bladder but once, and this mishap has occurred in only 1 case of vaginal hysterectomy out of 74 cases that I have performed. I will briefly record the histories of these 2 cases, and will follow them by a few remarks on the normal anatomy of the bladder in its relations to the uterus, as well as its relations with that organ in the state of disease, and the best manner to deal with this operative complication.

CASE I. In November, 1900, I was asked to see a case of diffused fibroma of the uterus in a lady 45 years of age, patient of Dr. Lewis E. Morgan of Brookline. Bimanual examination revealed a uniformly enlarged uterus, which had attained the size of a child's head, freely movable, and no apparent lesion of the adnexa. Excessive loss of blood was the indication for radical measures.

Vaginal hysterectomy was performed, and while peeling off the bladder from the anterior aspect of the uterus, a teaspoonful or so of liquid trickled down, which was at first thought to be peritoneal fluid; but in order to make sure of this, a sound was passed into the bladder and made its exit through a rent in the posterior wall of the organ, which measured about 4 cm. The uterus was rapidly removed by anterior hemisection; the ovarian arteries and adnexa were tied off with catgut, while the uterine arteries were clamped. The wound was packed with subgalate of bismuth gauze, after an attempt had been

made to close the opening in the bladder, which proved futile on account of the inaccessibility of the lesion.

Urotropine, at the dose of 50 cgm. 3 times daily, was ordered, and a permanent catheter was introduced into the bladder. In order to prevent the irritation of the neck of the urinary reservoir which is so frequent, both in the male and female, when a permanent catheter is employed, I ordered the nurse to change the catheter every 4 hours, inserting a fresh one each time. The gauze was removed at the end of the week, and was almost as dry as when it was inserted into the wound; the bladder was drained perfectly during this time, and no irritation nor signs of cystitis developed, and the wound in the bladder had entirely healed, so that the patient was up and about at the end of 12 days. I attribute this success very largely to the intelligent care of the excellent nurse in charge of this case.

CASE II. This was a patient age 34, unmarried, with a large fibroid growth which proved to be intraligamentous, and the symptoms of compression demanded surgical interference. After the abdomen was opened, on account of the inclusion of the neoplasm in the broad ligament, as well as the adhesions which connected it with the surrounding intestine, it was found difficult to decorticate it and form a pedicle. During the manipulations necessary to free the growth, the fundus of the bladder was ruptured to the extent of about 8 cm. The wound was immediately closed by a double layer of catgut sutures.

The neoplasm was then completely freed, and a supravaginal hysterectomy was performed. The abdominal wall was closed, and the patient returned to bed. The bladder was drained carefully, in exactly the same manner as in the preceding case, for 10 days, after which time the patient passed her urine voluntarily, and no cystitis resulted from the permanent catheter. At no time during the convalescence did the temperature rise above 38° C.

Let me here remark that in draining the bladder, no matter for what reason, it is important to frequently change the catheter in order to prevent irritation and infection of the viscous, and it has been my practice to order the nurse to keep a half a dozen soft gum catheters, about No. 14 or 15, French scale, already sterilized, and to change them every 4 hours during the day and twice during the night. The use of some good urinary antiseptic during the healing process of the bladder lesion is, I believe, an excellent adjunct, and I know of nothing better than urotropine or the tincture of euclalyptus.

We will here briefly recall the relation existing normally between the uterus and the bladder. These organs are contiguous, and are united together by a loose cellular tissue. At their upper part they are separated by the peritoneal cul-de-sac, which passes from the posterior aspect of the bladder to the anterior aspect of the uterus. In the large majority of subjects, this vesico-uterine cul-de-sac ceases to exist at the junction of the

upper third with the middle third of the isthmus; below it never extends lower than the upper part of the cervix. Its contents depend upon the amount of urine in the bladder. It is usually empty when the bladder is moderately distended, because this organ pushes the loops of the small intestine before it up into the abdomen, and comes into direct relation with the uterus.

But the condition is entirely different when the bladder is empty, because the cul-de-sac will be filled by coils of small intestine, which immediately come down as soon as the bladder is empty.

The cul-de-sac is very easily detached with the finger from the surrounding parts. At their lower part the bladder and uterus are directly in contact, being only united by some loose cellular tissue, which allows of them being easily separated. Still lower down the bladder rests upon the vagina, and the posterior wall of the bladder and the anterior wall of the vagina form the so-called vesicovaginal septum.

As to adhesions existing between the uterus and the bladder, which have been described by several authorities, more especially by Luschka, who states that the posterior aspect of the bladder adheres more or less to the cervix uteri and the vagina; and Henle, who has described, as existing between the uterus and the bladder, an ascending aponeurotic layer, which is reinforced by a sagittal lamina, which is often muscular in nature, which starts from the posterior wall of the bladder inner to the orifice of the ureters, and is attached to the side at the lower half of the cervical portion of the uterus and the vagina, I would quote Paul Delbet in his excellent work on the "Anatomic chirurgicale de la Vessie,"

He says: "There is, in fact, between the highest part of the vagina and the peritoneum, a fibrous band, which completes the surrounding formation of the female bladder and takes the place of the prostatoperitoneal aponeurosis in the male. Its use is more for the sliding motions of the bladder rather than as a means of fixation. In trying to determine what were the exact connections of the bladder in a surgical point of view, I only found this lamina exceptionally; and when the bladder is peeled off from behind forwards, the following is what is usually found: In some cases, which form the minority, the bladder adheres to the isthmus of the uterus in the median line, and every attempt to peel it off is immediately arrested. In other more frequent cases the bladder may be separated from the farthest point of the upper surface of the vagina to the extent of 1 or 2 cm.

If, then, one continues to push the finger further in following the median part of the upper aspect of the vagina, the bladder may be separated on the median line as far as the interureteral muscle. The bladder only adheres to the vagina to the same extent that the organ adheres to the prostate in the male. As to the adhesions which exist on the sides, they are present at the point where the prolongations of the

pubovesical aponeurosis pass; that is to say, to the aponeuroses more than to the vagina."

This quotation will help us in the understanding of the changes that the uterus, in a pathological condition, produce in the relationship that normally existed with the bladder. The influence that fibroma produces on the relationship between these organs naturally varies according to the anatomical type of neoplasm. Those growths which have a submucous evolution, and consequently which project into the uterine cavity, have very little effect on the relationship between them. The same may be said of small multiple fibromata which are disseminated in the uterine parenchyma, which increases the size of the uterus without producing very much change in its shape and anatomical situation.

It is, however, entirely different in cases of large fibroid neoplasms which have a peritoneal or subperitoneal evolution, and under their influence the bladder may be compressed, deviated from its normal position, or forced higher up into the abdomen.

Compression of the bladder is a relatively frequent occurrence during the evolution of uterine fibromata, and is more especially met with, if not exclusively, in those neoplasms having a pelvic development, and which little by little become wedged into the pelvis.

This complication is also met with when the fibroid neoplasm has its starting point in the posterior wall of the uterus, and becomes lodged in the cul-de-sac of Douglas; when the growth develops in the anterior wall of the organ, compression of the bladder is not so apt to follow, and from what I have seen, I should be decidedly of the opinion that a fibroid developing in the anterior aspect of the uterus rarely gives rise to compression of the bladder. Although this statement is based more upon the analysis of recorded functional troubles of the bladder in these cases than upon post-mortem examination, it may be possible to explain this apparent fact by the connections existing between the bladder and the neoplasm in each instance.

A fibroid tumor, developing in the posterior wall of the uterus, pushes the organ up against the pubis, and it is by the action of the enlarged uterus, which has preserved its broad connections with the bladder, that the neoplasm acts on the latter organ. Now, on the contrary, during the evolution of a fibroid which has developed in the anterior wall of the uterus, it often happens that the growth from its slow development frees the bladder from the uterus and pushes it aside, and thus the urinary reservoir escapes compression.

Compression of the bladder is interesting on account of the symptoms that it produces, but I should have little to say about it were it not that it secondarily produces changes which are interesting for the operator. These changes consist especially in an increase in size.

It occasionally happens that the bladder, when compressed against the pubis in the median line,

becomes dilated laterally,—an occurrence which is infrequent,—or it develops above the pubis, which is by far the commonest condition. Consequently, it is important to know that, during a laparotomy for a fibroid tumor in a patient who has had symptoms of retention of the urine due to compression of the bladder, the operator may meet the urinary reservoir quite high up behind the abdominal wall, although the urine may have been carefully drawn off with a catheter just before the operation. I would here point out that this ascension of the bladder under the abdominal wall, which may be termed parietal ascension of the organ which is consecutive to compression, must not be confounded with the ascension of the bladder on the anterior aspect of the fibroid, which is called visceral ascension, and which I will speak of presently.

The deviations of the bladder are most always lateral, and are produced under two different circumstances. Sometimes there is a fibroid tumor developing in the anterior wall of the uterus, pointing directly towards the pubis, pushing the

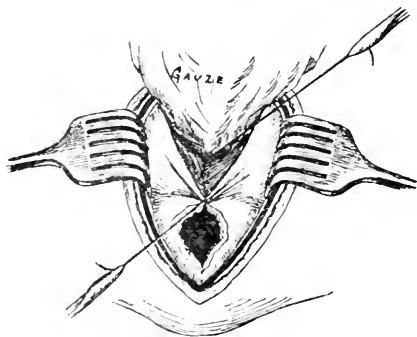


Fig 2

bladder to one side. In other cases the deviation is due to a fibroid which has developed into the broad ligament, in which case the uterus is pushed to one side, dragging the bladder along with it.

These lateral deviations of the bladder are, however, infrequent, and they are only interesting because the organ is exposed to being included in ligatures that are placed on the broad ligament.

Ascension of the bladder is, however, more interesting, and is relatively frequent. It may be said that, in cases of large fibromata developing within the abdomen, it is always present, although it exists in varying degrees. The bladder may extend upwards to a considerable degree in some cases, and we have all dealt with those conditions where the separation of the bladder from the anterior aspect of the fibroid has required considerable dissection on account of the extensive surface involved. A bladder thus attached to the anterior surface of a fibroid tumor presents most variable aspects. Sometimes it is elongated and has the form of a flattened cylinder, while in other

cases the organ is flattened and spreads itself over the surface of the neoplasm.

The peritoneum presents some interesting conditions, which must not be overlooked in these cases, in many of which the uterovesical cul-de-sac has completely disappeared, and the peritoneum of the bladder continues, spreading out directly with that covering the anterior aspect of the fibroid growth.

The ascension of the bladder in cases of fibroid tumor can only be explained by admitting that the fibromatous transformation has invaded the uterine parenchyma, which is in contact with the bladder, and in its development this zone of uterine tissue drags the bladder up along with it. In point of fact, when one carefully examines a bladder whose relationship to the fibroid has been thus modified, it is always easy to perceive that the part of the organ which is drawn up is never in the neighborhood of the urachus, but is always that portion which in a normal condition is in relation to the anterior aspect of the uterus. There thus exists a profound change in the general exterior configuration of the bladder. Its apex remains low down, and the culminating point is no longer the insertion of the urachus, but in reality is the posterior limit of the zone of contact which normally existed between the uterus and the bladder. Consequently, what I have termed visceral ascension differs very greatly from parietal ascension of the bladder.

In fibroids where malignant transformation has not taken place, the growth does not invade the neighboring organs, and the lymphatic system is not involved, but it is quite the contrary in other affections of the uterus whose treatment is by abdominal section. These cases have no relation to the subject of this paper, and consequently will be left aside, and we will only mention those inflammatory lesions which oftentimes give rise to adhesions between the bladder and the uterus, which so frequently renders their separation almost impossible, and very dangerous.

After the bladder has been peeled off the uterus, it may be wounded during further manipulations necessary to remove the uterus. The knife, scissors, or fingers of the surgeon, must work in the close proximity of its walls, and, in order to avoid any possible mishap, I think it advisable to hold the bladder out of the way with a broad, smooth retractor.

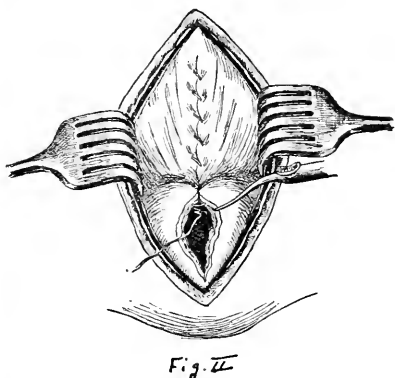
But now supposing that the bladder has been wounded. The diagnosis of the lesion is in most cases easy on account of the aspect of the tissue which has been incised, or because the surgeon enters directly into the cavity of the organ; on the other hand, there may be enough urine collected in the viscus to escape at the time the organ is opened, which would naturally draw the operator's attention to the bladder.

At all events, the wound should be immediately sutured; some surgeons have simply closed the intraperitoneal part of the organ and drained the extraperitoneal part, but it is far better to perform a complete suture if the bladder is healthy.

There is a prodigious number of methods for closing bladder wounds; that of Lembert is perhaps the simplest, and many surgeons have endeavored to modify this suture so as to obtain a more complete occlusion of the wound.

Czerny inserts a deep row of Lembert's sutures, and over this a second, so that the wound is united by two layers of superposed sutures. But I may say that Lembert's suture, which is simpler and more rapid in execution, is quite sufficient in the large majority of cases, on the condition that each suture is placed near enough together, and having said this, I will describe in a few words the technique.

The wounded bladder is drawn out of the abdominal incision, and with a small curved Reverdin needle, as shown in the figures, or a fine round needle, somewhat curved at its end and similar to that used for intestinal suture, armed with a No. O catgut, is introduced from right to left a half a centimetre from the border of the wound. It is then made to pass obliquely through the wall of



the bladder, being brought out at the free edge of the wound without having been passed through the mucous membrane. The needle is then passed through the opposite border of the wound in an inverse manner; that is to say, it is passed through the free border of the wound just above the mucous membrane, and is brought out a half a centimetre beyond. The sutures are then tied and cut closely off.

The sutures should then be carefully examined with some fine instrument inserted between each, and if the instrument penetrates between the two sutures, an additional one should be inserted.

If the opening into the bladder is a very small one, it can be closed by a purse-string suture, which should only include the peritoneum and muscular layer of the bladder, and over this a longitudinal over-and-over suture, or a Lembert's stitch should be employed.

Brenner's suture is a good one, and gives a very thick cicatrix. It consists in decorticating the mucous membrane of the bladder around the

wound, and then to unite the deep surfaces of the muscular layer by a purse-string suture. The suture material does not decrease the vitality of the tissues.

As to suture material, I think that a No. O, dry-sterilized catgut is the proper one to select, and probably does not become absorbed before the seventh or eighth day, which is plenty of time for cicatrization to have taken place. As this cicatricial tissue is formed by the submucous and interfascicular connective tissue, it is quite as extensible as any other part of the bladder, and is certainly more resisting.

In the early cases of suture of the bladder, a through-and-through suture was used by Lotzbeck in 1858, Ultzmann in 1879, and in 1881 by Kispert. Then, after a time, it was shown that the sutures on the inside of the bladder, whether of silk or catgut, became impregnated with the salts from the urine, and might give rise to nuclei for a calculus formation.

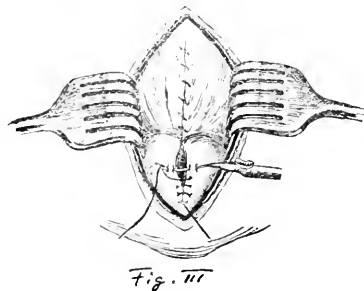
In order to avoid this, the sutures were not brought through the mucous membrane, only carrying them through the muscular tissues and peritoneum covering the bladder, and surgeons took up the question more particularly. Von Antal proposed making an oblique section through the bladder walls, so as to give the opening into the viscus an infundibuliform shape, and when the mucous membrane of the organ was reached to cut through this vertically, and then bring together the raw muscular and serous layers of the bladder. He employed this method in 2 instances, and obtained a union by first intention, and Pilcher has also obtained excellent results by this procedure.

Other surgeons have had the solidity of the suture more at heart. Tilling, Franks, Schmitz and Kummel employ a buried interrupted suture, and over this a furrier's suture. Julliard and Petersen carry their sutures a little way beyond the angles of the wound in order to avoid the possibility of infiltration of urine. Lucas-Championniere uses three layers of suture. With the first layer he brings both borders of the wound into contact as perfectly as possible, while the other two layers are intended to protect the first and to prevent any stretching of the deep suture when the bladder becomes distended, so that the external aspect of the bladder becomes adapted twice over the first row of sutures in the muscular and peritoneal layer of the bladder. Bassini also follows the same technique. Guyon, Carlier, Albarrañ and Nicolich employ a double layer of sutures, the first of which is catgut, and is composed of a number of interrupted sutures placed 8 or 10 mm. apart. Each suture is inserted at about 3 mm. from the borders of the wound, and includes all the layers of the walls of the bladder, even the mucous membrane. Over this first layer of sutures, which we think is quite sufficient, a second layer of superficial Lembert's sutures of fine silk is inserted. This technique, which is derived from the one employed by Pinel-Grandchamp, has given very excellent results to the

surgeons who have employed it, and in no case has any mention been made of calculus formation having taken place.

The technique that I have employed for closing bladder wounds, and one that is used for gastroenterostomy, is as follows: Two layers of sutures are employed, the first of which includes the mucous membrane alone; for this fine catgut should be used. The second and superficial layer of sutures includes the muscle. If the bladder is deeply seated, and if the abdominal walls are very thick, the mucous membrane may first be united by interrupted sutures of fine catgut, but if the wound in the bladder is easily accessible, a running suture is to be preferred. As to the superficial suture, it should always be done with a running Lembert's suture. In some cases, especially if the wound in the bladder is a long one, these two layers of sutures may be reinforced by a third layer of Lembert's suture (see Figs. I, II and III).

This technique has, we believe, two advantages. In the first place, the mucous membrane is brought into better apposition; it is easy to understand



that these two layers of sutures would more completely occlude the opening in the bladder than the technique recommended by Guyon and others.

We now come to the question of drainage of the bladder, which may be accomplished by either urethral drainage, or directly from the ureters. I believe that Küster was the first to propose permanent catheterization of the ureters after suprapubic cystotomy, but before this Schaefer introduced the ureteral catheters, leaving them in place for one week, in a case of ureterovaginal fistula, with a very excellent result. Some time later Albarran and Luria, after having experimented on dogs, again tried ureteral drainage successfully. The patient was a woman with tuberculous cystitis, and the urine coming in contact with the mucous membrane of the bladder produced very severe pain, which immediately stopped as soon as suprapubic cystotomy and ureteral drainage had been practiced.

Albarran believes that permanent ureteral catheterization is indicated in certain cases after suprapubic cystotomy, and I believe that in a case of a very large opening into the bladder

made accidentally during a hysterectomy, permanent catheterization of the ureters might possibly be of value.

Permanent drainage of the bladder, as ordinarily practised, is, however, the most usual occurrence in practice, and a few words may here be said regarding the choice of the catheter, the precautions that should be taken to prevent infection of the bladder, and the length of time during which drainage should be employed. Personally, I believe that in the female it is better to change the catheter every four or five hours, and then insert a new one, as I already intimated in the beginning of this paper, but if we should desire to employ a permanent catheter properly speaking, the Pezzar instrument is by far the best.

With a self-retaining Pezzar catheter no means of fixation is necessary, but with the plain rubber catheters they must be attached to the pubis by means of a silk thread, which may be hitched to a hook held in place by a strip of oxide of zinc adhesive plaster, just above the pubis.

Infection of the bladder, following the use of a permanent catheter, may be avoided if the latter be put in connection with a sterilized rubber tubing, which extends under the bed and dips into a glass receptacle which is plugged with absorbent cotton.

When a permanent catheter is used, and not changed, it usually becomes occluded by the accumulation of salts in its lumen, and if a Pezzar sound has been used, it is better to use an ordinary catheter, when the instrument is removed, rather than to endeavor to reintroduce another instrument of the same description.

I have found that, after suture of the bladder following suprapubic cystotomy, from 5 to 6 days is usually enough drainage, although in the second case recorded in this paper I drained the bladder longer, but in 1 instance where I did a suprapubic cystotomy for calculus in a male, the permanent catheter was left only 4 days, the patient making an excellent recovery. Franck believes that the sound should never be removed earlier than 1 week, because the sutures in the bladder may give way before that time, and Kummel advises to keep up the permanent drainage for a fortnight, because in 1 case he removed catheter on the fifth day and a fistula resulted. Leguen advises the removal of the sound after the third or fourth day, while Monprofit advises only leaving it 1 or 2 days, but this appears to us a rather short period, and not a safe rule to go by.

If the sound should be left without removal for a week or ten days, it is well to use intravesical injections with a 1-2000 solution of either lactic or phosphoric acid every other day, and this will prevent a deposit of urinary salts on the outside or in the lumen of the catheter.

The urethritis which often follows the use of the permanent catheter in the male, is occasionally met with in the female, but will cease spontaneously after the instrument has been removed. The use of permanent drainage after suture of the bladder is, to my mind, an absolute necessity, be-

cause it prevents any distension of the organ, and at the same time it is in perfect repose, and consequently a better chance for a solid union of the wound to take place is certainly given.

If the bladder is opened during vaginal hysterectomy, the best treatment, I believe, is simply permanent drainage of the bladder, and in the large majority of cases recorded by Richelot and others, the wound in the bladder has become closed, and in only a few cases has a vesico-vaginal fistula resulted. Of course, if this complication should arise, it will have to be closed at a future date, but I would recommend waiting a number of months before attempting its closure, because with patience and care the fistula will often close of itself after a certain length of time.

A few words now regarding septic complications, which fortunately occur more and more infrequently on account of the perfected surgical technique of today. If, however, they should arise in spite of all care, the abdomen should be opened and freely irrigated with a saline solution, and the permanent catheter should be carefully watched to see that the drainage is perfect.

In those unfortunate cases where the surgeon has overlooked the presence of a wound in the bladder, and post-operative symptoms of urinary infiltration or peritonitis should occur, the abdomen must be immediately opened, and the wound in the bladder sutured to that in the abdomen. A simple irrigation of the peritoneal cavity should then be resorted to, and if there are any perivesical foci of suppuration, they should be drained freely.

The post-operative symptoms due to an unsutured extraperitoneal wound in the bladder usually declare themselves by a purulent infiltration containing urine. This infiltration should be dealt with according to the same rules as those resorted to in urinary infiltration taking place after rupture of the male urethra; namely, permanent drainage of the bladder, and free and extensive incisions in the tissues infiltrated by the urine, followed by drainage with gauze or rubber tubes.

SUGGESTIONS FOR THE IMPROVEMENT OF TRAINING-SCHOOLS FOR NURSES.

BY RICHARD C. CABOT, M.D., BOSTON,

Physician to Out Patients, Massachusetts General Hospital;
Assistant in Clinical Medicine, Harvard Medical School.

My chief interest in nursing depends upon the hope that in the course of time it can be made a *liberal profession*.

Out of the trade of the barber and the apothecary we are, I think, developing something worthy the name of a liberal profession,—I mean the profession of the physician,—a profession which can be, and not infrequently is, practised in a liberal and enlightened spirit. The evolution has been a gradual one, and is yet far from complete, but we are on the right track. We are requiring (in all our best medical schools) a college degree or its equivalent before entering on medi-

cal training, and the demands of the community for an all-round man, who has regard for the souls as well as for the bodies of his patients, are slowly creating a supply.

The better type of modern physician tries to go to the bottom of his cases without regard to the money return. He tries to see what conditions in the life of the individual or of the community have resulted in the disorder which the case of illness before him represents. Of what deeper disorder in the habits of men, or in the organization of society, is the case a symptom? How can such ills be prevented in the future?

It is the increasing prevalence among physicians, of this sort of disinterested delving into the deeper and wider implications of the sufferings of humanity, that gives promise of an increasing liberality or seriousness of spirit in the medical profession.

A similar change—a similar evolution—is discernible by the eye of faith in the spirit and method of nursing. We have firmly established the "trained nurse" as a part of the army that fights disease in peace as well as in war, and I trust we shall never hear it said again that the field hospital and "the front" is no place for a trained nurse.

But what constitutes the nurse's training? For what do we train the nurses employed in our great hospitals? We train them in the great majority of cases to be good *hospital nurses*, to fill efficiently a place in the machinery of a great hospital. If we fit them for any work outside the hospital, it is not for a work that needs keen intelligence, resourcefulness in emergencies, judgment and tact in difficult situations, abounding sympathy for all sorts and conditions of men, capacity for original observation. Our training is purely a technical one; it teaches a trade instead of preparing for a profession.

The reform of training-schools for nurses cannot be an abrupt and easy one. The difficulties in our way are many and subtle. But there is every reason why we should keep clearly before our minds what we lack, what we should try for. Accordingly I shall try to set down certain improvements in the methods of *educating* nurses (not merely *training* them), which I regard as sure to come, provided nursing is to be a profession fit for the best educated and most gifted women in the country, and not merely a trade by which any one of fair intelligence can support herself.

I. NURSES SHOULD PAY FOR THEIR TRAINING AND BE TAUGHT BY PAID INSTRUCTORS.

The advantages of this arrangement are:

(a) It would tend to bring into the profession a better educated class of women.

(b) It would put the students in a position to demand, instead of humbly requesting, a thorough course of instruction. At present the training received by the nurse is given her almost as a matter of favor. Many of the instructors are unpaid, and like most unpaid instructors, they do

their teaching in an irregular and unsystematic way. They often have no special preparation for teaching and no special knowledge of nursing. Their hearts are not in it. They often regard it as a bore or as a kindness on their part to give any instruction at all.

The students will never be in a position to demand a reform in these methods until they pay (like all other professional students) for the teaching which they receive. The nurse's position would then become a far more self-respecting one; she could take her place side by side with other professional students.

(c) As a result of (a) and (b) the nurses would take a keener, more intelligent, more discriminating interest in their work.

II. NURSING SHOULD BE TAUGHT BY NURSES, MEDICINE BY PHYSICIANS.

The great majority of physicians who allow themselves to be made instructors and examiners of nurses know very little about nursing. It is not possible that many of them should know much about a profession which they do not practise.

Medical and surgical subjects, such as anatomy, physiology, the principles of asepsis, of diet and of materia medica, are best taught by physicians, but how rare it must always be to find a physician who is as competent as a nurse is to teach and to examine on bed-making, the care of the skin, the details of rectal alimentation or of bathing in typhoid. At present nurses are examined on these subjects, in some of our larger hospitals, by physicians who know very little about them.

The proper person to teach and to examine in such subjects is a nurse. This principle has already found partial acceptance in many hospitals. Some subjects once taught by physicians are now taught by nurses. But the principle needs to be much further extended, until nothing but medicine, surgery, and their subsidiary branches (anatomy, materia medica, etc.) are taught by physicians.

There is one most essential part of a nurse's training which must be gained under the supervision of a physician. I mean the *observation of cases*. To see and record what occurs during the interval between the physician's visits is one of the greatest services which the nurse can render, but to do it well needs not only faithful attention and keen senses, but a knowledge of what to watch for. Without this knowledge many important points must escape the notice of even the most careful nurse. But observation of cases, based on a knowledge of what to expect, is part of the practice of medicine, and so must be taught by practising physicians, whose daily work it is.

III. NURSES SHOULD BE PREPARED FOR PRIVATE NURSING BY PRACTICE IN FAMILIES OUTSIDE A HOSPITAL, AND BY THE TEACHING OF NURSES IN ACTIVE PRACTICE.

This is now part of the curriculum of many of the smaller training-schools for nurses, but in the

larger Boston schools has never been adopted. To any one who realizes how different private nursing is from hospital nursing, it is obvious that every nurse should possess before she graduates some acquaintance with the conditions which she is to meet. Free nursing in poor families, or nursing at low rates in families in moderate circumstances, gives this valuable experience to students in the Waltham training-school, and in many others.

In order to learn much from such nursing, the student's work should be supervised and criticised by a graduate teaching-nurse.

The only objection to this system is urged by the graduate nurses; namely, that it tends to lower their wages by offering to the public, at \$8 or \$10 a week, services which the public is apt to consider more acceptable at that price than those of a graduate at \$21 a week. But this objection can be obviated by care on the part of the attending physician in the selection of the cases.

Further, the students need, even while in the hospital, instruction that will fit them for private nursing; and this can best be given by nurses who are, or very lately have been, in active private practice, and who are conversant with the newest devices and familiar with the peculiar opportunities and difficulties of private nursing.

To be taught nursing by a physician or a nurse who does no nursing is as anomalous as it would be to be taught medicine by a physician who is not in practice. The hospital nurse can hardly help teaching in such a way as to train the students to be good hospital nurses like herself. But the requirements of private nursing are materially different, as many a hospital graduate finds to her cost after leaving the hospital. Routine, dependence upon frequent and exact orders, nice division of attention between a considerable number of patients, speed in carrying out a multitude of well-defined duties—such are the qualities demanded of a hospital nurse. A nurse so trained would be more than human if she did not find herself more or less at sea, when called to concentrate her whole attention upon a single patient, with relatively few and indefinite directions from the physician in attendance, a considerable weight of responsibility, and a need for independent judgment and action in the physician's absence.

IV. THE NURSE'S TRAINING SHOULD NOT BE EXCLUSIVELY TECHNICAL, BUT SHOULD INCLUDE SOME LIBERAL STUDIES, SUCH AS SOCIOLOGY, HISTORY AND LITERATURE.

Consider for a moment the curriculum of the Massachusetts Institute of Technology. In that institution every student, whether it be architecture, engineering, mining or chemistry that he is preparing for, must take courses in English, political economy and history. This is thought necessary in order to provide a broad and solid basis of general education, on which the superstructure of technical knowledge may firmly rest.

If one needs history in order to be a good bridge-builder or chemist, does not one need it more to be a good nurse?

Subjects like English literature and history, which tend to give us a deeper and truer sympathy with human nature, are surely as much needed in the education of the nurse, who is to deal exclusively with human beings, as in the curriculum of the chemist or the engineer, who deals primarily with things and not with persons.

Moreover, the nurse's life, both before and after graduation, is so confined, so isolated, that she is especially in need of those inner resources which liberal education fosters. She needs them to prevent her from getting warped and depressed by the weight of concentrated sorrow and suffering, which her life forces upon her notice. It is not natural or healthy for any human being to be in contact all day with the sights and sounds of a hospital, or with the enervating atmosphere of the sick-room. Nurses, therefore, need, far more than the rest of us, to be fortified and inspired by the consciousness of the more normal and successful sides of life. The educated nurse has resources to which to turn when her work is done, and can carry with her into her work a consciousness of other and more normal sides of life, which will give her balance and enthusiasm in the thick of her difficulties.

Summing up what has been said, I believe that training-schools for nurses need:

(1) A sound financial basis, the students helping to pay the salaries of paid instructors.

(2) Nursing taught by nurses, medicine by physicians.

(3) Preparation for private nursing, by being taught in private families and by private nurses.

(4) A better balanced curriculum, containing liberal as well as purely technical studies.

SOME DEDUCTIONS CONCERNING MILK MODIFICATION.

BY R. C. MACDONALD, M.D., BOSTON.

For the human young, human milk is, of course, the natural diet; for the early months of its life, all other foods, including cow's milk, however modified, must be considered artificial.

The ideal, then, for makers of artificial foods is "mother's milk," and to so modify cow's milk as to make it approximate to the ideal, many formulae have been given. In these formulae two very important points have been generally overlooked; it is to these points I would call attention.

The main efforts of milk modifiers have been directed to the reduction of the so-called casein, and to the replacement of the fat, which is diminished when the proportion of casein is reduced by dilution. Practically no attention is given to two very important points of difference in human and cow's milk. As is well known, the so-called casein of milk consists of caseinogen and lactalbumin. In human milk these two substances

exist in *equal proportions*, while in cow's milk there is but *one* part of lactalbumin to *six* parts of caseinogen. It is evident, then, that any modification of milk which reduces the total casein must reduce still further an already greatly deficient lactalbumin; and it is further evident that the usual methods of milk modification can, by no possibility, approximate to the ideal of "mother's milk," unless they shall be so changed as to raise the deficient proportion of lactalbumin.

Another marked difference between human and cow's milk is found in the condition of the phosphorus element. In the cow's milk the phosphorus exists mainly in the form of inorganic (mineral) compounds; in the human milk they exist in organic (animal) combinations. It is well known that the inorganic compounds are practically nonassimilable, while the organic compounds are readily taken up by the human system.

No modification of milk, as now given, can change the inorganic to organic combinations, and unless so important a point (on which depends, very greatly, the development) be taken into consideration, the modified milks fall very far short of the ideal.

I would suggest that both of these deficiencies may be somewhat overcome by a judicious use of the whole egg. Egg albumin approximates quite closely to lactalbumin, and in the egg yolk we have a veritable storehouse of organic phosphorus compounds.

With a proper percentage of cereal to break up the curd (as Dr. F. W. White has so conclusively demonstrated it), with judiciously regulated proportions of whole egg, added to cow's milk as now modified, it would seem that the ideal of "mother's milk" would be reasonably in sight.

I trust this note, which is merely a suggestion, may bring out some valuable comments on the subject treated of.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

(Concluded from No. 20, p. 543.)

I HAD hoped to have another case here showing thrombosis in chlorosis. It is a matter of much interest to me, and, having looked up this complication of chlorosis in the records of the hospital, I should like to speak of the condition. The man entered the hospital on the 2d of April, and had a low red count, and a very considerable diminution in the amount of hemoglobin. He had an arthritic condition of the left knee, which lasted a day or two and then disappeared. Right after that there came on a thrombosis of the left leg. His left leg, ankle to knee, was swollen, red, hot and tender. At the left groin, at the region of the saphenous vein, an elongated mass, the size of a lead pencil, two inches long. He stayed in here long enough to improve somewhat,

and then wanted to go home, against advice. I had, in the year 1899, a woman who came in who presented all the characteristics of chlorosis, and she had a number of thromboses. When she first came in she had tenderness along the internal saphenous vein of the right leg, and deep posterior veins of the leg; the same in the left leg. The right cephalic vein was thickened and tender. Having entered on the 2d of April, she left the 2d of July, practically well. She re-entered May, 1900, and had an elongated corded mass, two inches long, above Poupart's ligament. Then she had a vein near the anterior inferior spine of the ilium in the abdomen, and then an enlargement, or at least a thrombosis, of the left internal saphenous. She was discharged relieved after about a month's stay in the hospital. It was the second entrance of this individual. We have recently written and tried to find how she has been in the meantime, but we have received no answer.

On examining the records of the Massachusetts Hospital since its foundation in 1822, I have found 277 cases of chlorosis. I have verified the diagnosis by reading these records carefully during the early years. Among these cases there have been 5 cases of venous thrombosis, 2 of which were diagnosed, 1 I think by Dr. Shattuck, and 1 by Dr. Vickery; and, in addition, there are 2 other cases where the record of the condition was not sufficiently full to enable one to draw an absolute conclusion. Those I have excluded, so that there have been 7 cases of venous thrombosis in chlorosis in the Massachusetts Hospital out of a number not far from 280, and that makes about 2.5% of cases. The people who have observed this disease, especially Leichtenstern, in Germany, who writes in the *Münchener Medizinische Wochenschrift*, in 1899 saw venous thrombosis 12 times, and he thought, from the statistics of his own cases and the literature, that it occurred in a little over 1% of cases. Von Noorden thought it occurred in about 2% of cases. In reading one is struck by the frequency with which thrombosis of the lateral sinus in chlorosis is mentioned. At first sight it would seem as if thrombosis of the lateral sinus was much more frequent in chlorosis than other thromboses. On reflection, however, and reading the cases over, it seems another interpretation should be put on that fact; namely, that the thromboses of the limbs and the extremities are of less consequence, and do not get into print so much, whereas, thrombosis of the lateral sinus would present symptoms which would be interesting on the diagnostic points, and interesting in a pathological point of view, so that in all probability it is not any more frequent in that part of the body than elsewhere. It is a very singular thing that Leichtenstern, when his attention was called to it 3 years ago for the first time, in the course of a very few months saw 12 cases. I have seen myself 3 cases since my attention was drawn to it, so that my belief is that it occurs more frequently than we have been led to think. What have been recorded in the records of cases as pains in the calves, or pains in the ankles, or pains in the

feet, may very likely have been due to a thrombosis of the little veins about the calf of the leg, which Leichtenstern says is the most frequent place for it, and we may have overlooked a great many of them. The only justification in spending so much time over this matter is the frequency with which death from embolism, or serious trouble from it, has followed these cases. There has been a very large number of fatalities, and Professor Welch explains the brittleness of these coagula on the ground that the blood plates are more brittle than they are in any other form of thrombosis, and the clot itself is more fragile and liable to undergo degeneration, soften and break away.

Dr. ARTHUR T. CABOT showed a case of

RUPTURE OF THE URETHRA,

which illustrated the extreme rapidity with which a tough cicatricial stricture will form after this accident. The patient, a middle-aged man, entered the hospital soon after falling astride of a box. The evidence of injury was not great. There was moderate hemorrhage from the urethra, and some ecchymosis in the perineum. The surgeon who saw him found that a catheter passed readily into the bladder, and he accordingly fastened it there for temporary drainage.

After passing a few days in bed, the catheter was removed, and urination being easy and painless, he was soon discharged as well.

In less than 2 months this patient returned to the hospital and entered Dr. Cabot's ward. He then had a tight stricture at the seat of injury. The evidence of obstruction began to appear, he said, about 3 weeks after he left the hospital.

The stricture was a tight, unyielding one, and perineal section was done. The narrow, fibrous collar, which almost closed the urethra at the seat of injury, was cut out, and the healthy ends of the urethra were brought together by stitches of chromicized catgut, a catheter being tied in for drainage.

The patient made an uneventful recovery, and Dr. Cabot showed the patient, and passed a sound (No. 26 French) through the urethra. It passed the point of union without a hitch.

Dr. Cabot called to mind an article written by him in 1896, in which he reported 5 cases of rupture of the urethra treated by cutting down and suturing the divided ends of the canal. Of these 5 patients, he was able to see 3 of them at periods of 3 years or more after the operation. In none of these cases was there any real stricture, and in but 1 was there a slight narrowing at the seat of operation. In these cases sounds up to No. 26 French were passed without any force, although the bulb showed a slight hitch.

Quoting from this previous paper, he said: "The operation is not a difficult one. A median incision opens the blood cavity about the urethra. After the clots have been turned out, a sound passed down the urethra quickly shows us the anterior end. If the urethra is not fully divided across, the rent is then easily seen and readily re-

paired. When the division has been complete, the posterior end may not be so easily found, but in a fresh rupture the profuse bleeding which occurs from the bulb of the urethra, instead of obscuring our search, serves as a guide to that which we are seeking. If, then, the bleeding point in the posterior part of the wound is seized with forceps and pulled forward, the collapsed and retracted end of the urethra will be brought to view. In a case of longer standing, when the bleeding has stopped, the search may be more difficult, in which event firm pressure should be made above the pubes to force the escape of urine to serve as a guide."

Conclusions.—(1) In cases of ruptured urethra, immediate perineal section, with suture of the urethra, should be practised.

(2) By this procedure not only do we greatly lessen the danger of urinary infiltration and abscess, but we also, in a large proportion of cases, may hope to prevent the formation of close, intractable strictures.

(3) In an early operation the search for the posterior end of the urethra is much easier than it is later. The hemorrhage from the branches of the artery of the bulb serves as a guide to that end of the canal.

Dr. Cabot said that he regarded Dr. Alexander's operation as an advance on any previous method, for the thorough removal of a prostate which was obstructing urination by the pressure of the enlarged lateral lobes on the urethra. He said, however, that in those cases where a projecting third lobe was causing obstruction by acting as a ball-valve, he thought the removal of that lobe was usually sufficient to relieve the obstruction, and was a less dangerous operation than a removal of the whole prostate. He mentioned cases in which a brilliant success had followed the simple removal of the third lobe. He said that when the prostate was not very large, and the obstruction was still complete, the condition of a third lobe acting as a ball-valve was to be suspected. He thought that in such cases the suprapubic opening allowed a thorough inspection of the condition, and permitted of the complete removal of the third lobe, with the lowering of the floor of the urethra to the bottom of the bladder in cases found suitable for this operation. When the obstruction, however, proved to be due to lateral pressure, the perineal incision could be quickly made, and the prostate could be removed with the expectation of thus restoring comfortable urination to many patients who would not have been relieved by any simple intravesical operation.

To get the best results we must recognize the condition with which we deal, and apply to it the operation suitable to it, always choosing the least dangerous of the operations which have good promise of relief.

Dr. Elliot: In a recent case of prostatectomy with rather a small prostate, I found a small middle lobe, which would have been difficult to remove, so I left the middle lobe, as Dr. Alexander says it will often disappear if you leave it. About 3

weeks afterwards I etherized the man and put my finger through the perineum opening, and the middle lobe had entirely disappeared. I was intending to take it out by a second operation.

Dr. Porter: If you had a suprapubic opening, would not you take it out at the time?

Dr. Elliot: I think I should sometimes. In this particular case I was testing Dr. Alexander's operation. One point of the operation is not to wound the bladder at all. I did not want to complicate the case by a wound in the bladder; that is the reason I did not do it at the time.

Dr. H. F. Vickery read a paper entitled

PROBABLE MEDIASTINAL SARCOMA WITH SECONDARY ADENITIS.

I have to present a young girl, 16, who came to me a few days ago because of general weakness and pallor, and certain bunches which had appeared. She noticed enlargement in her neck a little over a year ago, and a month or two after in the armpits, and also she herself had noticed a bunch on the right side of the chest in the neighborhood of the second rib at its junction with the sternum. Moreover, having had a menstrual period when she was 14 years and 10 months old, she never had but one more; that was last Christmas. She had a cough, the expectoration being scanty and whitish. The expectoration had been examined 3 times for tubercle bacilli, her mother said, and each examination had proved negative.

The patient was extremely pale; her temperature was slightly above normal; and there was enlargement on the right side of the neck, very little on the left. Large glands were found in both axillæ, little glands in both groins; a spleen barely palpable; the ends of the fingers somewhat enlarged, but the nails not cyanotic. Blue veins could be seen over the thoracic prominence and in its neighborhood, and now veins appear in the neck somewhat, becoming turgid if she looks up toward the ceiling. Near the junction of the second rib with the sternum is a moderate eminence, which seems to be elastic. A hypodermic needle being put into this, and suction applied, a few drops of clear serum were withdrawn without cellular elements being obtained. The blood shows 37,000 white cells, the large bulk of these being polymorphonuclear leucocytes; that is, she has an ordinary leucocytosis. The number of red cells is about 4,000,000, and they show nothing peculiar. The x-ray plate shows a shadow on the right side, which extends much lower down than the visible tumor. On listening, respiration is found to be absent front and back, in a space 2 or 3 inches in diameter at a level with this thoracic prominence, but there does not seem to be evidence that either primary bronchus is much occluded. Air gets down to the bottom of the lungs on both sides, and the respiratory excursion is about equal on both sides. Her cough is somewhat ringing and brassy in character. The extreme importance of the case led me to urge her to enter the wards for accurate study.

Medical Progress.

REPORT ON THE PROGRESS OF SURGERY.

BY HERBERT L. BURELL, M.D., AND H. W. CUSHING, M.D.,
BOSTON.

(Continued from No. 20, p. 547.)

FOREIGN BODIES IN THE ABDOMINAL CAVITY.¹²

CHAPUT at the Société de Chirurgie de Paris, Dec. 12, 1900 related the facts of a case in which the gauze-compress was retained in the abdominal cavity for about 7 years. In 1898 he was called to treat a woman for persistent medial pyostercoral fistula secondary to several laparotomies. The patient had undergone operation for 2 extrauterine gestations. Hemorrhage after the second had made tamponade necessary. This was in June, 1891. An evagination occurred at the scar, which made another interference necessary, on account of symptoms of intestinal obstruction. It was after freeing an adherent cyst, by exposing the sigmoid colon, that the fistula was present. On the 1st of June, 1898, the operation to close this sinus was done in the midline, which revealed the tract leading down to what appeared to be a new growth of the intestine, with the peculiarity of seeming to contain soft, pasty matter within a thin wall. Consequently, the diagnosis of a foreign body within the gut was suggested.

When the intestine was opened, and the adjoining mass also, the contents were found to be a large piece of ordinary surgical gauze, about 52 cm. on each side. The intestinal wound was sutured, the fistula excised, the abdominal cavity drained, and the parietics closed. Recovery followed.

Pilate published in 1892 a case similar to the foregoing, in which the gauze was passed by the rectum. This same thing might have happened in Chaput's case, but not without causing obstruction, as the compress was so large. It might also have found its way back into the peritoneal cavity; but it could scarcely have migrated out of the fistula, because the orifice was minute. Michaux in 1892 also reported the ulceration of a piece of gauze into the intestine, which there caused such changes that the gut had to be resected. Finally, Jalaguier and Mauchaire have shown that the migration of gauze in the peritoneal cavity of certain animals is possible.

THE SURGICAL TREATMENT OF GASTRIC ULCER AND ITS SEQUELÆ.

Koerte and Herzfeld,¹³ after a résumé of the views of various surgeons, state that medical treatment for gastric ulcer must always be tried. The diagnosis of gastric ulcer is reached much earlier than that of cancer. The sequelæ of an ulcer of the stomach may be cicatricial stenosis of the pylorus, repeated hemorrhages, perigastritis, and perforation with peritonitis; 38 cases of stenosis of the pylorus from gastric ulcer were

operated upon. In all cases symptoms had existed for a long time, even 30 years. The general condition was in all cases lowered; in some very markedly. Pain and vomiting were constantly present, and hematemesis or melena existed in almost half of the cases at some time. The ulcer was most frequently found in the pylorus. Abundant hydrochloric acid was present 24 times, lactic acid only 4 times. Of the 38 operations, gastro-enterostomy was most often performed (30 times, with 7 deaths). Resection was done 6 times. The Murphy button was not used once, as it is both complicated and dangerous, for it may fall back into the stomach and mechanically injure the ulcerated surface. Besides, stitches can be made just as quickly. Koerte and Herzfeld conclude that, whenever medical treatment is unsuccessful, gastric ulcer must be operated. When cicatricial pyloric stenosis, with dilatation of the stomach, occurs, gastro-enterostomy should be performed. When the general condition of the patient is good, the prognosis will be good. Besides, severe pain which has lasted a long time, with repeated small hemorrhages, also indicates operation. Resection is the radical treatment, yet gastro-enterostomy will more frequently be done. When hyperacidity exists, more ulcers may appear later in the stomach or jejunum. Von Hacker's retrocolic method of performing gastro-enterostomy was used. Should there be marked atony of the stomach, Braun's method of enterostomy may be done. Surgical treatment for acute copious hemorrhage from the stomach has been but doubtfully successful. The detailed history of the 38 cases operated upon follows: Twenty-eight cases were for pyloric stenosis from gastric ulcer; 3 for cicatricial ulcers from caustics; 6 were resections; and 1 was a gastrotomy for hemorrhage. Ten operated cases for perforated gastric ulcers are also given in detail, only 1 of which recovered. The long list of authorities consulted follows.

SURGERY IN CHRONIC NONMALIGNANT GASTRIC DISEASES.

G. Kelling¹⁴ gives a general discussion of the surgery of nonmalignant gastric diseases. He ends by directing especial attention to the fact that, in cases of ulcer, and conditions following ulcer, in which proper treatment has been carried out without any satisfactory results, it must be considered that there are certain factors present which prevent the healing of the ulcer or the cure of its sequelæ. He advises careful clinical observation and medical treatment of such cases, but if such practices are of no avail, it is advisable to adopt surgical measures, even though it cannot be determined exactly what the fault is. The danger of hemorrhage, of severe gastritis, of perforation, of carcinomatous change, or of a chronic condition of ill health, is so great that the probability of being able to relieve the condition by surgical means makes such surgical inter-

¹² Medical News, Feb. 16, 1901.

¹³ Philadelphia Medical Journal, July 29, 1901; Arch. f. klin. Chir., 1901.

¹⁴ Arch. f. Verdauungs-Krankh., Bd. vi, H. 1; Philadelphia Medical Journal, Feb. 9, 1901.

vention advisable. The dangers of surgery are less than the dangers of the possible complications mentioned, or of protracted under-nourishment. Usually the best operation in such cases is gastro-enterostomy. One of the important conditions in which gastro-enterostomy should not be postponed too long is in case of ulcers in connection with gastropotosis and atony of the stomach. Internal treatment is usually not very successful in such cases. In some cases it will be found that the ulcer causes no actual stenosis at the pylorus itself, and yet pyloroplasty causes marked improvement. This is probably due to the fact that there is a great deal of swelling or hemorrhage about the ulcer, and that the pyloroplasty, in increasing the circumference of the pylorus, has decreased the irritation of the ulcer through retention of the food in the pyloric region.

Kelling believes that the most important reason that ulcers do not heal readily in women is that the menstrual losses of blood interfere with a proper nutritive condition. Surgery in such cases is more frequently demanded than in men. As to adhesions, he says that if these interfere with the proper movements of the organ, surgery should be undertaken. If they are of acute inflammatory nature, they should first be treated medically. Neurosis may be sometimes wisely treated by surgery. In two cases of hysterical vomiting, and in one case of neurasthenic periodic vomiting, Kelling has known gastro-enterostomy to be entirely negative in its effects; but in cases of nervous hypersecretion, for instance, surgery may do a great deal of good.

As to the treatment of gastropotosis, he states in the first place that the gastropotosis itself is not likely to be satisfactorily and permanently influenced by any operation directly on the stomach or its supports, and unless there is some marked disturbance of motility, or unless the abdominal walls are extremely lax, operation is contra-indicated.

Of the dangers following operation on the stomach, he first mentions pneumonia, which is an extremely slight danger if the operation is properly carried out. There is always some danger of infection of the peritoneum, but this may be reduced to an extremely low percentage. There is also some danger of the occurrence of a so-called vicious circle of the gastric contents. Proper technique will usually prevent this. The dangers of diarrhea and intestinal ulceration are dependent upon irritation by the extremely acid gastric contents, which are discharged directly into the intestine unneutralized. This may be overcome only if one makes the junction between the stomach and the first portion of the jejunum, whereby a portion of the stomach contents flows back into the duodenum; in such case a lateral gastro-enterostomy should be undertaken, while in cases where the chief object to be accomplished is complete emptying of the stomach, Roux's circular gastro-enterostomy should be chosen.

ON PERFORATION AND PERFORATIVE PERITONITIS IN TYPHOID FEVER.

Dr. William Osler read a very interesting paper on this subject before the Philadelphia County Medical Society, Jan. 9, 1901,¹⁵ and gives the following schedule of instructions to be followed in cases of typhoid fever in which perforation is suspected:

(1) Instructions should be specific and definite, to the night superintendent and head nurses, to notify the house physician of any complaint of abdominal pain by the patient, of hiccough or vomiting, of a special rise of pulse or respiration, of sweating, or of signs of collapse.

(2) House physicians should note the character of the *pain*. As to (*a*) *onset*, whether only an aggravation of slight abdominal pain, such as is common, both with constipation and with diarrhea, or whether it was a sudden, intense pain which caused the patient to call out, and which, though relieved by stupes and ordinary measures, soon recurred in paroxysms and grew worse. (*b*) *The locality*, whether diffuse or localized in the hypogastric or right iliac regions; radiation as to penis. It is to be borne in mind that abdominal pain of a severe character may be associated with an acute pleurisy, with distended bladder, with cholecystitis, and with a packed rectum, or may follow an enema.

(3) *State of the abdomen*.—The condition to be noted in writing at once, as to the following particulars: (*a*) Whether flat, scaphoid or distended. Whether, if distended, it is uniform or chiefly hypogastric. (*b*) Respiratory movements, whether present, if uniform, and seen both above and below the navel. (*c*) Palpation, as to tension and pain, locality and extent, and degree of pressure necessary to elicit; muscle rigidity and spasm, whether present or not, and in which special locality, and noting particularly its absence or presence in the hypogastric region and the right iliac fossa. (*d*) Percussion—character of note in front of abdomen and in flanks. Liver-flatness, extent, in middle, nipple and midaxillary lines. Note specifically every third hour. Remember, too, that obliteration may occur in a flat, as well as in a distended, abdomen. Auscultatory percussion may be helpful. (*e*) Auscultation—obliteration of signs of peristalsis; presence of friction. (*f*) Examination of rectum, whether tenderness; fulness between rectum and bladder. (*g*) Stools—character, frequency, presence of blood or sloughs.

(4) *General condition of patient*.—(*a*) *Facies*, whether change in expression; risus, slight or marked; pallor; sweating, etc. (*b*) *Pulse*, change in rhythm, rate and force. (*c*) *Temperature*, whether a drop or not, whether after a tub or not. (*d*) *Respiration*, sudden increase, not infrequent, whether shallow or sighing. (*e*) *Sweating*, if subject to during attack, if onset with the pain; whether local or diffuse. (*f*) *Vomiting*, whether with onset of pain or not; character of vomiting. (*g*) *Hiccough*.

¹⁵The Philadelphia Medical Journal, Jan. 19, 1901.

(5) *Blood count*.—Leucocytosis, stationary or rising. May be marked and early. In a majority of cases, well followed, there is a rise. The constant leukopenia in typhoid fever has to be taken into account. Also a count of the red blood corpuscles and hemoglobin, as a decided drop might suggest hemorrhage.

OMENTAL FIXATION AS A TREATMENT FOR HEPATIC CIRRHOSIS.

Attention is again called to this procedure by articles published in Germany and the United States. The former is a summary of the experimental work of Dr. Kusnetow, the latter deals with the clinical results.

The work of Dr. Kusnetow seems to show¹⁶ that omental fixation relieves ascites due to impeded portal circulation; that complete ligation of the portal vein without previous omental fixation and anastomosis, is rapidly fatal. Interesting facts, relating to the collateral circulation after the formation of the anastomosis, were reported. The article is of interest to the anatomist, pathologist and clinician.

The American article is by Dr. C. H. Frazier,¹⁷ who reports a case of hepatic cirrhosis with ascites successfully treated by omental fixation.

He caused adhesions by rubbing and scarifying the parietal, diaphragmatic, splenic and hepatic surfaces, and by suturing the omentum to the parietal peritoneum for a distance of 3 to 4 inches on either side of the laparotomy wound. There was no drainage, but the recurrent ascites was relieved by tapping. After the anastomosis was formed, this was not required.

The writer does not consider that omental fixation is indicated in every case of cirrhosis with ascites. To be successful, he thinks that the functional activity of the hepatic cells must be unimpaired. The results of 14 cases are reported. Of these, 6 were successful. In another the patient's condition was improved.

THE RADICAL TREATMENT OF MALIGNANT TUMORS OF THE RECTUM.

Lorenz¹⁸ reports 158 cases of malignant tumors of the rectum, which were operated upon in Albert's clinic in the past 14 years. In 105 others colostomy was performed, and 68 were not deemed operable. Thus, 331 cases were observed in all, during 14 years. Colostomy was performed whenever radical operation was contra-indicated, because the sacrum, bladder or urethra was involved, or the cachexia was too great, etc. It was performed in 3 times as many men as women. Primary colostomy was only done in 4 cases. Kraske's dorsal method of operating was performed in 133 cases, the perineal method in 16 cases, and the vaginal method in 2 cases. One hundred and twenty-eight of the dorsal operations were for primary cancer of the rectum. The great majority of the operations were upon

people from 40 to 50 years old. The coccyx was enucleated 42 times; the sacrum, or parts of it, removed 91 times. Of the former, 3 died; of the latter, 13; in all 16 deaths, only 12 of these from infection. The other 4 died from failure of the respiration, the heart, etc. Douglas' pouch was opened 79 times. The posterior wall of the vagina was resected 12 times and divided once. The urethra and prostate were injured 8 times, 4 of them fatally. Twice the bladder was injured, both patients recovering. In 90 cases the rectum was amputated, with 13 deaths; in 25 it was resected, with 3 deaths; and it was drawn through in 17 cases, with 1 death. Of each of the latter groups, 8 regained control of their anal sphincters; 12 cases had absolutely no control. Kukula has heard recently from 100 of these patients. Of these, 11 died soon after the operation, from the effects of the operation; 7 now have recurrence; 59 have died with recurrence; and 16 are perfectly well,—an excellent result.

GELATIN TREATMENT OF ANEURISMS.

J. Sargo¹⁹ gives the following: Six cases are described, in which aneurisms were treated by a solution of gelatin. Forty-two aneurisms treated with gelatin are also recorded in literature. Analyzing these 48 cases, Sargo finds that in 18 the aneurism was sacculated, and organized coagula formed in 13. In the 16 nonsacculated cases no clot formation occurred. In one of his personal cases the ascending aorta was the seat of a diffuse aneurism, and the innominate of a sacculated aneurism. The latter was filled with clots, while there was no trace of them in the former. Prolonged repose and suitable diet, especially milk, create conditions favorable to the obliteration of a sacculated aneurism, and consequently he thinks we are not justified in ascribing the obliteration of the sac to the influence of the gelatin. In a number of cases of hemorrhage from various sources, hemostasis occurred after local or subcutaneous injections of gelatin. It is impossible to assert, however, that in any case the gelatin was the direct cause of the hemostasis or clot formation, because the same effect might have followed the restricted diet and repose, because in many cases there was no hemostatic action, because the result may have been merely a coincidence, and because no experimental proof of the coagulating action of gelatin has been offered to date. The experiences in the 48 cases show that injections of gelatin are harmless, even in quite concentrated solutions. The pains sometimes caused by them are favorable on the whole, as they compel repose. Experience has also demonstrated that kidney affections are no contra-indication to the administration of gelatin by the mouth. The question is still undecided in respect to subcutaneous injections.

A REPORT OF THREE CASES OF THORACIC ANEURISM TREATED BY SUBCUTANEOUS INJECTIONS OF GELATIN.

²⁰Zeitschr. f. klin. Med. Berlin, xxi and xxii, 1; Journal American Medical Association, March 2, 1901.

¹⁶ Boston Medical and Surgical Journal, 1901, cxlvi, 177.

¹⁷ Annals of Surgery, 1901, xxxiii, 715.

¹⁸ Arch. f. klin. Chir., 1901, lxxii, No. 4. Philadelphia Medical Journal, Aug. 31, 1901, p. 343.

Dr. Lewis A. Conner²⁰ gives the following recapitulation:

Of the 3 cases, 2 received 3 injections and 1 7. In 2 cases the injections had to be discontinued because of the severe local pain. In the third the pain was only slight. In 1 case, that receiving 7 injections, a very slight improvement could be detected. In 1 case a slight increase in symptoms was noted, while the third case died of rupture of the aneurism while under treatment, and the autopsy showed no evidence of recent thrombus formation, although the condition—that of a large sac with a small communication with the aorta—was an especially favorable one for clotting. Aside from the pain and local irritation, no untoward symptoms were observed in any of the cases as a result of the injections.

I am not ready to conclude from these cases that the method has no therapeutic value, since in none of the cases was it possible to carry out the treatment fully. Lancereaux believed, however, that he could see very distinct improvement even after a single injection. Certainly no such satisfactory result was apparent in any of the present cases. Futcher gives his results in 9 cases as follows: While no case was cured, there was a considerable diminution in the size of the aneurism in 1 case, and in several others an appreciable reduction in the subjective symptoms referable to pressure. He believes the treatment to have some merit. Futcher also found that the injections were frequently very painful, and were followed by local reaction, fever and even chills.

It must be remembered that the administration of 20 injections would consume approximately 5 months of time, and that during this period the patient must be kept absolutely quiet in bed. Rest in bed for such a length of time would, of itself, in many cases produce a distinct amelioration of the subjective symptoms, and even some improvement in the physical signs.

My experience in these cases has at least convinced me that, whatever the curative value of the treatment, its usefulness is seriously impaired by the severe pain which frequently follows the injections.

(To be continued.)

Recent Literature.

Tumors of the Urinary Bladder. A Clinical and Operative Study Based on 500 cases. By E. HURRY FENWICK, F.R.C.S., Surgeon to the London Hospital; Surgeon and Pathologist to St. Peter's Hospital for Urinary Diseases. London: J. & A. Churchill. 1901.

The author divides vesical tumors into three classes for purposes of cystoscopic study: (1) Benign Villus-Covered Growths. (2) Malignant Villus-Covered Growths. (3) "Bald" Malignant Growths. He devotes one chapter to each of these

classes, and these three chapters, together with one on cystoscopic technique in cases of tumor of the bladder, make up the book, which concludes with a tabulation of 135 cases treated by the author during the past fifteen years. Mr. Fenwick's personal experience with the cystoscope is very large, and probably no one man has done more in demonstrating to the profession its practical value as an aid to diagnosis. In this little book of 100 pages he summarizes his experience in so simple and practical a manner, and illustrates the points he wishes to emphasize with such good, and for the most part original cuts, and with such carefully selected cases, that the book cannot fail to interest and attract any medical reader into whose hands it may fall. It was, however, most evidently intended for men of experience in this line of surgical work.

Operative Surgery. By JOSEPH D. BRYANT, M.D., Professor of Principles and Practice of Surgery, Operative and Clinical Surgery, University and Bellevue Hospital Medical College, etc. Third edition. Vol. II., pp. 739, with 827 illustrations, of which 40 are colored. New York: D. Appleton & Co. 1901.

This volume, the concluding one of the work, has been awaited with much interest on account of the general excellence of its predecessor, Vol. I.

It is devoted to regional surgery, and describes the operative technique of the month, nose, esophagus, viscera connected with the peritoneum, anus and rectum, the thorax, neck, and urinary bladder, the scrotum and penis. It concludes with a chapter on miscellaneous operations such as urethral plasties and strictures, fracture of the patella, the use of Parkhill's clamp, detection of foreign bodies by skiagraphy, et alii.

The arrangement, classification and character of the text, as well as the scheme of illustration, corresponds with that of Vol. I. The pages and illustrations are numbered continuously with those of Vol. I.

The expectations aroused by the first volume are fully realized. The reader finds in Vol. II that an unusual amount of information relating to operative surgery has been condensed within its pages. It is a thoroughly modern work, and is written in such a manner that its subject matter is easily accessible. It is also in a form readily understood, and when understood remembered.

To produce this book must have necessitated long, patient research, great technical knowledge and clinical experience. Also an immense amount of labor for the compilation of data, its arrangement, the selection and production of illustrations.

It is a work that is conspicuous among recent books on this subject. What has been said while reviewing Vol. I¹ applies also in every respect to this volume, and little can now be added. One finds the same concise style of expression, the same systematic arrangement. Here also one "sees as well as reads," so many and effective are the "graphic" aids to his understanding. The

²⁰ Medical News, March 16, 1901.

¹ Boston Medical and Surgical Journal, 1900, exliii, 377.

author presents the unusual combination of exceptional knowledge and experience, with marked ability to impart this to others.

To criticize this book in detail is difficult, for while reading it with this in view, one finds each subject so satisfactorily presented that a criticism of the few minor details on which one might hold a different opinion from that of the author seems hypercritical in the midst of such general excellence.

The Physiological Action of Drugs. An Introduction to Practical Pharmacology. By M. S. PEMBREY, M.A., M.D., Joint Lecturer on Physiology in Guy's Hospital Medical School, and C. D. F. PHILLIPS, M.D., LL.D., Examiner in Materia Medica and Therapeutics in the University of Aberdeen. London: Edward Arnold, 1901.

It is a small book of less than 100 pages, which gives the protocol and the results of experiments upon frogs, destined to teach the pharmacological action of drugs to students. The description of the technique is very clear and concise. This work is a very worthy and scientific attempt to introduce practical pharmacology into medical schools. The book is not exactly what is required for such a course, yet the authors are to be complimented on their work as far as it goes. The action of drugs cannot be taught upon frogs alone. But probably the authors would have made of this volume an ideal work upon practical pharmacology by introducing the indispensable classical experiments upon mammalia, if they had not been hindered in their task by the foolish and tyrannical laws of England regarding vivisection.

Apart from a few faults, such as the statement that *veratrum viride* contains *veratrine*, the failure to mention that *physostigmine* acts directly upon smooth muscles, and the use of too large doses of alcohol and ether, this book is good in the field which it covers; that is, pharmacological action of drugs upon brainless frogs.

Studies in Physiological Chemistry. Being Reprints of the More Important Studies Issued for the Laboratory of Physiological Chemistry, Sheffield Scientific School and Yale University, during the years 1897 to 1900. Edited by R. H. CHITTENDEN, Ph.D., Professor of Physiological Chemistry and Director of the Sheffield Scientific School. New York: Charles Scribner's Sons; London: Edward Arnold, 1901.

This book is a compilation of the reprints from the different journals of the work done by Dr. Chittenden and his pupils during the last three years. It is not destined as a textbook of physiological chemistry, but as a specimen of the work performed in the Sheffield Scientific School.

FELLOWSHIP IN PHYSIOLOGICAL CHEMISTRY. Dr. George Woodward of Philadelphia has given \$20,000 to the University of Pennsylvania for the establishment of a fellowship in physiological chemistry.

THE BOSTON Medical and Surgical Journal.

THURSDAY, NOVEMBER 21, 1901

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X-RAY BURNS.

A RECENT decision of the United States Circuit Court in favor of a purchaser of a static machine who had burned himself while using the x-rays, has attracted the attention of the profession, as well as of others in the community, to the question of x-ray burns. The verdict in this case, as reported, was given against the firm selling the static machine, on the ground that it was purchased with the understanding that it would not cause burns.

It is now almost six years since the discovery of the x-rays was announced, and during this time they have been used by surgeons to examine fractures, to recognize diseases of the bones, and to locate foreign bodies, such as bullets. They have also been used by physicians to examine the heart, lungs, and vessels of the chest, and they have proved to be a valuable aid in the diagnosis of diseases of these and of other organs of the body. During these years x-ray examinations have been made in all parts of the civilized world, and the aggregate number of times the x-rays have been thus used would easily run into hundreds of thousands. Among such a number of examinations many must have been made by persons who were untrained in any method requiring careful procedure, and who also necessarily had had little or no experience in the use of the x-rays. It is not surprising, therefore, that there have been x-ray burns; the wonder is that under these conditions there have not been a very large number, instead of comparatively few, but there is no reason now why any one should be burned, when the x-rays are used for the purpose of diagnosis, even when unusually powerful forms of apparatus are employed, if proper care is taken.

It is well known, on the one hand, by those conversant with the use of x-ray machines, that a severe burn may be produced by a small static machine; for example, one having 2 plates, each

16 inches in diameter only; on the other hand, it is a fact that at the largest hospital in Boston a static machine, which has 8 plates each 72 inches or more in diameter, has been in use for 2 or 3 years, and that during more than 5 years at the same institution static machines or coils have been in almost daily use, and thousands of x-ray examinations have been made without a single burn resulting. This means that with proper care there is no risk to the patient from x-ray examinations, either when a static machine or a coil is used. Though the fingers may be burned by holding them over a lamp, it does not follow that it is dangerous to read by its light.

There is another property of the x-rays which is wonderful almost beyond belief, and that is the healing action which they can be made to exert upon diseased tissues of the body near the surface; this beneficent action is exerted upon certain forms of cancer,—as well as other diseases,—these new growths healing under the benign influence of the x-rays. Although the risk of a burn, when the x-rays are used for treatment, is greater than when they are employed simply for the purpose of diagnosis, it need not deter any one, who has such a serious disease, from benefiting by their use, provided the treatment is carried out by a well-educated physician, who is experienced in the use of the x-rays.

REORGANIZATION OF THE NEW YORK PATHOLOGICAL INSTITUTE.

It is a source of gratification that the work of the New York Pathological Institute, which, under the direction of Dr. Ira Van Gieson, was inaugurated several years ago, and temporarily discontinued, is to be reorganized, though on a slightly modified basis from that originally projected. An Advisory Board has been appointed, whose duty it shall be to aid in the development of the work and assist the new director in the various problems which are sure to present themselves. The aim of the reorganized institute is to be similar to that originally planned, and theoretically worked out by Dr. Van Gieson. The plan of a study in the laboratory of the sciences correlated with psychiatry will be carried out as before, but somewhat more attention, it is said, will be paid to the instruction of physicians connected with insane hospitals, and of men who are contemplating careers in such institutions. To bring this about in the most satisfactory way, it has long been felt that the institute should be connected immediately with a hospital for the insane. It is therefore planned, for the present at least, to associate the laboratory with one of

the city institutions on Ward's Island, until the proposed reception hospital for the insane is established in Manhattan. The Lunacy Commission, in selecting the members of the Advisory Board, has thought it desirable to have the three medical schools connected with universities of New York City represented; namely, Columbia, Cornell and Bellevue University. In accordance with the general plan of correlation, representatives of the sciences of pathology, chemistry, psychology and general biology have also been selected. Clinical medicine and neurology and the State hospitals, in the persons of chosen representatives, are also to have a place on the Advisory Board. The following well-known men have been chosen on this important board: James Ewing, Professor of Pathology, Medical Department of Cornell University; Dr. Christian A. Herter, Professor of Pathological Chemistry, Bellevue and University Medical College; Dr. J. McKeen Cattell, Professor of Psychology, Columbia University; Dr. Hermon C. Bumpus, Assistant to the President of the American Museum of Natural History, to represent the Department of General Biology; Dr. Henry Hun, Professor of the Diseases of the Nervous System, Albany Medical College, to represent Neurology and General Clinical Medicine; Dr. Charles W. Pilgrim, Superintendent of the Hudson River State Hospital, at Poughkeepsie, and Dr. A. E. Macdonald, Superintendent of the Manhattan State Hospital, to represent the State Hospitals; Dr. Frederick Peterson, President of the Lunacy Commission, a member ex-officio. All appointments to the Advisory Board are permanent except two. The two superintendents of asylums on the board were elected for a term of two years only, thus permitting all the asylums to be represented in rotation on the board.

These names are a guarantee of the conscientious endeavor that is being made to renew under most favorable auspices the valuable work of this laboratory, which has temporarily been allowed to lapse. We hope there will be no confusion arising from a multitude of counsellors, and that the new director will be allowed a sufficiently free rein in the development of his scheme of work. We have no doubt this will be the case, and that the high ideal of work set by the energy and originality of Dr. Van Gieson will be realized in the further development of this and similar laboratories.

ICE AS A CONVEYOR OF DISEASE.

IN the search for the cause of diseases, notably of those which affect the gastro-intestinal tract, ice has come in for its share of opprobrium. It

has from time to time been urged, with much apparent reason, but often with too little regard to experimental verification, that ice derived from dirty or contaminated sources must be capable of conveying disease to those using it. Such an assumption is certainly natural, and would, no doubt, carry great weight, were it not possible, by modern bacteriological methods, to demonstrate its essential incorrectness. The regularity with which typhoid fever appears during or at the end of summer at various resorts has done something to reinforce the idea of the rôle which impure ice may play in the production of that disease.

It is, for example, interesting in the light of our present knowledge, to revert to an investigation made twenty-five years ago by Dr. A. H. Nichols at Rye Beach, N. H., regarding an outbreak of intestinal disorder, which occurred at one of the larger hotels at the beginning of the season of 1875. The communication was published in the report of the Massachusetts State Board of Health for the year 1876. After a careful study of conditions which might lead to such an outbreak, Dr. Nichols was forced to the conclusion that ice cut from a certain pond was the source of the disturbance. The pond was shallow, and contained considerable decomposing organic matter, which was incorporated in the ice. Naturally, at that time no bacteriological examination was made, and the cause of the epidemic which prevailed was attributed to contamination by decomposed organic matter. Considerable evidence is adduced in this paper to show that the outbreak of the intestinal disorder was associated with the consumption of this impure ice—evidence, however, which today, in the absence of bacteriological tests, would hardly be regarded as conclusive. Dr. Nichols ends his report with the following warning: "The notion that ice purifies itself by the process of freezing is not based upon trustworthy scientific observation. On the contrary, it is utterly wrong in principle to take ice for consumption from any pond, the water of which is so fouled as to be unfit for drinking purposes."

Recent investigation has in great measure reversed this opinion, as a reference to Dr. H. W. Hill's paper on "An Investigation of the Boston Ice Supply," published in another part of this issue, will show. The subject has also been worked out by Sedgwick and Park, and very recently by H. W. Clark of the Massachusetts State Board of Health, with essentially the same results; namely, that bacteria are greatly reduced in number, and that ice does purify itself by the process of freezing—to such a degree, in fact, that about three weeks after the date of freezing, bacteria may be regarded as innocuous. The

danger of the conveyance of typhoid bacilli in ice is shown by these experiments to be practically *nil*. Hill states that but one case of the probable transmission of typhoid fever by ice is on record. However this may be, a perusal of his paper will convince the doubting that, however manifold the dangers may be with which we are surrounded, we need have no special anxiety as to the source of our ice supply. We would not, for a moment, imply that all reasonable precautions should not be taken in this as in any other sanitary matter, but all the evidence goes to show that typhoid fever is not conveyed to man by this means, and this is the only disease which demands serious consideration in connection with impure ice.

MEDICAL NOTES.

A DISTINGUISHED CENTENARIAN.—Lady Catherine Jane Carew, grandmother of the present Baron Carew, has recently died at Woodstown, Waterford, at the age of one hundred and four. She was a guest at the famous Brussels ball, on the eve of the battle of Waterloo, and was born in the year of the Irish rebellion, 1798, and was one of the figures at the court of King Louis Philippe of France. Up to within a short time of her death she is said to have played her game of chess with acumen.

ST. LOUIS HEALTH DEPARTMENT BLAMED.—It is announced that Coroner Funkhouser of St. Louis has rendered a verdict finding the City Health Department negligent in the preparation of diphtheria antitoxin, which recently caused the deaths of a number of children from tetanus. The custom for some time has been for the Health Department to make and distribute antitoxin throughout the city free of charge. In this instance the horses from which the serum was obtained were said to have been infected with tetanus.

APPOINTMENTS IN THE MEDICAL DEPARTMENT, UNIVERSITY OF PENNSYLVANIA.—Through the resignation of Dr. Horatio C. Wood, Dr. Charles K. Mills has been appointed clinical professor of diseases of the nervous system in the University of Pennsylvania. Dr. W. G. Spiller has been appointed assistant professor in the same subject, and Dr. Charles W. Burr, professor of mental diseases.

PLAGUE ON STEAMER ARRIVING AT MARSEILLES.—It is reported from Paris that the Peninsular Oriental Steamship Company's steamship *Peninsula*, bound from Bombay to London, arrived at Marseilles Nov. 18, with bubonic plague aboard. One patient died at sea.

HEALTH COMMISSIONERSHIP OF BUFFALO.—There is apparently some agitation over the re-appointment of the present Health Commissioner of Buffalo, N. Y., Dr. Ernst Wende. His work appears to have been conscientiously performed for the best interests of the city, and there are indications that politics, rather than public utility, are behind the effort for his removal.

ABUSE OF DISPENSARY PRIVILEGE.—With a view to prevent people of means taking advantage of the free dispensaries, meant only for the poor of the community, the physicians and druggists of Philadelphia will petition the next legislature to enact a law, requiring that a register, to be open for inspection, shall be kept, giving the names of all persons obtaining medicines. —*American Medicine.*

SMALLPOX IN VIENNA.—It is reported that the cold weather has greatly increased the number of cases of smallpox in Vienna, Austria, which appeared to be decreasing lately. Nov. 18, 35 fresh cases were reported, the largest number any day so far.

LIVERPOOL FREE FROM PLAGUE.—It is reported that Liverpool is free from plague. All those who were suspected of suffering from the disease have recovered.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Nov. 20, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 54, scarlatina 31, measles 136, typhoid fever 17, smallpox 29.

THE MAYOR'S VETO OF THE CHRONIC HOSPITAL ORDER.—Mayor Hart of Boston has vetoed the recent order of both branches of the Boston City Government providing for the establishment of the so-called Chronic Hospital Department. The mayor is known not to be opposed to such a hospital, which he has done much in furthering, but objects to a provision made by the aldermen that the hospital shall be absolutely free. The mayor's position is that those who can afford to pay for board and treatment should be obliged to do so. The difference will no doubt be adjusted.

REQUESTS TO HOSPITALS.—By the will of the late Alfred H. Hersey, the Massachusetts General Hospital receives \$5,000 for the support of a free bed; Massachusetts Homeopathic Hospital, \$5,000 for a like purpose; Carney Hospital, \$2,000; Free Hospital for Women, \$1,000; Massachusetts Eye and Ear Infirmary, \$3,000; Perkins Institution for the Blind, \$5,000; Kindergarten for the Blind, \$2,000; Channing Home, \$2,000; Boston Home for Incurables, \$2,000.

SMALLPOX.—The smallpox situation remains essentially unchanged. New cases are continually appearing, which is, at least, having the effect of encouraging vaccination. It is of interest that, of over 200 cases of the disease occurring since June 6, in Massachusetts, only 34 are said to have been properly protected by vaccination. With but 2 exceptions, the deaths which have occurred at the Southampton Street Hospital have been of patients who had never been vaccinated, and the 2 who died were suffering from other affections as well as smallpox.

OUT-PATIENT DEPARTMENT, MASSACHUSETTS GENERAL HOSPITAL.—Ground has been broken for the new out-patient building at the Massachusetts General Hospital. It is expected that it will be ready for use by January, 1903.

BORN IN 1799.—Eben Lancaster, who died in Bowdoinham, Me., Nov. 12, was born Oct. 16, 1799. He had lived through the life of every president and under the administration of all except that of Washington.

IMPROVEMENTS AT CHILDREN'S HOSPITAL, BOSTON.—As a memorial to Miss Hope Clement, several sun rooms and balconies have been built on the front of the hospital building.

REGISTRATION IN DENTISTRY.—About 90 candidates presented themselves last week before the Massachusetts State Board for registration in dentistry.

NEW YORK.

ST. JOHN'S GUILD.—The thirtieth annual meeting of St. John's Guild was held on Nov. 12. During the past summer 61,114 mothers and children were carried on the free excursions of the Guild's floating hospitals, and 2,630 cases (an increase of 24%) were treated at its seaside hospitals. The increase in seriously ill cases was marked, and 71 deaths occurred. The receipts were nearly \$40,000 more than in 1900, and \$25,680 was expended for buildings, improvements and repairs. It was announced that after a long-continued investigation into the needs of New York for a convalescent hospital, the trustees have decided to establish on the Guild's property at New Dorp, Staten Island, such an institution for women and children, to be open the entire year. Funds sufficient to carry out the project are not yet in the hands of the trustees, but tentative plans for suitable fireproof buildings have been prepared. Many letters have been received from men at the head of various hospitals and charities, favoring such a hospital; one of them being from Edward T. Devine, general secretary of the Charity Organization Society, who wrote: "From all our districts we are constantly hearing

of women who are discharged from maternity hospitals before it is possible to begin work, and with no one at home to look after them properly. The absence of some place where they can go for convalescence while in need of special diet and nursing involves a serious hardship. If they could be sent to such a hospital as you describe for two weeks or a month, it would be a godsend, and would, in our opinion, be a most justifiable use of charitable resources."

MORTALITY STATISTICS DURING OCTOBER.—The Health Department reports show that the mortality in the city during the month of October represented an annual death-rate of 17.39, against 19.64 for September, and 17.60 for October, 1900. Among the diseases in which the mortality increased were the following: The weekly average of deaths from diphtheria and croup increased from 23 to 32.5; from scarlet fever, from 5.5 to 6.5; from measles, from 2.75 to 4.25; from whooping cough, from 5.5 to 6.5; from pneumonia, from 56.25 to 84; from bronchitis, from 21.25 to 23.75; from cancer, from 41.25 to 44.75; from diseases of the urinary system, from 98.75 to 110.75; and from influenza, from .5 to 1.5. Among the diseases in which the mortality declined are the following: The weekly average of deaths from typhoid fever decreased from 23.75 to 21.5; from diarrheal diseases, from 302 to 117.75; and from diarrheal diseases in children under 5 years, from 279.25 to 104. The weekly average of deaths from smallpox (2.5) and from phthisis (143) remained just the same in October as in September. Among the rarer causes of death noted during the month were the following: Three deaths from Addison's disease, 3 from purpura, 3 from pemphigus, and 1 each from mumps, hydrophobia, exophthalmic goitre and vomiting of pregnancy. In the week ending Nov. 2 the death-rate became reduced to 15.55, the lowest thus far recorded during the present year.

PRIMARY INTESTINAL TUBERCULOSIS IN CHILDREN.—On Nov. 11 Dr. David Bovaird, Jr., read before the Section on Pediatrics of the New York Academy of Medicine a valuable paper on "Primary Intestinal Tuberculosis in Children: Its Frequency and the Evidence of Its Relation to Bovine Tuberculosis." In the course of it he said that the doctrine is fairly well established that, as regards their milk, only such cattle as have tuberculous lesions of the udder are really dangerous. The milk supply of a family is ordinarily not that of one cow, but a part of the mixed milk of a herd. A single tuberculous cow in a herd may evidently contaminate the product of the whole herd. It does not follow, however, that all the milk containing tubercle bacilli is capable of producing tuberculosis either in man or animals. If

it were, evidently few would escape. Undoubtedly the action of the digestive fluids is sufficient to protect from infection by milk, unless the milk contains large numbers of bacilli or the protection normally afforded by the gastric juice is annulled. When we come to inquire what evidence there is that tuberculous milk has produced tuberculosis in children, one is surprised at the paucity of the evidence obtainable. Of the 2,000 children regularly in the care of the New York Foundling Asylum, one-third are kept in the institution and two-thirds are intrusted to the care of nurses who live in or near the city. The out patients remain with their nurses until 2½ years old, and are therefore subject to the conditions that prevail among the poorer classes. The autopsy records of the hospital during many years show that out of 250 cases of tuberculosis in children, there were only 5 cases, or 2%, of definitely primary intestinal affection among them.

MEETING OF SOCIETY OF MEDICAL JURISPRUDENCE.—The annual meeting of the Society of Medical Jurisprudence was held on Nov. 11, when the following officers were elected: President, Theodore Sutro; Vice-President, Dr. Carl Beck; Recording Secretary, John C. West; Corresponding Secretary, Albert A. Harmon; Treasurer, J. McLean Shaw. The paper of the evening was by Prof. W. H. J. Sieberg, on the adulteration of drugs and the sale of harmful proprietary medicines. He showed how extensive was the use of spurious drugs, and characterized in strong language the action of manufacturers and druggists in advertising and selling proprietary medicines supposed to be harmless, but which were filled with alcohol and opium and other poisonous drugs. He said that what was needed to stop this, was not so much additional legislation as a more stringent enforcement of the laws already in existence. Poor and adulterated drugs, no one could deny, are a menace to life and health, and their sale should be prohibited by the most rigid measures.

A FATAL HUNTING ACCIDENT.—Profound sympathy is felt for Dr. Edward E. Tull, the well-known gynecologist, who on Nov. 7 met with the terrible misfortune of accidentally causing the death of his friend, Dr. C. N. Spalter, while duck hunting in a naphtha launch on Long Island Sound, near New Rochelle. In passing a gun to Dr. Spalter, who was his companion, the butt struck the bottom of the boat, and the shock caused the weapon to go off, the charge entering Dr. Spalter's forehead and killing him instantly. Dr. Spalter was a young physician, 27 years of age, whose family live in Keene, N. H., and who had been established only a short time in New York.

STEREOSCOPIC VISION BY X-RAYS.—E. W. Caldwell has developed in the University and Bellevue Hospital Medical College Laboratory, a new apparatus for giving stereoscopic vision by x-rays, which it is believed will be of great practical value in medicine and surgery. By means of its use the picture stands out distinctly, showing, instead of the usual silhouette effect, all the space relations of the objects viewed.

CLOSING OF SCHOOL ON ACCOUNT OF SCARLET FEVER.—A public school at Throgg's Neck, in the borough of the Bronx, has been closed by the health authorities on account of the prevalence of scarlet fever among the children attending it. Of 400 pupils about 40 have been attacked, and the outbreak is said to have originated from a little girl who was treated without a physician, and whose parents did not recognize the character of the disease.

METEOROLOGICAL RECORD

For the week ending Nov. 9, 1891, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S....	30.08	44	51	38	74	69	72	N	N	N	7	15	C. C.
M....	30.06	43	48	38	74	68	72	N	N	N	6	12	C. C.
T....	30.08	42	52	33	82	85	85	N	N	N	5	9	C. C.
W....	30.06	44	51	36	55	75	65	N	N	N	11	9	C. C.
T....	30.06	40	48	32	62	68	65	N	N	N	11	9	C. C.
F....	30.01	45	52	32	62	68	65	N	N	N	5	9	C. C.
S....	30.04	46	54	39	62	68	65	N	N	N	12	11	C. C.
Mean	30.06		51	36			73						

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOV. 9, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria and croup.
New York	3,437,302	1,128	322	25.44	11.61	1.77	5.23	3.30
Chicago	1,988,575	—	—	—	—	—	—	—
Philadelphia	1,293,697	—	—	—	—	—	—	—
St. Louis	576,238	—	—	—	—	—	—	—
Baltimore	508,957	181	41	19.88	6.62	—	—	3.31
Cleveland	281,708	—	—	—	—	—	—	—
Buffalo	352,387	—	—	—	—	—	—	—
Cincinnati	325,902	—	—	—	—	—	—	—
Pittsburg	321,616	144	47	25.68	26.37	4.85	1.59	6.95
Washington	278,718	—	—	—	—	—	—	—
Milwaukee	285,315	—	—	—	—	—	—	—
Providence	176,597	45	12	35.55	26.66	—	13.33	2.22
Boston	560,892	207	46	25.69	11.09	—	4.83	.97
Worcester	118,421	29	15	16.24	6.30	3.45	6.90	—
Fall River	104,863	25	7	28.00	12.00	—	8.00	12.00
Lowell	94,969	30	14	26.64	16.67	—	—	16.67
Cambridge	91,896	21	10	22.58	9.68	—	—	3.22
Lynn	68,513	16	—	18.75	—	—	—	—
Lawrence	62,559	22	14	4.54	22.72	—	—	—
New Bedford	62,442	13	2	23.10	—	—	—	15.40
Springfield	62,059	14	3	14.28	21.42	—	—	—
Somerville	61,643	17	5	29.41	17.64	—	—	—
Holyoke	45,712	19	8	42.10	—	10.52	—	5.26
Brockton	40,063	9	2	22.22	—	—	—	—
Haverhill	37,175	9	1	33.33	—	11.11	—	11.11
Salem	35,956	6	2	—	—	—	—	—
Chelsea	34,072	7	—	28.60	14.30	—	—	—
Malden	33,664	10	—	20.00	30.00	10.00	—	10.00
Newton	33,087	8	2	25.00	—	—	12.50	—
Fitchburg	31,531	10	—	—	—	10.00	—	20.00
Taunton	31,036	14	1	28.56	28.56	—	—	—
Glooucester	26,121	9	5	33.33	—	—	—	—
Everett	24,536	3	1	33.33	—	—	—	—
North Adams	24,300	9	4	25.00	—	—	—	—
Quincy	23,899	7	1	14.30	28.60	—	—	44.44
Waltham	23,481	9	3	—	—	—	—	—
Pittsford	21,766	4	1	75.00	25.00	—	—	—
Brockton	19,335	—	—	—	—	—	—	—
Chicopee	19,167	2	1	50.00	—	—	—	50.00
Medford	18,244	5	1	40.00	40.00	—	—	—
Newburyport	14,478	3	1	33.33	—	—	33.33	—
Melrose	12,962	5	—	—	—	—	—	—

Deaths reported 2,240; under five years of age, 667; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 603; acute lung diseases 302; consumption 315; scarlet fever 15; erysipelas 4; typhoid fever 10; whooping cough 13; cerebrospinal meningitis 15; smallpox 12; measles 6; diarrheal diseases 84.

From whooping cough, New York 4, Philadelphia 3, Baltimore 2, Boston 3, Gloucester 1. From cerebrospinal men-

Obituary.

MEDICAL DIRECTOR GIBON, U. S. NAVY.

DR. ALBERT LEARY GIBON, a distinguished retired surgeon of the United States Navy, died of apoplexy at the Roosevelt Hospital, New York, on Nov. 17, at the age of 69 years. He was a graduate of Princeton College, and received his medical education in Philadelphia. In 1853 and 1854 he was professor of chemistry and toxicology in the Philadelphia College of Medicine and Surgery. In 1855 he entered the naval medical service, and while on the sloop-of-war Portsmouth took part, in the following year, in the battle which resulted in the capture of the barrier forts at Canton, China. In 1860 he was assigned to the Naval Hospital at the Brooklyn Navy Yard, and during the greater part of the Civil War he was in active service on the St. Louis, which did special duty as a privateer hunter. At the close of the war he became senior medical officer at the Portsmouth Navy Yard. In 1869 he was on board the Idaho when that vessel was struck by a great typhoon, and for his services in the Portuguese colony at Dilly, on the Island of Timor, and on the Portuguese man-of-war *Principe Don Carlos* and *Sa da Bandeira*, he was awarded the decoration of Knight of the Military Order of Christ by the king of Portugal. In 1870 he was surgeon of the fleet on the European station. He became medical director in 1879, and later served at Washington, Mare Island, Brooklyn and New York. In 1893 he was transferred to the post at Washington, in charge of the medical headquarters. He was then senior medical officer of the navy, and was placed on the retired list in 1895, with the rank of commodore. Since then he had resided principally in New York, and for some time past had been medical director of the hospital at the Sailor's Snug Harbor on Staten Island.

Dr. Gibon designed the model hospital ship which was exhibited at the Centennial Exposition at Philadelphia in 1876, and the ambulance cot approved and used by the navy was designed by him. He was well known as a medical writer, and some of his works have been used as textbooks. Among the publications on which he did editorial work were the following: "The Annual of Universal Medical Science," "Handbook of the Medical Sciences," and "The Twentieth Century Practice of Medicine." Dr. Gibon was much beloved by all who knew him. He was a man of most genial character, and he had a happy facility of expression which made him a favorite speaker on all occasions.

ingitis, New York 3, Baltimore 1, Pittsburg 1, Providence, Somerville and Gloucester 2 each, Boston, Cambridge, Lynn and Brockton 1 each. From scarlet fever, New York 8, Philadelphia 2, Pittsburg 4, Lynn 1. From typhoid fever, New York 20, Philadelphia 7, Pittsburg 7, Holyoke 2, Worcester, Haverhill, Malden and Fitchburg 1 each. From erysipelas, New York, Philadelphia, Pittsburg and Boston 1 each. From smallpox, New York 1, Philadelphia 8, Boston 3. From measles, New York 3, Boston 2. In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,023, for the week ending Oct. 26, the death-rate was 16.7. Deaths reported 3,663; acute diseases of the respiratory organs (London) 242, whooping cough 43, diphtheria 64, measles 80, fever 56, scarlet fever 31.

The death-rate ranged from 9.9 in Wolverhampton to 25.2 in Newcastle-on-Tyne; Birkenhead 13.6, Birmingham 18.5, Blackburn 22.5, Bolton 14.2, Bristol 13.9, Burnley 17.1, Cardiff 12.6, Croydon 10.8, Derby 11.8, Gateshead 17.5, Hull 18.3, Leeds 17.1, Leicester 10.6, Liverpool 18.6, London 16.1, Manchester 22.3, Norwich 19.5, Oldham 16.3, Plymouth 21.2, Portsmouth 15.1, Preston 17.1, Salford 20.7, Swansea 14.9, West Ham 17.1.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCT. 31, 1901.

ARTIST, H. W., surgeon. Bureau letter of Sept. 28, 1901, granting Surgeon Austin leave of absence for 1 month amended so that said leave shall be for 21 days only. Oct. 31, 1901.

GEDDINGS, H. D., passed assistant surgeon. To assume temporary command of Hygienic Laboratory during absence of Passed Assistant Surgeon M. J. Rosenau. Oct. 24, 1901.

THOMAS, A. R., passed assistant surgeon. To proceed to Liverpool, England, for duty. Oct. 31, 1901.

McMILLAN, John, assistant surgeon. Granted 4 days' extension of leave of absence. Oct. 30, 1901.

DEKE, B. E., acting assistant surgeon. Granted 15 days' leave of absence from Oct. 25. Oct. 26, 1901.

EBERSOLE, R. E., acting assistant surgeon. Granted 3 days' leave of absence under Paragraph 181 of the Regulations.

BECK, J. E., hospital steward. Granted 7 days' leave of absence from Oct. 20, 1901, under Paragraph 181 of the Regulations.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING NOV. 9, 1901.

F. ANDERSON, surgeon. Detached from the Naval Dispensary, Washington, D. C., Nov. 7, and ordered to the "Alabama," Nov. 9, as relief of Surgeon E. H. Green.

E. H. GREEN, surgeon. Detached from the "Alabama," Nov. 9, and ordered to duty as a member of the medical examining board, Washington Navy Yard, Nov. 15, as relief of Surgeon A. C. H. Russell.

J. G. AYRES, medical director. Retired from active service, Nov. 3, 1901, by operation of law, under the provisions of Section 1441, Revised Statutes, upon which date he will have reached the age of 62 years; with rank and three-fourths the sea pay of the next higher grade, under the provisions of Section II, Navy Personnel Law.

R. M. VORON, assistant surgeon. Detached from the "Columbia" and ordered to the "Constellation" for temporary duty.

SOCIETY NOTICE.

SEFFOLK DISTRICT MEDICAL SOCIETY.—There will be a regular meeting of the Section for Obstetrics and Diseases of Women in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, Nov. 27, at 8 p.m.

Papers: Dr. E. W. Cushing, "Inversion of the Uterus"; Dr. D. H. Craig, "Faulty Uterine Growth."

W. H. GRANT, Secretary.

RECENT DEATHS.

DR. JARVIS S. WIGHT, Professor of Operative and Clinical Surgery in the Long Island College Hospital, and one of the most eminent surgeons of Brooklyn, N. Y., died from cardiac disease on Nov. 16, at the age of 67. He was graduated from the Long Island College Hospital in 1864,

and directly afterwards went to the front as an assistant surgeon in volunteer regiment, serving until the close of the Civil War. All through his professional career he retained a close connection with the Long Island College Hospital. At the time of his death, as for many years before, he was attending surgeon to the Long Island College Hospital, and consulting surgeon to St. Mary's and the Eastern Division Hospitals. He leaves a son, Dr. Jarvis S. Wight, Jr.

DR. HARVEY P. TOLMAN of East Onondaga, N. Y., died Nov. 10, aged 78 years. He was at one time a member of the legislature for Onondaga County.

BOOKS AND PAMPHLETS RECEIVED.

Experimentelle und kritische Beiträge zur Händedesinfektionsfrage. Von Dr. Richard Schaeffer in Berlin. Berlin: Verlag von S. Karger. 1902.

The Diagnosis of Nervous and Mental Diseases. By Howell T. Pershing, M.Sc., M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

A Textbook of Physiological Chemistry for Students of Medicine and Physicians. By Charles E. Shoun, M.D. Philadelphia and New York: Lea Brothers & Co. 1901.

A Laboratory Handbook of Urine Analysis and Physiological Chemistry. By Charles G. L. Wolf, B.A., M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

The Practice of Obstetrics. By American Authors, edited by Charles Jewett, M.D. Second edition, revised and enlarged. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1901.

Pediatrics; the Hygienic and Medical Treatment of Children. By Thomas Morgan Rotch, M.D. Third edition, rearranged and rewritten. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1901.

A Treatise on Medical Jurisprudence, Based on Lectures Delivered at University College, London. By George Vivian Poore, M.D. (London), F.R.C.P. Illustrated. New York: Longmans, Green & Co. 1901.

Diseases of the Upper Respiratory Tract, the Nose, Pharynx and Larynx. By P. Watson Williams, M.D. (London.) Fourth edition. Illustrated. New York, London and Bombay: Longmans, Green & Co. 1901.

Disinfection Against Mosquitoes; with Formaldehyd and Sulphur Dioxide. By M. J. Rosenau, M.D. Passed Assistant Surgeon, Director Hygienic Laboratory, U. S. Marine Hospital Service, Washington, D. C. 1901.

A Textbook of Pharmacology and Some Allied Sciences (Therapeutics, Materia Medica, Pharmacy, Prescription Writing, Toxicology, etc.). By Torald Sollmann, M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

"First Aid" to the Injured and Sick, an Ambulance Handbook. By F. J. Warwick, B.A., M.B. (Cantab.), M.R.C.S., L.S.C. and A. C. Tinsall, M.D., F.R.C.S., Ed. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

Materia Medica, Pharmacy, Pharmacology and Therapeutics. By W. Hale White, M.D., F.R.C.P. Edited by Reynolds W. Wilcox, M.A., M.D., LL.D. Fifth American edition, thoroughly revised. Philadelphia: P. Blakiston's Son & Co. 1901.

A Treatise on Surgery. By American Authors. For Students and Practitioners of Surgery and Medicine. Edited by Roswell Park, A.M., M.D. Third edition, enlarged and thoroughly revised. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1901.

A Textbook of Medicine for Students and Practitioners. By Dr. Adolph Strömberg. Third American edition, translated by permission from the thirteenth German edition, by Herman F. Vickery, A.B., M.D., and Philip Counsels Knapp, A.M., M.D., with editorial notes by Frederick C. Shattuck, A.M., M.D. Illustrated. New York: D. Appleton & Co. 1901.

Atlas and Principles of Bacteriology and Textbook of Special Bacteriology Diagnosis. By Prof. Dr. K. B. Lehmann and R. O. Neumann, Dr. Phil. and Med. Authorized translation from the second enlarged and revised German edition. Edited by George H. Weaver, M.D. Two volumes. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

Original Articles.

ONE'S HEALTH IN EGYPT.

BY F. GORDON MORRILL, M.D., BOSTON,

Visiting Physician to the Boston Children's Hospital.

PERHAPS "One's Health and Comfort in Egypt" would be a more appropriate title; for I have found myself unconsciously writing of things not strictly medical, and then kept on doing so, thinking that as health and comfort are so often interdependent, it might render this paper more useful.

INTRODUCTORY.

Descriptions of the climate of Egypt, and the value of the country as a health resort, whether written by a nonresident physician, or by one who merely dabbles in medical affairs, frequently vary, not only in accordance with the season or region to which the writer's personal experience has been limited, but in some instances one might fancy are not a little influenced by the condition of his health and temper during his sojourn (often brief) in the Nile valley.

For Egypt has been described by extremists either as a haven of safety for invalids, or as a deathtrap for unsuspecting tourists; whereas resident medical men practically agree as to the general effects of the climate, and the merits of the various stations in any given case.

So far as questions of temperature and relative humidity are concerned, amply sufficient data are now available¹ to readily decide any disputed points which are of practical importance, and very little remains for the meteorological imagination to feed on, so far as the habitable portions of the country are concerned.

Of all the large sandy areas in the world (and there are several) where the rainfall is slight, that vast tract which extends from the Atlantic to the Red Sea, is by far the most extensive, comprising as it does the Great Sahara, which is continuous with the Libyan desert and with the Arabian also, but for the interposition of the Nile.

Fortunately (for Egypt) there is but a very limited section of this country which is accessible to visitors, for invalids and tourists are alike unwelcome to the natives of by far the larger part; so that the health resorts of Northern Africa are almost entirely confined to the valley of the Nile. To be sure, there are Algiers, Hamman R'Thra and Biskra; but in none of these places can the climate compare with that of certain parts of Egypt.

Here we find the only river in the entire region which has resisted the fierce rays of the sun—the one water-course which holds its own in all this desert waste. Its waters (which bring with them rich mud from the Abyssinian Mountains) furnish the means of subsistence to ten million people, who are naturally peaceable, and among whom, thanks to England's beneficent "protection," one may sojourn in safety, and breathe an

air unrivaled in purity, coming as it does directly from the desert.

One's notions of what this desert is really like (for which the illustrations of juvenile literature, in which men and camels are pictured as prostrate before a "sirocco" in a vast plain of sand, are in a measure responsible) undergo a change when it is found to be in many parts (usually bounded by the edge of cultivation, and the base of the range of hills which limit the valley on either side) a gently undulating country of firm, coarse sand and gravel, where walking and riding are good, and occasional green spots may be seen; or else a barren waste composed of cliffs, gorges, hills, plains of limestone, and sand dunes hundreds of feet in height, which may stretch away for miles in succession, with no trace of vegetation anywhere visible. Yet, even here, when the eyes and mind have become accustomed to the vastness of the solitude, the lights and shadows thrown on rock and sand make the scenery beautiful, with a coloring which words cannot describe.

Lower Egypt is a wind-swept country at times, and the climate of its various health resorts is strongly influenced by the prevailing wind, which blows from the Libyan desert. Upper Egypt is far more subject to calms than is the Delta and the adjacent country. As in other places where it seldom rains, there is a marked difference between the highest and lowest temperature of the 24 hours of the day, which increases as one travels towards the South, where the relative humidity of the atmosphere becomes slighter.

The Egyptians (incorrectly and persistently called "Arabs" by foreigners) are dirty in their personal habits and surroundings; and those with whom visitors come in contact (so far as mutual relations are concerned) regard the moral space which separates truth from falsehood and honesty from fraud as the legitimate playground for an interesting game, into which they enter with enthusiasm, but provide none of the stakes. What is recognized as ordinary commercial honesty among English-speaking people has practically no existence in their dealings with foreigners,—at least so far as the lower, and a large proportion of the *effendi*,² classes are concerned. Occasionally a child who has been brought up by Europeans, or has lived much under their influence, may be quite a marvel of honesty and fidelity to duty until he reaches his teens, when he and truth part company forever. Yet interwoven with the Egyptian's cardinal faults there is a golden thread of natural amiability, which makes him likable in a way. He is kind to the poor, the sick and the blind—and they are many; but to extract money from a rich pasha or bey for anything in the way of a public charity, conducted by foreigners, for the benefit (mainly) of the natives, is extremely difficult.

Occasionally a "gyppy" may even surprise one by a totally unexpected exhibition of something

¹ Le climat du Caire et d'Alexandrie, Cairo, 1896, a government report by Dr. Engel Bey; and The Meteorology of Egypt, London, 1897, by Dr. Leigh Canney.

² Effendi—Monsieur or Mister. The man dressed in seedy European clothing and a greasy *tarbush*, who gives you the wrong change at a ticket office, is "Effendi."

resembling affection or gratitude: but such instances are rare, and the hope of *backsheesh*² is apt to be an underlying motive. Their childish and distorted view of things in general,³ queer use of English,⁴ and airs of bustling self-importance when employed on some petty mission, render them always amusing to any one with an average sense of humor.

You refuse to give alms, and a native may expostulate, but does not lose his temper. You defeat his attempts to cheat, and he may look at you reproachfully, but submits quietly. If detected in a lie, he regards it as an everyday incident. Begging is, in his eyes, as honorable a method of obtaining a living as digging in the ground or drawing water from the Nile. Small trials of this sort must be borne with equanimity, and one must always try to maintain what the guidebooks describe as "a polite and unexcited demeanor"; for angry words are useless, while tact, firmness and kindness will produce good results in dealing with this childish and crooked-minded race.

After a time one begins to understand them a little, and they quickly become aware of the fact, and behave with comparative decency, so far as money matters are concerned. There is this, too, to be said: They are usually civil, and the "tough" element among them is confined to the large cities, while drunkenness is practically unknown; and however lacking the Egyptian may be in such characteristics as are regarded in civilized communities as the very foundation of all decent living, we cannot but respect his observance of the rules of the Koran as regards fasting and prayer. To go without food and drink from sunrise to sunset during the thirty days of Ramadan is surely a proof of robust faith in El Islam; and this they conscientiously do. When this fast comes around in "the season," as it will for the next few years of twelve lunar months each, it is well to bear the fact in mind, if your donkey boy is not quite cheerful and energetic, or your Egyptian waiter a trifle slow.

The casual and robust tourist who "does" Egypt acts wisely in confiding his (or her) interests to the competent hands of an agency; for by this means much time and loss of temper (to say nothing of money) are saved; but for the elderly, or not quite strong, the regularly fixed tours and excursions are much too hard; and it is better for them to engage a reliable dragoman at one of the agencies, and do their sightseeing in a leisurely fashion. This does not necessarily imply taking a guide along when they move about the country; for in nearly all the places at which a visitor is likely to stop, the same agencies are

prepared to supply reliable people.⁵ An important fact which shapes the plans of well-advised invalids is that it is the *desert* air, with its freedom from micro-organisms, which they come to Egypt to breathe, and from which benefit is derived, in a climate which is unsurpassed for sunshine and equability.

When advised to "go to Egypt," one's destination is a little indefinite; for while the habitable part of the country south of the Delta is extremely narrow, it is a thousand miles in length, and several varieties of even desert climate can be found there. Moreover, definite instructions as to what to do and what to avoid, are required; for even such mistakes as that of a diabetic person ascending the great pyramid (and dying shortly after), or a subject of valvular heart trouble making long excursions on donkey back, have been known to occur, and are most unpleasant to contemplate. The wisest course for the invalid to pursue is to invariably consult the English resident physician, wherever he may find himself, and thus avoid going wrong.

By far the pleasantest and easiest way to reach Egypt is by one of the large steamers sailing from New York to Alexandria; but as this service comes under the head of "Winter Sailings," many prefer for reasons of health or travel to leave America in the autumn. A majority of these people find themselves in Paris or Italy, when the time comes for the final embarkation; and to such as are not strong the route selected is by no means a matter of indifference.

Alexandria is by far the best landing-place, and one can get there from Marseilles by boats which are none too large or clean, but on which the food is fairly good; but the large German or English boats which touch at Genoa or Naples on their way to the far East, go to their destination via the Suez Canal, and do not touch at Alexandria. However, if you are a good sailor, even if an invalid, there are English and Italian lines from Naples, and fair-sized Austrian Lloyd's and P and O's from Brindisi, which do stop there; and while on none of these will the richness of the diet give rise to indigestion, any one of them may be preferable to the coal dust of grimy Port Said, and the tedious ride thence to Cairo; but if a ten thousand-ton ship is a *sine qua non*, there is one thing to bear in mind, which is, *not* to disembark at Port Said, if your steamer ticket states that you are booked to Ismailia. Pay no attention to the notice which is pretty sure to be posted up after you have left Naples, saying that passengers are "strongly advised" to go ashore at Port Said, as the steamer will not reach Ismailia before night, etc., which gives rise to visions of being dropped off in the dark, and left to the tender mercies of a lot of Arab boatmen. "Sit tight" and all will be well. The landing is perfectly easy and safe, and ensures you passing a comfortable night in a decent hotel, and avoiding four hours of dust and

² The average dragoman's knowledge of antiquities is less than any intelligent schoolboy could acquire in one month's hard work. His stock in trade consists in picturesque dress, a little broken English, a smattering of Egyptology, a pleasant smile and a cane.

² Backsheesh—tip, gift, commission or bribe.

³ A woman brought an infant in arms to Dr. Sandwith's clinic at the Kasr el Aini Hospital in Cairo one morning, when the writer happened to be present. The baby's head was closely shaved back to the occiput, leaving a tuft of hair projecting and combed forward over either ear—a most comical arrangement. Explanation by an Egyptian medical student: "She has observed that wise people have but little hair on the front of their heads, and has done this to her child so that wisdom may reach its brain while it is yet young."

⁴ Who could help wishing to meet the very pleasant dragoman, whose card states that he is "full of acquainted (*sic*) of Assouan up the Nile?"

discomfort in the cars between Port Said and Ismailia, and being obliged to swallow a luncheon at the latter station which no guidebook could truthfully describe as "well spoken of."

At Alexandria the noise and confusion on landing is far worse than at either of the other ports; but all comes right in the end, and the journey to Cairo is shorter, and in every way more interesting and agreeable.

Ismailia is a pretty town, but not sufficiently so to warrant the risk of contracting malaria by a prolonged stay.

Port Said is an unsanitary coal-hole (if a perfectly flat place built upon the dredgings of the Suez Canal can be termed a "hole" of any sort), and a capital station to avoid.

ALEXANDRIA.

Aside from its convenience as a landing-place, Alexandria has absolutely nothing to recommend it. There is scarcely anything of historical interest to be seen there, and no flight of the imagination could picture it as a health resort at any season of the year—a dismal and windy city. Antony could have paid no higher tribute to Cleopatra's charms than by lingering there during the wintertime, unless the climate has radically changed since his day, which is possible, as the city is said to have had a reputation for salubrity and to have been prescribed for chest troubles in ancient times. Its water supply is fairly good, its drainage defective, and when the English in 1801 cut through the neck of land between Lake Mareotis (which bounds the city on the south) and the Mediterranean, they not only converted an extensive and fertile tract of country into a salt marsh, but incidentally spoiled whatever claims to a decent climate the city may have then possessed. Poetic justice now keeps them busy pumping water back into the sea to prevent further encroachment. But to exchange generalities for definite facts: Alexandria is a trifle warmer in winter (mean temperature 60° F.) and cooler in summer than Cairo, while its relative humidity is lower in winter and much higher in summer than that of the capital. There are between 35 and 40 days of rain recorded each year, and the amount which falls is 6 or 7 times that recorded at Cairo.⁷ The mean annual direction of the wind is N. 35° W., and it blows often and blows hard.

Such being the general condition of things, the morning train for Cairo is desirable. Missing it (which you are tolerably sure to do), no matter how early you reach port, implies gravitating to a dark and gloomy hotel and refreshment of a dubious kind. In short, one's first impressions of Egypt, arriving by either route, are unfavorable. From Alexandria to Cairo (131 miles) the journey occupies much less time, and is far more interesting, than by the other route. The cars are most comfortable. The Delta, through which the train runs, is composed entirely of the aggregation of Nile mud deposited during past ages, from the time when Cairo stood on the seashore. There

is nothing about the climate of this section of the country to recommend it, nor are there any decent hotels.

CAIRO.

Cairo the fascinating, has but slight claims to consideration (from a medical standpoint) as a place of residence, and is unsafe for visitors before the latter part of November.

The Nile reaches its maximum flood here during the first 10 days in September, and maintains its height during the remainder of the month. "In October it attains an artificial height, in consequence of the irrigation basins in Upper Egypt then allowing the water to escape and swirl on to complete the flood irrigation."⁸

During "High Nile" the ground on which the city stands is saturated to a level within 5 (exceptionally 3) feet of the surface; and beneath the rays of a hot sun vapors and odors arise in the native quarter unlike those usually credited to Araby the blessed; for the water mingles with the filth which is permitted to soak into the earth, together with the contents of such uncemented cesspools as may have escaped the vigilance of the health authorities. However unattractive this process may seem, it serves a good purpose, for if this earth "were not periodically cleansed and oxygenated by the Nile infiltration, it would have long ceased to have any beneficial properties as a sponge."⁹ During the winter the average level of subsoil water is 10 feet below the street level, and 19 feet when the Nile is at its lowest.

Drainage is nonexistent in the native quarter, and there is no comprehensive scheme in any part of the city; but in the *Ismailia* (European) section, which is, roughly speaking, between the Esbikieh Garden and the Kas'r-el-Nil Bridge, one finds modern plumbing and cemented cesspools, which are carefully looked after as a rule. Such sewage matter as can be removed under present conditions is carted out to the desert by night.

The water supply of the European quarter passes over filtering beds at Abyssieh; but there are numerous wells (the quality of their water may be easily judged from the above description of things underground) in constant use for all purposes. Hence, the rule to eat and drink *nothing* except in places above suspicion must be strictly observed.

All the good hotels are supplied with water for drinking and cooking via Abyssieh, and it is again carefully filtered before using. That which is served on the table is safe to drink,¹⁰ but the water provided in the bedrooms for washing purposes is to be avoided. The overcrowding, filthy habits, use of unfiltered water, and indifference to the most obvious sanitary precautions, account for the high death-rate (46.5) among the natives in contrast to that (21.8) of Europeans.

⁸ Egypt as a Winter Resort, by F. M. Sandwith, M.D., of Cairo.

⁹ *Ibidem*.

¹⁰ During "Low Nile" the river water is too concentrated to drink even when filtered—say between March 15 and the end of July.

⁷ Dr. Engel Bey, *op. cit.*

While in the bazaars (which are unsafe to visit after a rain, until the street surfaces at least are dry) you are frequently invited to drink Persian tea, etc. A polite refusal may be the means of conferring twofold benefit,—on the shopkeeper who saves his tea, and on the customer who may thus avoid an illness.

From a sanitary standpoint, the mosques, bazaars, workshops and native dwellings are all as bad as possible; and but for the blessed sunshine epidemics would kill the native population like so many sheep. It is difficult to say just how prevalent typhoid fever may be among the Egyptians, for the reason that none but the well-to-do among them seek proper medical advice. The ordinary "man in the street" who contracts a lingering illness may possibly summon a native *hakeem*, who applies the actual cautery to whatever portion of his patient's anatomy strikes his fancy; but as a rule he lies down and lives or dies, "*Inshallah!*"¹¹

To distinguish typhoid from malaria or typhus after death is not an easy matter (unless an autopsy is made) and hence cases of this sort are grouped together under the head of "*Fievres typhiques*" in the mortality statistics. Typhoid is sufficiently common among Europeans in Lower Egypt; but when they contract it, the milk and food supply, rather than properly filtered Nile water, are to be suspected. Malaria, too, while usually of a mild type, is by no means rare among natives and foreigners alike,—there are probably very few places in Lower Egypt which are above suspicion¹² in this respect. Acute intestinal troubles are responsible for the high rate of mortality among native children under five years of age; and among European children living in Cairo the death-rate from this cause is even higher than among the natives, for the reason that the latter are almost invariably "raised" on breast milk. Strangely enough, the infectious diseases of childhood are not nearly so common as one would naturally expect. Measles and diphtheria are by no means rare, but scarlet fever is very exceptional.

The milk served at even the best hotels seems a queer article to the American palate, and its composition is generally regarded as a profound mystery. It may very well be a mixture of filtered Nile water and buffalo milk, and is perfectly safe to drink (scalded) in one's tea or coffee.¹³ For those who are habitual milk drinkers at home, it can be obtained of good quality (and high cost) from at least two dairies,¹⁴ owning each its special herd.

The ice is not always clear; but is considered safe. It is manufactured by the same concern that supplies water from Abyssieh. Throughout Egypt the best hotels (none of which would pass as first class at home), are clean and fairly com-

fortable; and in spite of the charges being a little higher than is asked for the same sort of thing on the continent, the wonder is that they do so well, rather than that they do not do better. In the matter of food the chief faults lie in their apparent inability to serve a decent cup of *café au lait*, or really good roast beef. The first is unpardonable; but the second is in a measure due to the law forbidding the importation of cattle, and the fact that nearly all of decent size were used to supply the Sirdar's army during the campaign of 1898 against the Khalifa, and that sufficient time has not elapsed to enable the fresh supply to overtake the demand. Again, the cooking is French, and the chef of that nationality who has not firm belief in his ability to improve the natural flavor of an honest roast is a permanent resident of Utopia. You may also make the acquaintance of various kinds of puddings which, however light, seldom rise above the basement floor in America. But, after all, while one seldom goes further afield the fare is frequently worse than in Egypt. The only first-class hotel in Cairo which has anything like an efficient heating apparatus is the Gezireh Palace. Landing on Egyptian soil apparently places one under a moral obligation to feel warm and look pleased without reference to the thermometer.

The winter climate of Cairo compares favorably with that of some of our Southern States, and is better than that of any station along the Riviera; but if we consider the entire period of time usually termed "the season" (Nov. 20 to May 1), the heat of the last month is too great for comfort or health—the temperature in the shade not infrequently exceeding 100° F. Moreover, sudden changes are apt to occur at irregular intervals after March 1, the mercury rising only to fall rapidly. It is at this time that south and southwest winds are preceded by barometric depressions and accompanied by excessive dryness of the atmosphere and an occasional *khamseen*, after which variations in temperature of even 50° F. have been recorded. A full-blown *khamseen* is not pleasant. Often the wind dies down as it shifts to the southward, and at first the thermometer may rise only slightly; but within 24 hours the heat becomes intense, the barometer reaches its minimum, and the wind blows at a rate which old seamen log as a "moderate gale," but which seems sufficiently immoderate to the unhappy wight whom it catches on donkey back in the desert. The sun is obscured by an atmosphere filled with sand, which sifts through every crack. The dry heat shrivels up flowers, and may even crack seasoned wood. This sort of thing usually continues for three days, when it stops far more suddenly than it begins. The temperature goes quickly down, the wind shifts northwest, and the air becomes filled with moisture. At times there comes a short shower of rain with lightning. On rare occasions the entire program is repeated after a short intermission.

The general effects of a *khamseen* are stimulating while it lasts; but it is followed by listless-

¹¹ As God pleases.

¹² The mosquito *genus anopheles* is found at Cairo, Ismailia, Port Said, Meni House and Helwan.

¹³ Fresh buffalo milk is very good and often contains 10% or more of cream. It costs less than cow's milk, and will bear a higher dilution.

¹⁴ I am informed that Howie's Hygienic Dairy is reliable.

ness, depression, and the purchase of a steamer ticket, unless one has strong reasons for prolonging his stay. Strangely enough, it seems to have no unpleasant effects on the sick. Some of them actually appear to be benefited by what is a sore trial to people in good health. In Cairo the sand storms are usually less disagreeable than at Mena House or Helouan, as the wind has less free play; but even here it is not advertised as an attraction.

During the coldest weather the minimum temperature averages 46° F., and the maximum 66° F. The mean absolute minimum for five years was 36° F., and the lowest recorded 34° F. The nights are often very cold as compared with the days, and even in the daytime people who are accustomed to an indoor temperature of 68° F. are frequently very uncomfortable. A depressing sight is that of an American who does not feel quite up to the mark trying to get thoroughly warmed on a cold day in Cairo. He is in Egypt; the sun is shining brightly; he may even be so fortunate as to have rooms which include a small fireplace; but he cannot force the temperature up to 60° F., and he *feels cold*, and will continue to *feel cold* until he gets between blankets and takes "something." Under these circumstances he does well to get to Upper Egypt (by rail, not river) at the earliest convenient opportunity.

From Dec. 1 to April 1 the highest temperature (2 P.M.) averages 59° F. From this time on it drops (rather abruptly between 4 and 6 P.M.) by degrees until it reaches an average minimum of 50° F. at six o'clock the following morning. The relative humidity is 63° in winter, and for the entire year 58°—12° less than that of Algiers. About 1½ inches of rain usually falls during 17 (mostly winter) days of the year. That it *can* rain in Cairo was proved on two occasions during the winter of 1890 and 1891, when the water had to be pumped out of the streets and carted out of town, and ingeniously arranged mud dams were constructed¹⁵ in a way to make the main thoroughfares passable. Even a fairly sharp rain of short duration leaves the streets in bad condition, as there are no gutters or drains to conduct the water from the surface.

Flies are not troublesome at the good hotels; but mosquitoes of a feeble but noisy variety abound even in winter. Diarrhea, which may prove obstinate if neglected, and is often accompanied by a moderate rise of temperature, is very apt to follow a chill; while sore throat and temporary attacks of feverishness from the same cause are not uncommon among visitors. February is probably the safest month. The city is not fairly dried from the Nile overflow before December, while the suburbs (Gezireh and Mena House) are quite close to large temporary bodies of water as late as Christmas. These facts are stated in the interest of invalids; for it is the writer's belief that any one who enjoys good health may pass the entire winter in Cairo with no more risk of contracting a serious illness than if he were in

New York or Florida, provided certain precautions are observed. For a well person it would seem almost criminal to come so far and not remain long enough in the city of the Khalifs to see the chief objects of interest in a comfortable and leisurely way, which involves a fortnight's stay. In saying this only such things as everybody possessing a rudimentary conscience feels it a duty to see are referred to; Seti and Rameses in the (remarkably well preserved) flesh, Gamia El Azhar, the citadel, etc.; for so far as anything approaching a fair knowledge of the city, or the mysterious ways of its people, is concerned, an ordinary lifetime would barely suffice to acquire it.

Care must be taken to avoid the night air so far as possible. Aside from the danger of a chill, it is not good for one, however warmly dressed. Wraps should invariably be worn after sunset, when the air cools rapidly, and the temperature subsequently maintains a fairly low range until 10 o'clock in the morning. They should also be carried along when making any excursion involving an hour or two of absence from the hotel; for people who "take cold" easily in America will find no difficulty in achieving the same result from far less imprudence when they are in Cairo. The richer sorts of food should be taken sparingly, and the consumption of alcohol reduced to a minimum—a precaution easily observed in a climate which inclines one to temperance, and where even chronic alcoholics have been known to chant the praises of tea after a few weeks' sojourn. In the afternoon much time is spent on the terraces of the various hotels, none of which get sunshine worth mentioning after 2 o'clock. The English prefer the Savoy; Germans, Greeks and Italians, the Continental, while the queer little elevator at Shephard's continues, as in times past, to raise and lower the majority of American visitors who are in Cairo for a week or more. The beautiful garden in the rear of this last-named establishment, which in pleasant weather is flooded with sunshine in the afternoon, is but little used—a majority of the guests preferring to watch the street life and receive their friends on the terrace, which faces east. There is a very marked difference in temperature between shade and sunshine; but summer dresses are often seen on the terraces, and the result is that a certain proportion of their wearers take to their beds (and a diet of boiled milk and repentance) shortly after. Natives and old Cairene foreign residents seldom wear anything like summer clothing in winter. They have learned by experience that it would not be safe to do so, and are rarely seen without a wrap or coat of moderate thickness, either worn or carried over the arm, to be put on in case of the least suspicion of chills. To say that visitors are occasionally seen in the streets wearing straw hats, white waistcoats and fur-lined overcoats, will convey to old travelers a condensed knowledge of what the climate of Cairo is like in January.

After Christmas, Gezireh is probably safer than the city, and is far pleasanter than either Mena House or Helouan; but in case a dryer air is re-

¹⁵ A native under the influence of hasheesh fell face downward and drowned in 15 inches of water confined in this way.

quired, the last-named station is preferable. More time is required by those who wish to do sight-seeing; but time spent by a delicate person in keeping well cannot be regarded as wasted.

The Gezireh Palace Hotel is heated, and the surroundings most attractive. It is within easy driving distance, and the air sufficiently dry for any one in average health. Mena House (built of stone from the pyramid of Cheops) is connected with the city by tramway (three-quarters of an hour's ride), and the air is dryer, and the temperature slightly higher, than in Cairo. Its chief attraction is its nearness to the great pyramids and the Sphinx. The fact that the road leading to it is perhaps the longest in Lower Egypt which is good for driving purposes, makes Mena House a favorite resort for people to lunch or dine. Its climate also warrants its being regarded as a health resort, after the annual inundation has subsided. The other stations which may be so considered are: Helouan, Luxor, Assouan and Ramleh. Each of these has its merits and faults, which vary in accordance with the months and the result which one may be trying to accomplish.

HELOUAN.

There are said to be records proving that Helouan was regarded as a health resort 1,200 years ago; and during the present generation the merits of its dry climate have again been recognized. So far as the springs are concerned, their healing properties have always been favorably regarded by natives and foreigners alike. The town stands in the desert, close to the foot of the Mokattam range of hills, 110 feet above the Nile, and fully a mile from any cultivated land. The distance from its western edge to the river bank is about 2½ miles, and the almost complete absence of vegetation (with the exception of a small public garden) aids considerably in insuring a dry atmosphere. It is 30 or 40 minutes by rail from Cairo, and the trains run at fairly short intervals. The place has a population of 7,000, which include a number of pashas and boys. There are at least two good hotels, and one or more attractive pensions. The large hotels are the Grand and the Tewfik Palace. The latter was formerly the residence of the late khedive, whose death occurred there in 1892.

Very accurate meteorological observations, extending over three seasons, have been recorded by Dr. W. Page May, the resident English physician. During these periods of time the mean average maximum and minimum temperatures were 71.7° F. and 59.1° F., with absolute extremes of 97° F. and 37° F. The average daily range was 21° F. January is the coldest month, with a mean average maximum of 67.1° F. and a like minimum of 55.8° F. The drop between 4 and 6 p.m. is only 1.3° F., and this is far less abrupt than in Upper Egypt. The average relative humidity from 10 a.m. to 6 p.m. (which includes the part of the day when an invalid is likely to be out of doors) was shown by 2 years' records to be 42.7%, and that of the 24 hours 55.5%. It rains

here rather less than at Cairo, and Helouan is usually bathed in sunshine at least an hour earlier than the city, over which there hangs a mist until 10 a.m., or even later.

There is no doubt about the curative value of the dry desert air of this station, and its convenient distance from Cairo has made it more a resort for invalids than other places where the air is both warmer and dryer. Both the large hotels are virtually well-conducted sanatoria, for a majority of the visitors are not in good health.

There is golf in the desert, and the links are far more interesting than one would naturally imagine from the nature of the ground. The so-called "greens" are rolled quite hard, and the "Gypsy" boys make excellent caddies. The clubhouse is unpretentious, but serves its purpose fairly well.

Sakhara,¹⁶ with its wealth of excavations, lies on the west bank of the Nile, nearly opposite Helouan, and the pyramids of Gizeh, Dashur and others are in plain sight.

For a person who is delicate and cannot afford to take risks, but who wishes to see something of Cairo before Christmas, Helouan is the best and safest place, being dryer and slightly warmer than either Gezireh or Mena House, and affording pleasanter and (by good trains) quicker access to the city than the latter. It is also the best station for invalids who pass the entire season and have good reasons for remaining in touch with the city, or are too weak to stand the journey to Upper Egypt.

The facilities for walking, riding and driving are excellent. One can wander for miles over a desert which affords good footing for man or beast, while for carriages there is a fairly good road to the Nile, where an excellent opportunity is afforded of watching the natives working in the fields with their camels, water buffalo and other cattle—a paradise for the amateur photographer. Wadi Hoff, too, can be easily reached by carriages; and here, aside from the remarkable fossils which can be easily found, the scenery is most interesting. Just before sunset the coloring of the rocks and cliffs is perhaps as fine as anything so easily accessible in all Egypt.

The present bathing establishment is a large and imposing building of the Moorish type, which was formally opened by the khedive in person in December, 1899, the old baths being now given over to the poorer class of Egyptians. Helouan has a decided advantage in climate over Hamman R'lhra (the only other modern baths in Northern Africa), and is in fact the only place fairly accessible to Europeans where a "water cure" exists in a climate which is mild, dry and fairly equable during the winter months. The waters are strongly impregnated with sulphur salts, and are used in chronic gout, rheumatism, etc. Elaborate apparatus is installed for baths of various kinds—immersion, vapor, douches and hot air.

¹⁶ Although Sakhara is much nearer Helouan, Cairo is the better starting-point for people not quite strong who visit it. The ferryboats on the river are filthy dahabieh, very apt to be crowded with fellahs, horned cattle, donkeys, etc. The excursion is sufficiently exhausting, under the best conditions, to any one not robust.

The station is advertised as "Helouan-les-bains," and it is generally understood that a good revenue is derived from the establishment, which stands in sad need of a modern heating apparatus during the winter months.

(To be continued.)

HERNIA EPIGASTRICA AND FATTY TUMORS IN THE EPIGASTRIUM.

BY HOWARD A. LOFTHROP, A.M., M.D., BOSTON,

Assistant Visiting Surgeon, Boston City Hospital, Assistant in Surgery, Harvard University.

In a previous paper¹ the subject of epigastric hernia was discussed in various phases, which will not be considered here in detail. The object of this communication is to present the results of further study of clinical phenomena and of anatomical dissections. Particular attention will be given to the consideration of the formation and clinical importance of the so-called "fatty tumors in the epigastrium and linea alba," and their relation to true hernie in the epigastrium (hernia epigastrica).

This paper is based upon the results of observation of 35 cases, which include fatty tumors and true hernie in this region and the dissection of 17 anatomical specimens obtained at the Harvard Medical School. The subjoined cases have been selected so as to show as many different conditions as possible, and only their most salient points will be mentioned.

The cases are as follows:

CASE I. *Epigastric and umbilical hernia; rachitis; adenoids.*—This patient was an infant, 4 months old, which was brought to the clinic of Dr. John Lovett Morse at the Infants Hospital, and to him I am indebted for these notes. This was a healthy baby at birth, weighing 8 pounds, but it has never thrived. The baby refused to nurse and had been fed on condensed milk and proprietary foods. There has been much vomiting, together with diarrhea alternating with constipation.

Examination shows signs of well-marked rachitis and the presence of adenoids. The adenoids and enlarged tonsils interfere much with respiration. At the umbilicus is a small congenital umbilical hernia, which is reducible. Half way between the ensiform cartilage and the umbilicus is a second tumor, situated in the median line, which is apparently reducible. This does not appear to be tender, or to give rise to any symptoms whatever. Both of these hernie were reduced and retained with plaster strips and swathe. Under the influence of careful feeding the general condition of the infant has improved much, and no further treatment has been directed for the hernie.

CASE II. *Tumor in epigastrium; asthma.*—This is the case of a man, 66 years of age, a laborer. Previous health had been good until last year, when he began to complain of dyspnea, particularly on exertion. He had some cough, but no vomiting or gastro-intestinal disturbance, and fair appetite.

Examination showed the presence of chronic bronchitis and asthma, with dilated heart. In the epigastric area, about 5 cm. above the umbilicus in the median line, is a tumor about the size of a 10-cent piece, which is irreducible. It is not tender, and there is slight impulse on cough. He was not aware of its presence, and

there are no symptoms which could be referred to this swelling. This patient has been treated for his heart and lung complications with improvement. The tumor in the epigastrium is probably a fatty tumor derived from proportionate fat.

CASE III. *Tumor in epigastrium; chronic valvular heart disease (Fig. VII).*—This case was seen in consultation with Dr. E. G. West. He was a man, 50 years of age, who had been struck on the back by a heavy gate. About 16 months after this injury, Dr. West discovered a swelling in the epigastrium, midway between the ensiform cartilage and the umbilicus. At that time he was suffering from moderate gastro-intestinal disturbance and had lost 40 pounds since his injury. This tumor was about the size of a ten-cent piece, was tender on pressure, and could be reduced so far as external appearances were concerned. There were no other hernie present. His gastric disturbance was not constant, but would come at intervals of several days, lasting a few days at a time. This man preferred palliative treatment, which has been continued, and at present there is but little disturbance referred to the stomach, and his general health has improved.

CASE IV. *Tumor in epigastrium; colitis.*—This patient was a girl 4 years and 4 months old. For the last 2 years she had suffered from repeated attacks of diarrhea, each lasting about 2 months. These had been getting worse of late. There have been 5 or 6 watery discharges daily, attended by occasional pain referred to the epigastrium, which was relieved by movement. Much gas in intestines; no nausea; no vomiting; appetite good; plays naturally; sleeps well at night.

Physical examination shows the child to be well developed and well nourished. In the epigastrium, about 5 cm. above the umbilicus and a little to the right of the median line, is a swelling about the size of a 25-cent piece. This can be reduced so that an opening about 5 mm. in diameter can be felt with the finger tip. This patient was seen only once.

CASE V. *Tumor in epigastrium.*—This patient was a gardener, 30 years old. Prior to the last 6 months he had enjoyed good health. Since that time he observed a swelling above the umbilicus, which appeared without known cause. At this time he began to suffer from attacks of burning pain in epigastrium, attended by severe vomiting, coming on 2 or 3 hours after eating. In the last 2 weeks 5 or 6 attacks have been very severe. At times there is severe pain without vomiting, lasting about an hour after meals. The bowels have been regular, and he has lost about 10 pounds.

Physical examination shows a tumor about 8 mm. in diameter, situated in the median line, about 2.5 cm. above the umbilicus. There is a slight impulse on cough, and this tumor can be reduced. This patient was operated, and the tumor was found to consist of a small mass of fat, connected with proportionate fat by a narrow neck passing through a small transverse oval opening in the aponeuroses of the abdominal muscles, close to the median line. A small portion of peritoneum was continued into this mass of fat. The abdominal cavity was not opened; the tumor was pulled outward and ligated, and the narrow slit in the aponeuroses closed transversely. In the course of 2 months all symptoms had disappeared.

CASE VI. *Tumor in epigastrium; probable carcinoma of stomach.*—This patient was a musician, 67 years old. For the last 30 years he has complained of dyspepsia of considerable severity. About 30 years ago he had syphilis. For the last year his gastric disturbances have been much worse. Three or four hours after eating he has suffered much gastric pain and distress, lasting several hours. Much nausea; eructation of gas and liquid; much constipation and some loss of weight.

Examination shows that he is only fairly nourished. About 5 cm. below the xiphoid process is a tumor about the size of a 10-cent piece. There is marked impulse on cough, and the tumor is irreducible. It is not tender, and he was not aware of its presence. He has never vomited blood. This patient is still under observation. The tumor in the epigastrium is probably

¹ Contributed to the Boston City Hospital Medical and Surgical Report.

² Boston Medical and Surgical Journal, February and March, 1897.

one of peritoneal fat, and the symptoms and gastric analysis are suggestive of gastric carcinoma.

CASE VII. *Hernia epigastrica* (Fig. VIII).—This case was seen in consultation with Dr. West. He was a carpenter, 48 years of age. He had always enjoyed good health prior to an accident, whereby he was thrown against a door, striking his abdomen. In his effort to save himself from falling, he experienced sudden pain referred to the epigastrium. He was carried home, and nausea and vomiting were early symptoms. Since that time he has complained much of nausea and vomiting and local pain, coming on particularly after meals. One year after accident a tumor was discovered in the epigastrium. This tumor was entirely reducible, and was about 7 mm. in diameter, while the ring was about 4 mm. As a result of straining or moving about, this tumor could be made to reappear readily. This hernia has been kept back by means of a swathe, with a carefully adjusted pad, attended by relief of symptoms.

CASE VIII. *Epigastric hernia*.—This case occurred in the practice of Dr. E. B. Young. It was a laborer, 57 years old, and he sought medical advice on account of an attack of acute intestinal catarrh. He has always enjoyed good health previously, and was soon relieved of this attack, and has continued to remain well. By chance there was discovered in the centre of the epigastrium a hernia, which was entirely reducible. The ring was the size of a 50-cent piece, and circular, with smooth, rounded edges. The tumor itself could be made as large as the fist. The patient stated that he had had this tumor as long as he could remember and could give no cause for its origin. He said it never caused him any trouble whatever, and consequently it had never been treated.

CASE IX. *Tumor in epigastrium; floating kidney; chronic gastric catarrh*.—This woman came to the Out-Patient Department in the service of Dr. Morse. She had complained of gastric symptoms for the last 10 years, coming on periodically. They are attended by much gas formation, vomiting, headache and dizziness, together with loss of appetite and general debility; constipated.

Examination shows that she is fairly developed and fairly nourished, but rather delicate in appearance. The abdomen is prominent. About 8 mm. above the umbilicus is a small tumor, which is irreducible. It is not the cause of any local symptoms. The right kidney is freely movable. The capacity of the stomach was found not to be increased. She has continued under medical treatment, with some improvement. The condition in the epigastrium remains unchanged.

CASE X. *Tumor in epigastrium; left inguinal hernia*.—This patient was examined in consequence of his having been thrown from a car. Previous to this injury he had fallen 33 feet into a well about 30 years ago, and 6 years ago he had been thrown a considerable distance over a pile of stones. For several years prior to this last accident he had suffered considerable gastric disturbance after eating, and frequently had been accustomed to produce vomiting by putting his finger into his throat, for he had found out that he could be relieved thereby of his nausea and pain.

Examination shows that he is well developed and fairly nourished. He is a laborer, 66 years old, and weighs 177 pounds. Examination shows, furthermore, a tumor, half-way between the ensiform cartilage and the umbilicus, about the size of a 25-cent piece, which can be partially reduced, and a small transverse ring detected. There is marked impulse on cough, and the region is slightly tender. He states that he has had this swelling in the epigastrium as long as he can remember, and he never knew that it troubled him. In the left groin is an inguinal hernia of large size.

CASE XI. *Epigastric hernia*.—This patient was operated by Dr. J. B. Blake on the service of Dr. Gay. He was 40 years of age, and always had enjoyed good health. For the last year he had noticed a small swelling to the right and just above the umbilicus. It had never given him any discomfort whatever, and had not increased particularly of late. On the day of en-

tering the hospital, during a fit of coughing, he felt something "give way" in the vicinity of this tumor and experienced a sudden pain, and observed that the tumor was larger and very tender. He vomited and had a chill.

Examination showed a tumor the size of the fist, moderately elevated above the surface of the abdominal wall, and situated just to the right and above the umbilicus. It was hard, tender and slightly tympanitic. It could not be reduced in size by taxis. A vertical incision was made over this tumor, and a sac exposed which contained a mass of omentum partly strangulated and very adherent to the wall of sac. The adhesions were broken down and omentum reduced. Careful dissection showed that there was an opening through the substance of the rectus muscle to the right and above the umbilicus. The ring was 5 cm. in diameter. The sac was ligated, and the wound closed.

CASE XII. *Strangulated umbilical hernia; epigastric hernia*.—This patient was operated by Dr. Lund. She was a woman, 54 years of age, well developed and nourished. She had had an umbilical hernia for 4 years, which had given her no trouble until the day of operation, when she entered the hospital on account of acute symptoms due to strangulated omentum. The umbilical hernia was as large as two fists, and contained omentum and a coil of transverse colon 18 cm. long. This hernia was operated in the usual way. During the course of the operation a second tumor was discovered, the ring of which was 2.5 cm. above that of the umbilical hernia. This contained a portion of omentum as large as an English walnut. The opening of this ring was 6 mm. in diameter, and this hernia was irreducible. The structures were carefully exposed, the omentum freed, the sac tied off, and the opening in the aponeurosis closed. Patient made an uneventful recovery.

CASE XIII. *Epigastric hernia; neurasthenia*.—This patient was a large Italian woman, who had suffered from epigastric hernia for 10 years. She does not know any cause for its origin or just when it appeared first. It caused her very little trouble at first, but in the last few months she has had much gastric disturbance, particularly after eating.

Examination shows a woman well developed and well nourished. She complains of much gastric disturbance in addition to headache, sleeplessness, excitability, restlessness and obscure general pains. She was very anxious about herself, although she admitted that the size of the tumor and the gastric disturbance had not changed perceptibly during the last 2 or 3 years. In the epigastrium, midway between the ensiform cartilage and the umbilicus, is a reducible epigastric hernia. The ring is rounded and smooth and about 5 cm. in diameter, through which the skin can be well inverted into the abdomen. When standing, or on coughing, this tumor is larger than the fist. The local tenderness is only moderate. Although there is every indication for operation, the patient refused such treatment.

CASE XIV. (Fig. IX.) *Hernia epigastrica; inguinal hernia*.—This was a man, 59 years of age, a laborer who came to the Out-Patient Department in consequence of having sustained a contusion of back. In the course of the examination he was found to be suffering from large epigastric and inguinal herniae. He said both of them had been present for a long while, and he never knew any definite cause. The tumor in the epigastrium had never caused him any disturbance, and he was loathe to have me examine it, for he said it did not trouble him. This tumor was situated in the median line, caused no subjective symptoms, and was partially reducible. It was about 7.5 cm. in diameter, and the ring would admit easily 3 fingers. It had never been treated, and was apparently the source of no discomfort.

CASE XV. *Epigastric hernia following immediately after trauma*.—This man was brought to the hospital, having been struck in the abdomen by the pole of a wagon. He suffered much from shock and general ab-

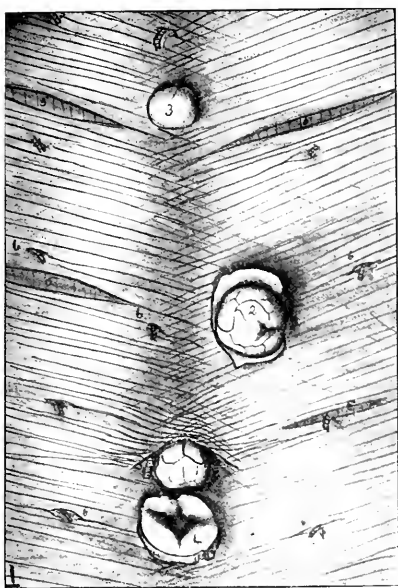


FIG. 1. Aponeurosis of external oblique muscle exposed, showing 3 fatty tumors in the epigastric area. (1) A mass of properitoneal fat about 6 mm. in diameter. It is closely connected with the peritoneum, which is smooth posteriorly, except when the tumor is pulled forward causing a puckered depression. (2) A mass of properitoneal fat 18 by 10 mm. in diameter, which was covered by a delicate sac which has been reflected and is made up in part of the fascia transversalis blended with a thin layer which covers the external oblique aponeurosis. Peritoneum passes into this fat mass for a short distance. This tumor is 4 cm. above the umbilicus and 1.5 cm. to the left of the linea alba. The ring is oval and placed horizontally. (3) This is a smaller tumor with its sac intact. It is 9 cm. above the umbilicus, just to the right of the median line. Peritoneum posteriorly is smooth. (4) Pubiliens. (5) Slits in external oblique aponeurosis through which can be seen the verticle fibres of rectus abdominis muscle. (6.) Terminal branches of arteries, veins and nerves.

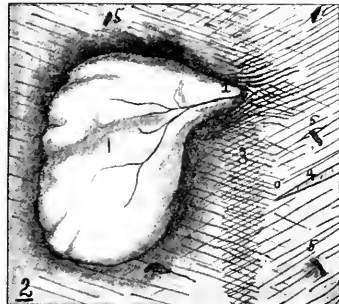


FIG. 2. (1) A fatty tumor derived from properitoneal fat measuring 3.5 by 2.5 cm. It was lying well to the right of median line 6 cm. above umbilicus. Ring is just to the right of linea alba and measures transversely 4 mm. (2) Constricted neck of tumor. The peritoneum is continued into this fatty tumor about 8 mm., forming a sac into which omentum could enter. (3) Linea alba. (4) Normal slit in aponeurosis of external oblique muscle. (5) Vessels and nerves puncturing this aponeurosis.

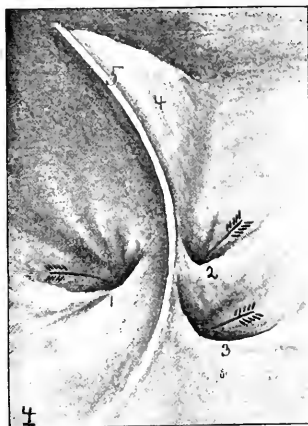


FIG. 3. Peritoneal surface of previous specimen (Fig. III) showing peritoneal depressions (1), (2), (3) made by an invaginated process of peritoneum which passed through the opening in the aponeurosis into the mass of properitoneal fat. (4) Falciiform ligament. (5) Its free border containing round ligament.

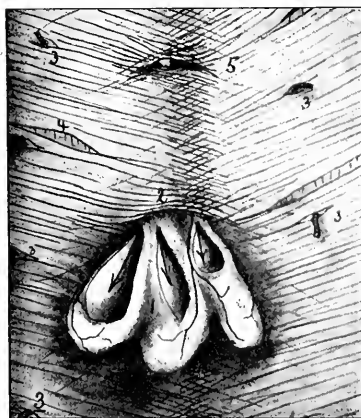


FIG. 4. External oblique aponeurosis exposed, showing (1) a lobed mass of fat derived from properitoneal fat coming through the ring. (2) Ten mm. wide and 6 mm. high which extends more to right of median line, showing the separation of aponeurosis fibres. Ring is 5 cm. above umbilicus. From peritoneal side (see Fig. IV) are three pockets, where the peritoneum passes into this properitoneal fat, forming three distinct sacs as indicated by arrows. A mass of omentum could enter this sac, forming a true epigastric hernia. (3) Vessels and nerves coming through aponeurosis. (4) Natural slit in aponeurosis.

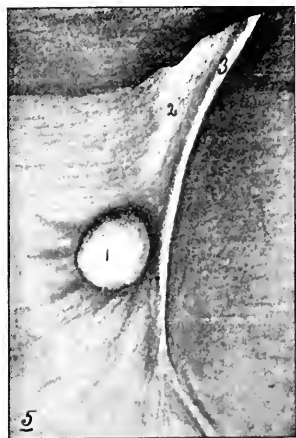


FIG. 5. Peritoneal surface of a specimen showing a tumor (1), which is a mass of properitoneal fat which has been pushed back artificially from before and apparently reduced. It is covered by peritoneum. It shows that these properitoneal fatty tumors can be easily reduced and readily mistaken for a true epigastric hernia. (2) Falciiform ligament. (3) Round ligament in its free border.

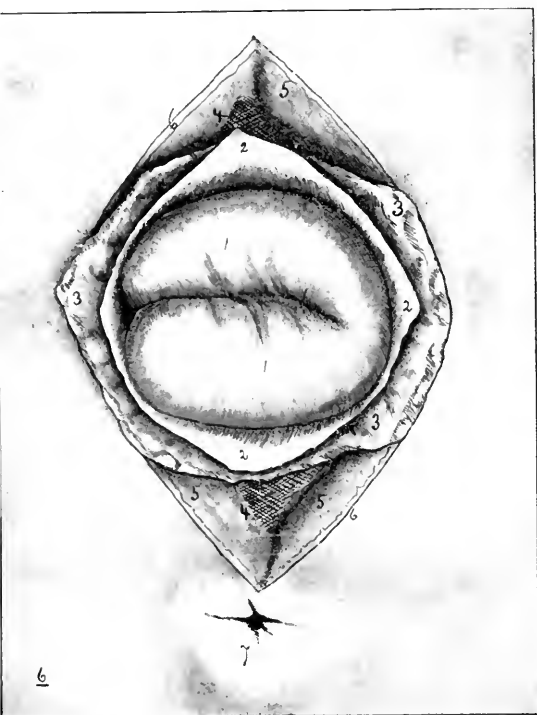


FIG. VI. This figure demonstrates the pathological condition discovered at operation in Case XVI. 1. Loop of small intestine contained within 2 which is the true sac of the strangulated epigastric hernia. 3. Thick layer of properitoneal fat surrounded by delicate membrane of fibrous tissue. 4. Oblique fibres of aponeurosis of external oblique muscle. 5. Thick layer of subcutaneous fat. 6. Skin. 7. Prominence made by irreducible umbilical hernia.



FIG. VIII. Epigastric hernia. Case VII.



FIG. VII. Small tumor in epigastrium, probably properitoneal fat. Case III.



FIG. IX. Epigastric hernia. Case XIV.

dominal pain. There was moderate ecchymosis above and to left of umbilicus, but the skin was intact. The abdomen was not distended. There was no vomiting, and there were no symptoms suggesting severe injury. He was put to bed. In the course of an hour there was increased pain in abdomen with beginning distention. When he raised his head or strained there was moderate prominence to the left and above umbilicus, and palpation detected an injury to the muscles of the abdominal wall. There was some bulging of the peritoneum in consequence of the extra-abdominal pressure forcing the intestines forward. This was a traumatic hernia. The patient was operated, and it was found that the force of the accident had been sufficient to rupture a coil of small intestine. Patient died subsequently from peritonitis.

CASE XVI. (Fig. VI.) *Strangulated epigastric hernia; umbilical hernia.*—This patient was a woman of medium height, and obese. She was 37 years old and had had 10 children. Had always enjoyed good health. For last 12 years she has had a swelling in the epigastrium, and also at umbilicus, but she denies that either of these swellings has ever caused her any discomfort. There is no history of any gastric disturbance. She was seen 24 hours after the sudden onset of acute abdominal symptoms, which consisted of nausea, vomiting and general abdominal pain gradually becoming localized in the epigastrium. This epigastric swelling had increased somewhat in size, and was beginning to be very tender. There was much spasm of abdominal muscles. At the umbilicus was an umbilical hernia 4 cm. in diameter and elevated about 2.5 cm. above the level of the skin. This was irreducible, and there was impulse on cough. It was not the source of any discomfort. Above the umbilicus, in the lower portion of the epigastrium, was a softened circular swelling 10 cm. in diameter. The underlying skin was reddened in consequence of fomentations which had been applied. The mass was firm, tender and slightly dull on percussion, with considerable impulse on cough. It was movable, edges of tumor were not sharply defined, and the impulse on cough was plainly visible.

A median vertical incision about 11 cm. long was made over the tumor, the lower end of which came nearly to the umbilicus. Abdominal fat was about 2.5 cm. thick. This was retracted, and the tumor mass exposed, which was contained within a sac about 10 cm. in diameter. This mass was yellow and lobulated. The sac was divided vertically, exposing fat 6 mm. to 2.5 cm. thick, rather uniformly distributed over the inner, more dense mass. This layer of fat was lighter yellow, but contained fewer fibrous trabeculae than the subcutaneous fat. This fatty layer was excised vertically and retracted in different directions from the sac, exposing a rounded tumor mass which was smooth, tense and a dark reddish brown color, contained within a dense membrane. On incision this membrane was comparatively thick and well formed. There escaped 30 cc. of thin hemorrhagic fluid with a few clots of blood. Within this sac was a coil of small intestine about 7.5 cm. long, which was strangulated and held firmly in a ring 2.5 cm. in diameter. The serous surface of the intestine was still shiny, and several clots of blood were pulled off. The intestine was dark red, but the color faded quickly when the ring was enlarged in a vertical direction. This deep sac enclosing bowel was found to consist of peritoneal and the fascia transversalis. The fatty layer next outside this inner sac was continuous with the thick layer of fat which could be traced in all directions from the circumference of the ring extending between the fascia transversalis and the aponeurosis of transversalis muscle. This fat was uniformly 1.3 cm. thick, and above it could be traced between the peritoneal surfaces of the falciform ligament of the liver. This fatty layer, therefore, was a portion of the properitoneal fat which had been forced out through the ring in the aponeuroses of the abdominal muscles. Its fibrous covering was derived in part from a portion of the fascia transversalis and the deeper subcutaneous fascia of the abdominal wall. This sac was thinner at the apex than at the ring. The aponeu-

roses of the external oblique muscle was exposed clearly at the circumference of the ring. The ring itself was oval and placed in the linea alba about in the median line, but its long diameter was transverse. It was situated about 7.5 cm. above the umbilicus. The outer sac and properitoneal fat were removed close to the circumference of the ring. The inner sac was pulled forward and ligated as deeply as possible. The only contents of this hernial sac was this coil of small intestine, which was resected. The edges of the ring were approximated and made to overlap on a horizontal plane, and held in apposition by 5 interrupted kangaroo tendon sutures, 1 of which was a mattress suture. The incision in the skin was united with silk-worm gut. The small omental tumor was not disturbed on account of the exigencies of the case. Patient made an uninterrupted convalescence.

Anatomical specimens.—All the specimens were obtained in the dissecting-room, and nothing is known of their clinical history. The number of specimens was 17. In 15 there were single tumors, and in 2 specimens there were 2 and 3 tumors of fat respectively. In 16 the fat was connected directly with the properitoneal fat, and in one there was a distinct and separate fatty tumor, 7 x 4 cm. in measurement, and placed vertically along the linea alba in the subcutaneous tissue. Before dissection it gave every appearance of a hernia epigastrica. These tumors were usually oval or circular and always lobulated. Occasionally, they were much elongated, clubbed at the extremity, and having a very narrow neck. The size varies from 5 mm. to 6 cm. in diameter. The smaller ones could be reduced through the ring causing a tumor on the peritoneal side covered by peritoneum (Fig. V). Most of the fatty tumors were about the size of the tip of the fifth finger. The usual location was the linea alba, more commonly toward the umbilicus. When examined more carefully, it could be seen that they arose just to one side or the other of the linea alba, and as the ring became larger it assumed a more median position. The ring in the aponeurosis appears as a small transverse slit, as determined by the arrangement of the fibres which compose the aponeuroses of the abdominal muscles. In almost every instance this opening is associated with small vessels and nerves. (Figs. I, II, III.) In several instances these fatty tumors were complicated by the presence of inguinal, femoral or umbilical hernie. The amount of subcutaneous fat layer varies within wide limits. The properitoneal fat was sometimes in a layer 1 cm. thick and evenly distributed, but in other instances it was limited to the region of the linea alba.

These tumors of properitoneal fat were always covered with a delicate layer of connective tissue, forming a sac which was derived from the deep layer of subcutaneous fascia blended with a delicate layer derived from the fascia transversalis. In nearly every instance vessels of different size and nerves were associated with this sac, and passed through the ring in the aponeuroses. In some instances fat was forced through the thin rectus abdominis muscle, following the course of vessels. As seen in Figs. I, II, III, the openings in the aponeuroses for vessels vary in size, and here and there are open slits where parallel fibres had be-

come separated, exposing the vertical fibres of the rectus muscle. In none of these specimens were there either omentum or bowel in the sac at time of inspection. In most cases the peritoneum was perfectly smooth behind the tumor, but when the tumor was pulled forward the result invariably was that the peritoneum could be drawn through the ring. Dissection showed that the mass of fat was closely connected with the peritoneum by fibrous bands. In other cases pockets of peritoneum had been formed; and these extended through the ring. Into this depression omentum could be forced. The size of the pocket of peritoneum had no relation to the size of properitoneal fat. The fat was usually distributed irregularly.

General considerations.—By the term *hernia*, we mean the protrusion of a portion of the abdominal contents through an opening in the abdominal parietes. By the term *hernia epigastrica*, we mean the protrusion of one or more of the abdominal viscera through the abdominal wall in the region of the epigastrium. This area is usually bounded by the xiphoid cartilage and the free borders of the cartilages of the ribs above and laterally, and extending as low as the level of the umbilicus. In this area are included the broad portion of the linea alba, the linea semilunaris and the linea transversa of the rectus muscle. At the umbilicus and in the femoral and inguinal regions are preformed openings, where the abdominal wall is naturally weakened. Hernia in these regions make their appearance in these weakened places. In the epigastrium there are no such performed openings of much apparent importance, but under certain conditions the openings ordinarily occupied by small vessels and nerves become much dilated, and are the usual site of epigastric hernia.

An understanding of the anatomical and clinical features of epigastric hernia and fatty tumors in this vicinity is of great importance in medical clinics, particularly in reference to diseases referred to the abdominal viscera. Many of the most troublesome cases of such hernia appear in medical clinics, and the symptoms are referred to the gastro-intestinal tract. They may appear at a time when objective signs are few and easily overlooked, unless particular examination is made.

Compared with the occurrence of all other hernia, those in the epigastrium are not common. In a series of 18,000 cases of all hernia, 145 were of the variety known as hernia epigastrica. They are usually single, but occasionally there may be 2, or even 3, present at the same time. It is not unusual to find one true hernia associated with a protrusion of properitoneal fat which does not contain sufficient sac to allow of the escape of omentum into it. This may be a forerunner, however, of a second true hernia. It may remain stationary and never develop into such hernia. It is not uncommon to find these fatty tumors and hernia associated with hernia in other regions. The condition known as "hernia disposition" applies equally to epigastric hernia. It is found that this variety of hernia is rather peculiar to adult life,

and that the great majority of cases are observed in patients over 30 years of age. In reviewing the different cases, it will be seen that 1 patient was afflicted at the age of 4 months (Case I). This condition occurs much more commonly in males, and particularly in the working class. They do not seem to be more common, however, in obese than in poorly nourished individuals.

(To be continued.)

ABSCESS IN THE POSTERIOR MEDIASTINUM IN CONNECTION WITH POTT'S DISEASE.¹

THE REPORT OF A SUCCESSFUL OPERATION FOR THE DRAINAGE OF SUCH AN ABSCESS.

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

The following case is reported in order to emphasize the importance of, and possibility of, operation for the drainage of abscess in the posterior mediastinum, when its presence by pressure causes serious symptoms. It has been my fortune to see four cases, in which abscess in this region was diagnosed in connection with Pott's disease. Three were children and one an adult. Three—two children and one adult—died suddenly, the death being due apparently to pressure upon the heart or vagus nerve. In one case, the one reported here at length, the symptoms disappeared with the drainage of the abscess, and the child is now well as far as this feature is concerned. In the case of the adult operation was attempted, but the abscess was not located with the first incision, and the patient's general condition was so poor that at that time it did not seem wise to do more. In the light of later experience it seems probable that, had the operation been carried through, the patient's life might have been saved. In the two other cases death came suddenly, while the children were in bed, and during a paroxysm of dyspnea. The death of one of these children occurred the night previous to the morning on which the operation was to have been performed, and should emphasize the fact that no delay should be allowed after the condition is once determined.

The chief symptom in these cases, upon which the diagnosis has been based, is dyspnea, paroxysmal in character, with more or less of the tubular or metallic breathing, as is seen in acute laryngitis. The attacks pass off after a comparatively short interval, at times leaving nothing to show for it, while at other times the laryngeal quality to the breathing persists. At such times the action of the heart is rapid and somewhat irregular. The attacks recur without, so far as can be determined, any reason, and have been repeated in the cases here reported until, with three of the patients, death occurred in one of the attacks. With the other child the attacks were entirely relieved by drainage of the abscess. The heart, lungs and throat in all of these cases have failed

¹ Read before the meeting of the American Orthopedic Association, held in Niagara, June 11, 1901.

to show any evidence of disease that could produce such symptoms.

In one other case a similar condition was present, only the attacks were so mild that operation was not deemed necessary, and the child gradually improved, the attacks entirely disappearing under bed treatment, with the spine hyperextended. It seemed probable in this case that a small abscess was present which was gradually absorbed.

In all of these cases the upper dorsal region was the seat of the osseous disease.

In such a condition the abscess apparently lies in front of the spine, usually more to one side than the other, and, as was demonstrated in a pathological specimen shown before the association several years ago by Dr. Bradford, the heart and trachea are both pushed forward.

The child upon whom the operation was performed was five and a third years of age, and had had disease in the region of the third and fourth dorsal vertebrae for one year. During that time mechanical treatment had been followed with reasonable care, and it was while the child was at the Convalescent Home, in connection with the Children's Hospital, that the attacks of dyspnea and noisy breathing began. At first the condition was supposed to be croup, but as the attacks persisted, and as the larynx was normal, the child was sent into the hospital. A diagnosis of abscess in the posterior mediastinum was made, and soon after, March 30, 1901, the operation was performed. This consisted of a longitudinal incision about three inches long, just outside of the transverse processes on the right of the spine, opposite the seat of the disease. A rib was exposed close to the transverse process and just below the apex of the kyphos. The periosteum was separated, and about one inch of the rib was removed. Through this, going in behind the pleura, the spine was explored, but the abscess could not be made out. The spasmodic and rapid breathing made it impossible to differentiate between the inferior vena cava and an abscess.

At this time the child collapsed, and was supposed to be dying. Realizing that the only hope lay in draining the abscess which was causing the pressure, with a director a quick opening was made directly into the seat of disease in the spine. From this opening was discharged a small amount of pus. A gauze wick was passed into this opening, a gauze pad placed over a small opening which had been made in the pleura, a loose outside dressing applied, and restoratives administered.

The child gradually rallied, the breathing improved and became normal three or four days later, when there was quite profuse discharge from the wound. After this the convalescence was uneventful. At the end of five or six weeks a plaster-of-Paris jacket was applied, with the spine hyperextended, and since then the child has been about and doing well.

In the light of the operation the only modification of the treatment in another similar case would be to make the incision upon the left of the spine

instead of the right. It seems probable that the aorta could be more easily recognized, and its presence would cause less inconvenience than the vena cava, which was hard to positively recognize upon the right.

In case the abscess does not present under the incision, puncture of the spine at the seat of the disease is probably the safest procedure, even though it drains the abscess through the neck of the sac, theoretically the least favorable position.

PATHOLOGICAL LESIONS IN RHEUMATOID ARTHRITIS.

BY C. F. PAINTER, M.D., BOSTON.

In presenting this subject a much-disputed field in medicine is at once thrown open for discussion. It is not to be a part of the scope of this paper to separate out on clinical grounds one type from the many which go under this caption, though this would be a comparatively easy task. Neither is it my purpose to invent a new name for an old disease. I will go so far as to say that the term here used is entirely inappropriate for a disease with the reasonably well-established etiology and definite morbid changes presented by the disease described. But nomenclature in medicine has not kept pace with progress in clinical and pathological diagnosis, and an appropriate name must come after proper grounds for giving it have become established beyond peradventure.

That you may know what are the clinical characteristics of the type of disease whose pathology I am to discuss, it will be necessary that you understand my clinical point of view. At the outset, therefore, I will briefly set this forth, and show a few photographs of the gross anatomical lesions of what I shall regard as rheumatoid arthritis, for purposes of description, hoping to show the pathological grounds for this belief later on in this discussion.

I am sure the reason, or at least one of the chief reasons, why so much confusion has existed regarding this subject, and so many pathological lesions as well as clinical phenomena have been hopelessly confounded, is because the clinician and the pathologist has heretofore worked so independently. The clinician, until very recently, has not availed himself of the aid of laboratory methods, and has sought to establish rules for diagnosis on data which would not bear the test of the microscope. The pathologist, on the other hand, has had sent to him, from time to time, material, almost wholly from autopsy, labeled for him by the clinician, as from a case of rheumatoid disease, and he has most naturally found and described very various lesions manifested by one and the same disease. At other times he has described lesions recognized by one set of clinicians under the head of rheumatoid, while some one else, not far away, has described, pretty constantly, another set of lesions, but calling them by the same name; as, for example, rheumatic gout, chronic rheumatism, etc.

To go back, therefore, to our first proposed step, I shall regard rheumatoid arthritis in this paper as represented by a usually—in fact, so far as I know, an invariably—polyarticular disease (Fig. I), occurring most commonly in young and middle-aged adults, usually women,—a disease insidious in its onset and development, brought on by wear and tear, mental as well as physical, producing marked constitutional disturbances, and showing in the affected joints grossly,—a typical spindle-shaped swelling appearing at first in the phalangeal joints, marked by synovial distention; no true bony enlargements; decided atrophy of soft parts, as seen in photographs, and atrophy of interarticular cartilage with oftentimes osseous erosions, as shown by the x-ray (Fig. II). I have selected the phalangeal articulations, because it is here that we are best able to demonstrate the gross lesions, and it is here also that the disease is most apt to manifest its earliest articular changes. Precisely similar gross appearances are noted in most cases, sooner or later, in the larger joints; for example, the wrists, elbows, knees, ankles and tarsus. The hips and shoulders are not exempt by any means, but their anatomical structure prevents the customary appearances from being noticeable. In point of fact, no joint escapes involvement in the most extreme cases.

In approaching this subject from any side, whether historical, clinical or pathological, it becomes necessary to describe another type of disease which could be very easily separated clinically from the above-mentioned one, but which is most intricately mixed up with it in the literature. This disease shall be called, for purposes of description, osteo-arthritis, recognizing the inappropriateness of the nomenclature.

This, like rheumatoid arthritis, has a predilection for attacking the terminal phalanges first, as a rule (Fig. III). It does not limit its attention to these by any means, but is much more likely than its companion to be limited to these joints for a long time and eventually select some one large joint; as, for example, the knee, shoulder or hip. It quite commonly manifests itself in the spine. It is more likely to attack individuals a little beyond the middle period of life, though it is not uncommon in the young adult period.

The limitations imposed by the title prevent my going any further into symptomatology and not at all into etiology, under both of which headings a very clear differentiation could readily be established. The gross anatomical changes one notes are shown well by the accompanying photographs and x-rays, which, I think you will admit, show a decided change from the ones illustrative of the rheumatoid process. There is less atrophy, no synovial swelling; the enlargements are bony, and the resultant deformities are caused by the presence of asymmetrical bony overgrowths, and not by cartilagenous undergrowths, laxity of joint capsules, and unequal muscular pull, as in the rheumatoid.

In a disease which presents lesions in so many different tissues as does rheumatoid arthritis, it is best studied, perhaps, tissue by tissue. Manifestly, the most obvious lesions, and the ones meriting the most attention, are the joint changes including the synovial membrane and cartilages. Then, changes in the central and peripheral nervous systems; changes in the muscles; changes in the skin, and changes in the bones themselves; and finally, lesions of the viscera, blood vessels and lymphatic glands.

With this brief preliminary outline we are preparing to review the disease as we find its morbid anatomy depicted by previous writers.

REVIEW OF LITERATURE.

The literature on the pathology of this disease is scant or voluminous, according to your point of view. If you separate the two diseases cited at the beginning of this article, as you can with great exactness, then the literature is very scanty. If you regard arthritis deformans as the general term which covers both diseases, then the literature is full of references. Accepting the distinction between the two on clinical grounds, it is an easy task to pick out the one from the other, and that is the chief value of a perusal of this literature since Heberden, Hagarth and others began to describe these diseases. Even down to 1885 we find large numbers of tuberculous joints being described as "osteo-arthritis." The writings of Garrod, Adams, Eve, Duckworth, Bannatyne, Wohlman, Charcot, Senator, Virchow, et al. abound in allusions to one phase and another of one or the other of these diseases. The studies which have been made have been almost wholly at autopsies, and therefore more of the osteo-arthritic troubles are reported than of rheumatoid. In short, the literature alone is of no value to the student of the morbid anatomy of this disease. The views of Bannatyne as representing the English, and of Zeigler as representing the German view will alone be cited.

The ground taken by Bannatyne and Wohlman, that there is an acute and a chronic type of this disease, is flatly contradicted by the fact that the gross lesions of the types are almost never seen in the same person, and by the more convincing fact that, where patients are followed along through the progressive course of what is termed the acute stage, by the above-mentioned writers, the typical lesions of the acute stage are never observed to merge into the typical lesions of what they are pleased to recognize as the chronic stage. A still further controversion of the position maintained by these authors is being found nowadays in the recognition of the occurrence of the chronic (hypertrophic) form of the disease in young people, probably even in children, without any preceding acute (atrophic) stage. The literature is full of descriptions of the monarticular type of disease which Bannatyne calls rheumatoid, and which bears none of the gross or minute pathological appearances of the acute stage of the disease, which is rarely, if ever, monarticular. The

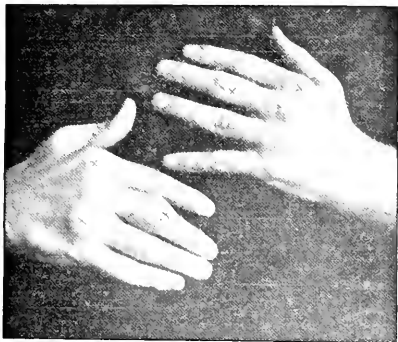


FIG. I. Showing spindle-shaped swelling of finger joints and enlargement of metacarpophalangeal joints.



FIG. III.



FIG. II.



FIG. IV.

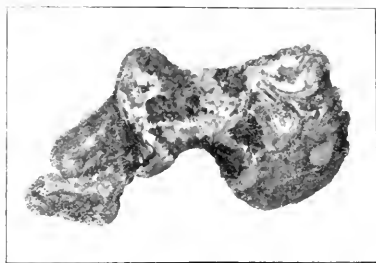


FIG. V.



FIG. VI.



FIG. VIII.

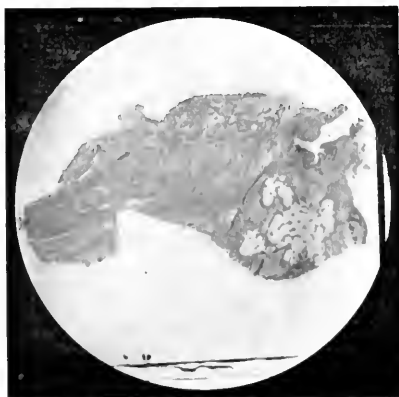


FIG. VII.

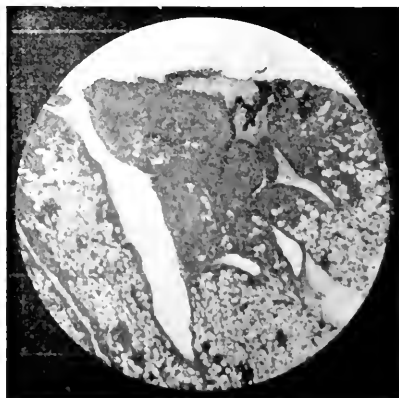


FIG. IX.

lesions of rheumatoid are never suppurative, yet suppurative joint lesions find their way into the bibliography of this disease as evidences of its inflammatory character. This was done by Morratt Baker as late as 1885.

In Zeigler's textbook of pathology a classification of the various joint lesions is made as follows:

(1) Senile arthritis, under which he includes changes in bone or joint which are accompaniments of old age, and also what he calls arthritis deformans.

(2) Traumatic arthritis, under which he includes chronic serous synovitis, or arthritis, and arthritis deformans. The chronic serous synovitis is the condition in which the synovial capsule is distended with this fluid, and the villous arrangement of the synovial membrane undergoes hypertrophy, a condition of hyperemia in the joint which may pass on to rheumatoid.

(3) The infective arthritis includes, of course, all the possible bacterial infections, either directly from without or indirectly from within.

(4) Neurogenous arthropathy, including tabetic and syringomyelic joints.

(5) Gouty arthropathy.

Under arthritis deformans Zeigler includes both the conditions which are the subject of this discussion, claiming that the essential characteristic of the two diseases, as shown in those two x-rays, are the result of the same process,—the atrophy resulting from bone apposition. As I have said, these two types never merge into each other.

Bannatyne claims that there are two stages to the disease, an "acute" and a "chronic"; the acute being the atrophic stage, and the chronic being the hypertrophic; and this view is the one evidently held by Zeigler in what he calls arthritis deformans. Clinically, such a position could not be maintained for a moment, and I do not believe it can pathologically.

To go into detail as to the gross and microscopic pathological appearances:

CASE I (Kelly, Fig. IV). This is the femur of a young man about 26, who for 5 or 6 years has been the subject of rheumatoid disease. The bone is spongy, was loaded with fat, and could be crushed in the fingers easily, and had a very thin cortex. The hip-joint was ankylosed partially, and the excision was done to secure motion and correct position. Histologically, the bone trabeculae are very much attenuated; there are very few osteoblasts. The bone marrow cells look fairly normal. There is a great excess of fat and some excess of blood vessels in the marrow.

CASE II (Durgin, Figs. V and VI). This patient was a young woman, 26 years of age. Both elbows and other joints involved. Excision of one elbow gave this specimen. Grossly, there was very little cartilage left on the face of the condyles of the humerus, over the head of the radius, or on the ulna. Small grayish islands only, with the bare bone sticking up between. Histologically, there is considerable attenuation of the trabeculae, fibrillation of the cartilage, and necro-

sis in places, as is shown by the failure of portions to stain, while other adjacent portions do take the stain and are alive.

CASE III (Danohy, Fig. VII). A young girl of 17. Wrists, knees, hands and elbows involved. Knee-joints opened and full of fluid which contains many coagula. Synovial membrane studded with cartilaginous islands from size of pea to that of thumb nail. Erosions of the cartilage in places and fibrillar appearance in others. Histologically, excess of blood vessels in the hypertrophied villi and endarteritis of the vessels; fibromyxomatous tissue in abundance, and transformation of this into bone beams and cartilage in many places.

CASE IV (Hawkins, Fig. IX). Age 38. Cervical spine, hands and both knees involved. Both knees opened and drained. Excess of this straw-colored fluid, with a few fibrinous flocculi. Enormous development of villi, which were dark purple in color from congestion. Histologically a great excess of vessels in these villi; hemorrhages into the tissue; endarteritis in the vessels; infiltration with a chronic inflammatory exudate, consisting of round and plasma cells.

CASE V. Low power shows a marked proliferation, the tips of the villi being the most cellular, their bases and the connective tissue stroma being quite fatty, with small islands of cells scattered through the fatty tissue. These islands contain some connective tissue and a few round cells with usually a blood vessel at the centre of the mass. The villi themselves are very vascular, much more so than normal, and contain very little fat at the tips. The villi are covered on their free edges by a layer of more or less cubical endothelial cells two or three layers deep.

Under the *high power* the connective tissue is much proliferated. The tips of the villi are infiltrated with round cells, and in the extremities of the villi are occasional plasma cells. Scattered through the fatty tissue are a few small, round cells and numerous thick-walled vessels; in fact the adventitia of the vessels seems in all cases unusually thick, as though there were a general connective tissue hyperplasia, as in acromegaly.

There are occasional areas of what appear to be a colloid degeneration scattered about through the hyperplastic connective tissue and also not infrequently in the connective tissue seen around the blood vessels. Very rarely a leucocyte was seen, but they were probably in vessels or extravasated from them, and were not in pathological numbers. Stained for fibrin, these sections do not respond.

I have tried to show in the foregoing discussion that this disease cannot logically be claimed to be an inflammatory one, because of the lack of histological elements found at the seat of the lesions in the joints involved, which at all compare with the lesions of other inflammatory processes with which the pathologist is familiar. The general character of the disease, distinguished by languor, debility, emaciation,—all, however, associated with a lack of pyrexia,—must, if inflammatory, contro-

vert all the ideas of inflammation, whether acute or chronic, which we now hold.

Contrast these pictures with the histological appearances in a chronic inflammatory disease, such as osteomyelitis. Chronic osteomyelitis shows a very much denser intertrabecular structure than in rheumatoid. Very numerous osteoblasts about the growing healthy bone, while in the rheumatoid bone the osteoblasts are very rare. The cellular elements in the osteomyelitis are composed of round cells, epithelioid cells, a few leucocytes; the lacunae are occupied in the osteomyelitic bone by the nucleus of the bone corpuscles, while in the rheumatoid there is very rarely such a nucleus. No osteoblasts to be seen in the rheumatoid bone, whereas in the osteomyelitis they are very common. There is an increase in blood vessels in both diseases. A marked attenuation of the trabecula is noted in the rheumatoid bone—little, if any, in the osteomyelitic. The intertrabecular tissue in the rheumatoid is largely fat, very little fibrous base or matrix, whereas in the osteomyelitic there is a dense fibrous base. A very few osteoblasts are to be seen in the rheumatoid bone, and they are frequently noted about cellular areas in the intertrabecular tissue, where the remains of an old trabeculum is to be seen, which has been taken up by these cells.

Endarteritis shows in the rheumatoid vessels. The foregoing describes the changes as seen in the bones of Kelly as compared with that of a chronic osteomyelitis.

Several other cases, notably the fringe cases from the prerheumatoid stages, show analogous changes in the synovial membrane. A careful search for the organism described by Blaxall in Bannatyne's cases has failed to show the organism.

Now how interpret these pathological phenomena? There are no lesions described which can be explained upon the ground of any known pathology. The attempts to classify in Zeigler have resulted in confounding several of the stages in the development of rheumatoid, and describing them as separate diseases and not as phases of the same disease. The lesions have more resemblance to those caused by some neurotrophic disturbance or some failure to provide the proper constituents to develop bone and cartilage. On the hypothesis that the cause of rheumatoid is an organism, we have only the disputed evidence of the presence of an organism found in all cases of this disease which have been examined in England. The persons who make this claim bring forward other histological evidence, which does not coincide with any accepted evidence as to the character of inflammatory lesions. Histologically the case is not proven for a neurotrophic cause, but the histological lesions could be explained on that theory, and all the clinical evidence is overwhelmingly that way.

Taking up the latest exposition of this disease from the English-speaking people, we find that the

pathology is treated of systematically under several headings.

In the first place, regarding the bacteriology, when the work done by Bannatyne first came out upon the bacteriology of the disease, I examined the fluid removed aseptically from eight cases of this disease, following the technique exactly as described by the writers above referred to, and through which they claimed not only to have always found an organism with constant morphological characteristics, but they furthermore claimed to have produced in rabbits and guinea pigs similar bone and joint lesions, and to have obtained the organism back from the animals. There has been no change in the cultural phenomena of the organism since its discovery in the hands of these observers, but they do not claim the results from animal experimentation which were spoken of in their first enthusiasm. I was unable to obtain any growths from my cultures, and on two occasions since I have turned over the fluid to the bacteriologist with invariably the same result,—“no growth.” From my point of view it is not necessary, then, to speculate as to how this organism gains entrance to the body, or how it gets to the joints. The inflammatory processes with which the pathologist is familiar are associated invariably with repair, and this reparative process begins almost as soon as inflammation itself. Indeed, repair is one of the stages of inflammation. The epithelioid cell is very early seen as a concomitant of inflammation, and the epithelioid cell is the first evidence of repair. We should, therefore, expect to see some such evidence in rheumatoid. This is never the case. One will look in vain for any histological evidence of repair in the osseous lesions of rheumatoid. The “general hardening and thickening of the bones and ligaments” referred to by Bannatyne is an inference and not an observation, for it will not be found to exist either grossly or histologically at any period of the development of rheumatoid lesions. This inference comes from the belief that rheumatoid and osteo-arthritis are the same thing in different stages.

The ulcerations which are referred to as occurring on the cartilage surfaces, and which are so well illustrated in the water color (*vide* Fig. VI) are erosions of the cartilage, but present no characteristic appearances of an inflammatory nature.

The inflammatory cells on the edge of the erosion, and for some distance back, do not stain, but there is only a very slight round-celled infiltration and no leucocytes present.

To prove the inflammatory nature of this disease, one must find from analogy with other inflammatory diseases the objective pathological signs of inflammation. In looking for these gross inflammatory changes, they are found wanting (compare lesions of osteomyelitis); when there is the greatest pain (and many of the worst cases have no pain at any time), there is seldom acute redness or tenderness; the tissue is pale and becomes glossy and shiny at times; there is not often very great tenderness, and the effusion

in the joint is of such a low grade that it does not raise the surface temperature more than a simple traumatic effusion frequently does. Among the large number of cases of the disease which we have seen at our clinic, there has been but one exception to this, and that was the case from whose knee-joint I have shown you some of the synovial membrane. There was a question in this case of tumor albus, and for three weeks the knee was kept in plaster; at the end of that time I performed an arthrotomy to determine the diagnosis.

In passing it may be worth while to mention the fact that in this case, which was so acute and which, if the process were inflammatory, either in the cartilage or in the synovial membrane, one would expect adhesions to form, there never has been the slightest tendency. The limitation to the motion in the acute stage of these cases is due to the erosions on the surface of the cartilage, the rubbing of which over each other and over the smooth cartilage, gives rise to acute pain and restriction of motion. The condition was present to a marked degree in this case at the time of the exploration. The subsequent history of this case is that of a relaxed joint; so relaxed that, with the leg extended, the patient could not bear any weight on it. The anatomical explanation of this is that the cartilage covering the femur and tibia shrinks or thins, and the capsular ligaments become stretched out as a result of the disease. The capsule is contracting now, or else the cartilage is thickening up again, for the joint is now approaching its normal stability, and she can bear her entire weight on it now unsupported. The motions of the joint have never been limited by an adhesion. Indeed, you would not expect adhesion formation from the character of the tissue changes one observes in the synovial membrane and cartilage. Such changes do take place late in the disease, when contractures have come on and the joints have been for a long time in a position of flexion; then there are undoubtedly a few postural (if I may so express it) adhesions; but the main thing is the tightening up of the hamstrings, if it is the knee which is involved. These facts, it seems to me, militate very strongly against the inflammatory theory, for I believe I am not departing from the facts when I say there is no other disease, which is inflammatory in character, manifesting articular lesions which does not produce firm fibrous adhesions at once in the acute stage. The late adhesions in this disease are sometimes of a different character from what I described. They are dependent upon extensive degenerative erosion of the cartilage, so that cancellated bone comes in contact with cancellated bone, and true bony adhesion then occurs,—just what one would expect under any circumstances when you denude two sides of a joint of cartilage, bringing bone in contact with bone.

Bannatyne says that no true bony ankylosis occurs except in the spinal column; here he is again confusing this disease with osteo-arthritis, or, as he terms it, the chronic stage of rheumatoid.

The history of the pathology of this disease is very interesting. No attempt has been made until Bannatyne's book to solve the problem involved in separating out this disease from medical literature, where so much confusion in nomenclature exists. Apparently in Ireland, from which country Adams made his reports and observations, osteo-arthritis flourishes more than rheumatoid; consequently his book is full of illustrations of the monarticular, hypertrophic joint disease which is so different from the atrophic condition to be noted in rheumatoid.

The opportunities for pathological investigation have been very few before death in either type. Even at the present time such observations on osteo-arthritis have not been made, so that in attempting to establish rheumatoid as a specific entity, apart from the so-called chronic stage of osteo-arthritis, one has to rely on clinical and gross anatomical facts more than upon histological investigation.

In order to establish the inflammatory origin of rheumatoid, one must offer conclusive evidence of the existence of the organism, and in order to be conclusive, it must conform to Koch's law. There are, of course, diseases where bacterial origin is unquestioned because of clinical facts, and analogies with other diseases where perhaps no organism can be so isolated, and by injection produce the disease in susceptible animals, to be cultivated again from the bodies of such animals. But to establish such an origin beyond a reasonable doubt, there must be a strong backing of clinical facts and analogies. I submit that such has no more been established in the case of rheumatoid than the even probable existence of an organism capable of producing it.

Bannatyne maintains that the bacteria developing locally in the joint manufacture toxins which, thus locally acting, injure the membrane and bones, producing the characteristic lesions. He maintains that he has never seen osteophytes develop in the course of acute rheumatoid, but elsewhere claims that the osteophytic formation in the chronic stage of the disease is due to the effects of this toxin. The interval, as shown clinically, between the development of osteophytes in the chronic state and the manifestations of synovial distention in the acute stage, would imply the maintenance of a virulence in the toxin of this disease almost, if not quite, unknown, and this would be leaving out of consideration the very fundamental clinical fact that these two conditions have never been observed to succeed each other in the sequence above mentioned.

I think that I have shown that the bacterial etiology of this disease, at least in the form that Bannatyne claims, is not proven, and that this point is established by these facts:

(1) Failure to satisfactorily demonstrate the organism itself, and the equally significant fact that the lesions found in the joint tissues are not such as are produced by any bacterial cause.

(2) That the "chronic" stage in the disease does not present lesions, either gross or histologi-

ical, which are at all derivative from the "acute" stage, and that therefore we must exclude from rheumatoid classifications any disease with hypertrophic bone lesions.

(3) It is suggested, though not proven, that the changes in rheumatoid may be due to faulty metabolism, the absorption from the digestive tract of toxins, or some chemical product of intestinal digestion, which ought not to be thus absorbed, if all tissues were properly performing their functions.

A CASE OF PAPILLARY ADENOCYSTOMA OF THE THYROID GLAND.¹

BY HARRY C. LOW, M.D., BOSTON,
Late First Assistant in Pathology.

D. E., female, 49 years old. Admitted to hospital as a patient of Dr. F. B. Lund on May 28, 1901. Patient had much trouble from sore throat



FIG. 1.

about 25 years ago, and since then neck has remained swollen. Year after year the tumor gradually grew in size, but more rapidly in the last 2 years. During the last 7 years she has had more or less discomfort at night, with stiffness of neck, and has had some palpitation. No headache or dizziness. No loss of weight, no difficulty in breathing or swallowing.

Physical examination.—The eyes are negative. Heart practically normal. In the median line of the neck is a tumor measuring about 18 inches in circumference. This extends down behind the sternum, out under the sternomastoid muscles, and up to the lower jaw. It extends a little further to the right side, and seems to pass under the right sternomastoid muscle. It moves on respiration, and is not adherent to the skin.

¹From the Pathological Laboratory of the Boston City Hospital. Contributed to the Boston City Hospital Medical and Surgical Report.

At operation (Figs. 1 and 2) the tumor was removed by Lund, under local anesthesia, with the solution of cocaine. With the patient in the half-reclining posture, an incision 4 inches long was made from obliquely across the front of the tu-



FIG. 2.

mor, beginning above on the right, and ending opposite the suprasternal notch.

After peeling back the skin and platysma, and ligating the superior and inferior thyroid arteries on the right, the capsule of the cyst, which was covered with numerous large veins, was incised, and the tumor quickly and easily enucleated. The patient made a rapid recovery.

Pathological report.—The specimen consists of a tumor mass weighing 680 gm., after it had



FIG. 3.

been cut in halves and about 10 cc. of fluid escaped. It measures 11 x 12 x 9 cm. It is nearly symmetrical, but on one side is slightly concave. It is covered with a firm, thin, fibrous capsule, which is shiny and fairly smooth, and on which

there are rough fibrous shreds. There is no apparent point of attachment. The surface is white, with fibrous bands, and mottled with dark and bright red areas, which, beneath the thin wall, seem translucent. On section a moderate amount of thin, colorless fluid escapes. There are a great many cystic spaces, separated by white, fibrous walls. These spaces in many places contain clear fluid. The cut surface is divided by broader fibrous bands into rounded areas, which are subdivided by thin fibrous walls. A greater part of these small alveoli are filled with soft, yellowish material, which stands above the surface like small plugs. In the centre the cysts are large and filled with fluid. The largest cystic space measures from .5 to 1 cm. A cross-section of the tumor, after it had been hardened in Kaisersling's fluid, shows that the

is rather scanty and poorly stained. The microscopical picture of this tumor is shown in Fig. 4.

The tumor is a simple papillary adenocystoma. There is no evidence of any solid growth, no suggestion of malignancy. Tumors of this type do not seem to be very common in the thyroid. Wölfler was the first to describe them carefully, and but very few authors have recognized them as a class.

Pollard has reported a case of intracystic papilloma of an accessory thyroid gland. It started as a tumor the size of a pea at the upper border of the thyroid cartilage, and in two years attained the size of a hen's egg and invaded neighboring glands. This growth showed a very little colloid in places.

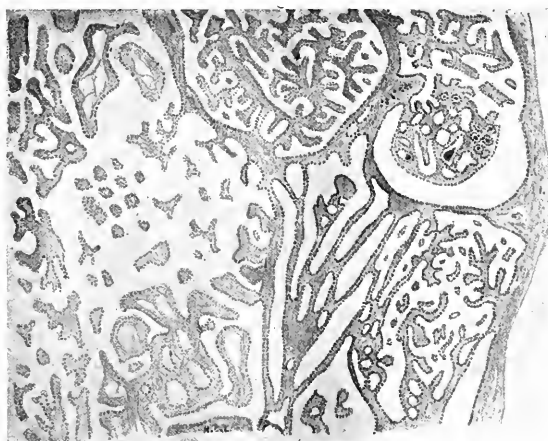


FIG. 4. Papillary adenocystoma of thyroid. In upper right-hand corner a few follicles containing colloid are shown. Much of the tissue in the centre of the tumor is edematous, and the epithelial cells do not stain as deeply.

greater part of these cysts are filled with rounded papillary projections. (Fig. III.)

Microscopical examination.—The capsule is formed of dense fibrous tissue. The growth is formed almost wholly of large cysts, which are nearly filled by the very extensive papillary outgrowths from their walls. In some places these cysts are quite large, and their walls apparently broken down, and there are other parts where the follicles are small, and the papillary growth is not seen. The follicles are all lined with a single layer of apparently normal thyroid epithelial cells. There is nowhere more than one layer of these cells, and there is no interstitial proliferation of the thyroid cells. The follicles are filled with mucus or empty, except that in a very few instances there is seen a small follicle filled with rather poorly staining colloid. There is more or less edema of the stroma in places, and here one discovers that the border of thyroid epithelium

This case showed no signs of the symptoms of exophthalmic goitre. The apparent exophthalmos in one of the illustrations shown is not real and was not usually noticeable.

Among the 17 tumors of the thyroid that are included in the pathological records of the hospital, only 2 show the marked papillary type. There are 3 others that show a slight papillary proliferation. These show in some places a reduplication of the epithelial layers and often an interstitial proliferation of the thyroid cells. They all show many follicles containing colloid and areas of fairly normal thyroid tissues. One of these showed no symptoms suggestive of exophthalmic goitre; another had palpitation, tremor and twitching of the muscles, which may have been due to the very large heart with mitral insufficiency. In the third case there was exophthalmus, palpitation, tremor and nervousness, but in this case there was much more colloid than

in the others; there was more of the adenomatous and interstitial growth than is seen in the usual exophthalmic goitre.

Whether this papillary adenoma of the thyroid lies on the border line between the benign tumor and the carcinoma is not certain. In one of the cases of carcinoma of the thyroid recorded in the hospital reports, we see a solid alveolar growth, which is so bordered in places by a very marked papillary proliferation of the epithelial cells. The generally well-known fact that malignant tumors develop in a benign enlargement of the thyroid agrees with this.

The various systems of classification offered for the growths of the thyroid are not complete, and the position of this tumor remains to be settled. At least it is clinically a tumor to be removed for the sake of convenience, if not of its dangers as a malignant growth. Future study of these tumors may show their significance.

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Medical Progress.

REPORT ON THE PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D.,
BOSTON.

(Concluded from No. 21, p. 575.)

RESULTS OF TREDELENBURG'S OPERATION FOR VARICOSE VEINS.

This has been investigated by Dr. J. Gozes (Linsbruck), who has tabulated 26 operations, performed under local anesthesia. Suture and ligatures silk. He concludes that it is an operation comparatively free from danger, and that the results are highly satisfactory. That its effect on leg ulcers is also beneficial.

The statistics show from 76.6 to 86.2% cured. In recurrent cases the result in many cases has been caused by an anomalous vein parallel to the saphenous, or to the external saphenous emptying into the internal or long saphenous vein. To insure success the ligation should be performed as near the entrance of the saphenous vein into the femoral as possible. Five to ten cm. should be resected to give the best result. It is also recommended to investigate the venous distribution of the leg by a compression test of the long saphenous vein before operating.²¹

RESTORATION OF FUNCTION IN ANCHYLOSED JOINTS.

V. Chlumsky has made an extensive study of this subject, and his report presents the results thus far obtained fairly well. The hitherto unsuccessful results have been studied to learn the cause for failure, and it was concluded that the

method of treatment to furnish a movable joint must be based on the causative elements of a pseudo-arthritis, rather than the ordinary operative method of separating bony or fibrous adhesions, or restoring function to atrophied soft parts. Following this line, experiments have been made in Breslau and Würzburg on animals, in which the attempt has been made to produce movable joints after resection by the insertion of plates of celluloid, metal or rubber between the resected surfaces. The formations of cartilage, and the rounding off of the ends of the bone, was analogous to the results obtained in former work. The author thinks that the resulting joint cavity was smaller than in former cases. The investigation is unfinished, and the actual final results are to be subsequently reported. Enough has been demonstrated to encourage V. Chlumsky to continue his work.²²

SUBCUTANEOUS RUPTURE OF BICEPS MUSCLE.

An extensive review of this lesion has been published by Dr. Loos of Tübingen.²³ The article is an interesting one, based on personal experience in 4 cases, and a collection of 62 recorded ones.

It occurs in patients aged from 30 to 70 years. Antecedent disease, causing degenerative muscular changes, has been demonstrated as a predisposing cause in a few instances only. Severe sudden muscular action is the common immediate cause. Either direct or indirect violence causing stretching of a contracted muscle.

The site of the rupture clinically is typically in the long head, at its point of union of the tendon with the muscle belly. But anatomical experiments do not correspond with the above as regards the site of rupture.

The clinical symptoms are those usually noted; namely, the impaired function, furrow at site of lesion, etc. Attention is also called to the fact that the result of the loss of the fixation which the normal biceps exerts on the head of the humerus is displacement upwards and inwards. The hematoma is larger when the muscle is ruptured than when the tendon gives way. The defect is replaced by connective tissue, or later the muscle may regenerate, or fragments of adjoining connective tissue may be interposed.

Treatment aims to cause absorption of the blood by pressure and massage.

Acute flexion is thought to favor approximation of the separated ends. To obviate atrophy from loss of enervation in the muscle fragment, massage and electricity are employed. Operation to remove a large defect was performed only once. Time: 3 months after the rupture occurred. At the end of 1 month from the operation the functional result was reported to be perfect. In 2 cases loss of function persisted. The prognosis in general may, therefore, be considered good under appropriate treatment.

TREATMENT FOR DUPUYTREN CONTRACTION.

G. Lotheissen outlines his method of treatment of this very troublesome lesion as follows: In

²¹ Beitr. zur klin. Chir., Bd. xxvii, H. 2.

²² Centrbl. f. Chir., 1900, xxxvii, 921-925.

²³ Beitr. zur klin. Chir., Bd. xxix, H. 2.

light cases he claims to obtain improvement by massage, or by subcutaneous division of the tense strands of fascia. In the more severe cases he operates through a lateral incision, so placed that the resulting scar is not formed over the tendons, and so that a skin "defect," the usual result of the stretching at time of restoration, does not cause anew cicatricial formation (the result of wound repair by granulation) and subsequent contraction. He operates under local anesthesia. For the description of the exact details of operative technique, the reader is referred to the original article. Concisely, the operation may be described by saying that a large flap formed by an incision (starting opposite the first interphalangeal joint, extending along the ulnar border of the antethenar eminence, and finally curved across to the thenar eminence) is turned back so as to expose the palmar aponeurosis of the affected fingers, usually the fourth and fifth, which is then removed.²⁴

FORCIBLE REDUCTION OF OLD HIP-JOINT DISLOCATIONS IN ADULTS.

Payr²⁵ describes in full 2 more cases of old dislocation of the hip-joint, in both of which forcible, bloody, reposition was performed. This makes 5 such cases reported by him. Kocher's incision for resection of the hip is made, that the muscles about the hip-joint may be protected as much as possible. Care must be taken, when the force is applied, not to injure the soft parts about the hip. The different bandages and instruments employed in this procedure are given in detail. Extreme care of the wound is necessary to prevent infection. Drainage should be left, after all hemorrhage is stopped and all injured tissue removed. In children the wound should be closed. Plaster casts and permanent extension apparatus are only needed when there is danger of the luxation recurring. One case out of the 5 died with infection. With passive movements and massage begun early, a good functional result is secured. In 6 weeks the patient can walk with the aid of a supporting splint. Photographs are given to explain the mechanism of the forcible reduction.

ADHESIVE RUBBER DAM FOR THE PREVENTION OF POSSIBLE INFECTION AT THE SITE OF OPERATION.

J. B. Murphy, M.D.,²⁶ in an article on this subject, states that infection of wounds during an operation may always be traced to contact with materials, and is probably rarely, if ever, due to contamination from the atmosphere.²⁷ The common sources of infection of operation wounds are as follows: (1) Instruments; (2) sponges and dressings; (3) the hands of the operator or assistants; (4) the skin of the patient; (5) towels, sheets, etc., used about the wound.

He gives the method of application as follows: The field of operation is prepared in the usual

way. It is then thoroughly dried, washed with ether, and the rubber is applied, the latter being put slightly on the stretch as it is brought in contact with the skin. The small quantity of ether retained by the skin increases the adhesive power of the dam. After it is applied, it is washed with alcohol, or with any other sterilizing solution. The incision is now made through the dam, simultaneously with that in the skin, and to the same extent, as it stretches even more readily than the latter, and there is no trouble in retracting it. The dam remains in position until the sutures are inserted and tied, after which it is lifted at one end, put a little on the stretch, and divided at the points of suture in a manner similar to that of dentists in removing the dam from teeth.

Its second practical application is in all suppurating and draining wounds. In these cases it should be left on until suppuration and discharge have ceased, so that it may protect the skin and prevent the erosion and eczema which are so frequently caused by the irritation of a purulent discharge. For this purpose it is particularly applicable in cases of artificial anus, cholecystostomy, gastrostomy, nephrotomy, suprapubic cystotomy and a draining, suppurative, circumscribed or general peritonitis.

DIAGNOSTIC VALUE OF LUMBAR PUNCTURE.

According to Tuffier²⁸ a red or blood-tinged cerebrospinal fluid obtained by lumbar puncture from patients suffering from head injuries indicates a cranial fracture. This means of diagnosis would be of value in cases of obscure nature, to distinguish traumatic hysteria, etc. Again, the presence of a clear, cerebrospinal fluid would indicate the absence of a fracture. Also the quantity of the blood, he considers, will correspond with the extent of the cranial injury.

It is necessary to distinguish between blood from this source and that resulting from the spinal puncture. Histological examination shows red and white corpuscles.

DIGITAL SUBSTITUTION.

Von Eiselsberg reports a successful result in which the index finger was replaced with the second toe.²⁹ The Nicoladoni method was used. The technical details are described. The planar bridge was divided on the twelfth day. The establishment of circulation was assisted by leeches. All the transplanted tissues lived, and the result is satisfactory except as regards motion. The new "finger" is regarded by von Eiselsberg as fairly shapely, has a considerable amount of sensation, especially on the dorsal surface. Passive motion is possible, but active motion is prevented by adhesions (the result of healing by granulation), which formed about the flexor tendon. When the planar flap was divided, not enough flap was cut from the sole of the foot to cover the defect, and primary union was prevented. The Nicoladoni case recovered with a satisfactory amount of motion.

²⁴ *Centrbl. f. Chir.*, 1900, No. 30.

²⁵ *Arch. f. klin. Chir.*, 1901, xiii, No. 4; *Philadelphia Medical Journal*, Aug. 31, 1901, p. 344.

²⁶ *Journal of American Medical Association*, May 4, 1901, p. 1246.

²⁷ Dr. F. L. Friedlrich: *Arch. f. klin. Chir.*, Bd. lxx.

²⁸ *Bull. et mem. de la Société de Chir.*, July 23, 1901.

²⁹ *Arch. f. klin. Chir.*, Bd. lxi, H. 988.

DISINFECTION OF HANDS.

Reports from German investigations⁸⁰ indicate that after extended laboratory work, the complete disinfection of hand was unsuccessful by any of the methods used. König, therefore, abandons the attempt and advocates for certain operative work such changes in operative technique that the hands do not come in contact with the operative field. He thinks that in most operations, instruments can replace the hand and finger except in abdominal work.

Schenk and Zaufal⁸¹ performed a series of experiments upon their hands, in order to determine the effect of various methods of rendering them aseptic. Vigorous washing with sand soap was practically useless; after 30 minutes' hard rubbing the enormous number of 122 colonies per square centimetre could be counted. In fact the prolonged rubbing seemed to bring the micro-organisms to the surface in even greater numbers. Even less satisfactory results were obtained by vigorous rubbing with a sterile brush and sterile soap. A series of experiments were also made with the mercurial ethylenediamyn solution of Kroenig. This consists of 4 gm. of ethylenediamyn, 10 gm. citrate of mercury, and 86 gm. of water. For the hands the solution can be diluted from 1 to 30 up to 1 to 200. Fragments of skin which had been previously washed with sand soap, and then treated with this solution, were excised just before operation, and these remained perfectly sterile for long periods. The hands were almost invariably perfectly sterilized. Other solutions, however, such as bichloride of mercury 1-1000, or oxidid of mercury, can also be employed with success. They conclude that the most perfect method of sterilizing the hands or skin is to wash the hands for 5 minutes with sand soap, then 3 minutes' immersion in one of the above-mentioned chemical solutions, which should be as hot as can be borne.

THE SURGICAL VALUE OF THE ALUMINUM-BRONZE WIRE SUTURE.

Rudolph Piehler⁸² claims that aluminum-bronze wire is composed of about 85% copper and 5% aluminum. From culture experiments upon Petri dishes, the presence of both silver and aluminum-bronze wire seems to check the growth of bacteria. This is also noted in the human body, when aluminum-bronze wire is used for sutures. It is as good as silver wire, and much less expensive. Piehler recommends it, especially where infection of the stitches, from the skin down, is to be feared; in hernia operations; in plastic operations on the lip; in fact, wherever tension is exerted, or the stitches are to be left in place for a long time.

Scientific institutes of various kinds at Hamburg are to be amalgamated and grouped as a university, the directors forming a faculty.

⁸⁰ Paul and Sarwey: Münch. Med. Woch., 1901, No. 26-28; König: Centrbl. f. Chir., 1900, No. 36; J. Hahn: Ibid., 1900, No. 40.

⁸¹ Münch. Med. Woch., Nov. 6, 1900; Philadelphia Medical Journal, Feb. 9, 1901.

⁸² Centrbl. f. Chir., April 20, 1901.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY.
SECTION FOR OBSTETRICS AND DISEASES
OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

REGULAR meeting, April 24, 1901, Dr. E. S. Boland in the chair.

DR. CHARLES G. CUMSTON read a paper entitled
LESIONS OF THE BLADDER DURING ABDOMINAL
AND VAGINAL HYSTERECTOMY.¹

DR. STEVENS: My experience in such cases has not been very large. I have had an opportunity, however, of seeing quite a number of wounded bladders, where the operations had been done by other surgeons. The only case of my own I have in mind, was a case of secondary operation of hysterectomy where the ovaries had been removed, in a Boston hospital a year previously, hoping that the tumor might disappear. In that case starting in at the umbilicus, making a small incision not more than an inch below the umbilicus, I went straight into the bladder, showing the bladder was adherent to the old scar as high up as the umbilicus or one-half inch below. I sewed up the hole in the bladder, and it made no trouble. Four weeks later I operated again and removed the uterus with the greatest difficulty, as the bladder was so thoroughly adherent to the abdominal wall.

I have seen one abdominal hysterectomy, where the operation was done by a very experienced operator, where he carried his fingers into the bladder. He recognized the accident and sewed it up, and the woman made a perfectly good recovery. That was a carcinoma.

I have seen cases where an opening into the bladder was made in vaginal hysterectomy, this in both instances by gentlemen of very large experience in operating that way. In one case the wound healed; in the other case it never healed. The case which healed was not malignant. In the other case, which was cancer, a fistula remained open as long as the woman lived,—about a year.

I think an opening into the bladder is made very much more easily than is generally recognized. Within 2 months I saw a gentleman carry his 2 fingers into the bladder in attempting to get into a pocket of pus that had accumulated after a laparotomy. In attempting to reopen, he went straight into the bladder, with very little effort. Nothing was done excepting to put in 2 sutures and then pack the wound closely with gauze and provide permanent drainage of the bladder through the urethra. It healed without the slightest difficulty, and the operation for removing the pus was done through the vagina at another sitting.

The very great ease with which the bladder can be opened, it seems to me, is pretty important to

¹ See p. 561, No. 21, of the Journal.

bear in mind. But I think, with the care most surgeons take, this accident won't happen very often. It seems to me, where experienced operators open the bladder it is generally when in a hurry and not using their usual care. In regard to the vaginal route, the opportunity for opening the bladder is very great, unless one uses much care.

Dr. Cumston's method of suturing the bladder is as good as anything can be. In the case I saw the layers were sewed with fine catgut, and then a Lembert suture secured the peritoneum.

I think it is important, if there is a pretty large opening, and the abdomen is closed, that the bladder should be kept drained by a permanent catheter preventing pressure; you get union in 48 hours in the peritoneum, which is pretty apt to hold. I do not believe it would be necessary to drain for 4 days.

DR. RYDER: I would like to emphasize what Drs. Cumston and Stevens spoke of relative to the frequency of this mishap. Personally, I believe it is of even more frequent occurrence than either Dr. Cumston or Dr. Stevens have admitted. In that relation I might speak of the principal points of danger of entering the bladder, and perhaps the frequency with which they occur. The first would be that in the median line; for it seems in my experience I must have met with 6 or 8 cases in which I have either entered the bladder, or was about to enter the bladder, when this matter was in my mind. The bladder is very frequently pushed upward and held there by some previous inflammatory adhesive process, and, especially if it is a secondary operation, one is apt to find a thin bladder wall, which one will puncture very easily if not very cautious. I think the next most frequent site of danger would be in peeling off the bladder from the uterus. I know of several cases in which the finger of the operator has gone through into the bladder. If that rupture be a transverse one, nature probably would heal it very easily with a little drainage, if the bladder be kept empty. I doubt if in the majority of cases even a fistula would result, but if it is a vertical rupture it is a different matter. There we have contraction of the bladder, and the rent is likely to be made wider, and a copious flow of urine will result. That must be stitched.

Theoretically, the most common site of danger for puncturing the bladder would be in the neighborhood of the tubes in cases of salpingitis and general pelvic exudate, where the bladder has been, as Dr. Cumston says, enlarged laterally, so that one horn (almost a horn) of the bladder is attached to a tube, and it is difficult to enucleate the adhesions, to find the line of cleavage. If one is not careful he enters the bladder, and I suppose this is the worst place a rupture could happen, because of the difficulty of drainage afterward and of the location of the surrounding parts, adhesions being inevitably formed.

Perhaps the next most frequent site of danger would be at the inguinal ring, for I know a case in my own experience, and 1 or 2 related to me by others, in which the bladder was incised. In

my own case, in the sac, there first presented itself a little cyst, which was an ovarian cyst the size of a walnut, then the ovary presented and the tube. In pulling out the tube the adherent bladder must have been pulled out with it. In ligating the tube the bladder was included in the ligature, and a few days afterwards sepsis made its appearance in the wall. That was opened and treated with peroxide, and drained. It healed very nicely, and in a month the woman was home again. This leads me to say that the use of the peroxide in case of urinary infiltration is, other things being equal, a better one to my mind than the use of the salt solution. The salt solution, if the abdominal cavity is not closed off, is likely to be infected more than less.

Dr. Mixer once told me of a case of punctured bladder in the scrotum, in fact he saw the case, and I think no evil result came. It was sewn up and replaced, and the ring sewn up after it.

Another place not so very common, but still a place of danger of puncturing the bladder, is on the right side, where there has been an inflammatory process between the appendix and the bladder. I have heard of 1 or 2 cases of that sort. I recall a case of puncture of the bladder in a case of appendicitis, in which 2 quarts of pus were evacuated by the rectum, a late case, 2 or 3 weeks after the inception of the disease, and on opening the abdomen afterward, the bladder was firmly united the whole distance, as in Dr. Stevens' case, from the pubes to the umbilicus to the peritoneal wall. It was so very thin that one could see through it a little floating mass. That was entered half in a spirit of investigation and half with the idea that it might be ruptured bladder. It was easily sewn up. The only hint I have about opening the bladder in the median line is that, if it is seen in time, it is a pretty good scheme to stop that incision and go above it, well up to the umbilicus and then downward, separating the bladder from the peritoneal wall.

I recall a case of punctured bladder in the abdominal wall, a case originally of puncture of the uterus, through which the physician in charge had pulled down 18 or 20 inches of small bowel into the vagina and finally 6 or 8 outside; and 4 to 8 hours afterwards, after 2 or 3 hours of attempting to replace the gut, the woman was sent to the hospital. She was in the beginning stage of sepsis. The bladder was adherent to the abdominal wall, and it was punctured in my haste to get in, but it healed nicely afterwards. The woman died of sepsis, because there was so much gut infected; and the amount of tear in the uterus was so large, I believe at the present time a hysterectomy with free drainage would have been the proper operation under those circumstances.

DR. GARCEAU: My experience has been limited to 2 cases. One of these was a vaginal hysterectomy which was easy of performance, but I was unfortunate enough to get into the bladder on account of adhesions. That case took care of itself, as the cases usually do unless the rent is a very large one.

The other one was rather an unusual case in one respect. It was one of pelvic suppuration, and the uterus had been crowded forward so far by the masses behind it that it obstructed the urethral canal and caused complete retention of urine. As my custom always is, I asked a moment before the operation if the bladder had been catheterized, and was told that it had been. A metal catheter had been used, and I suppose the nurse had not introduced it at all, having passed it up to the point of obstruction and no further. The bladder was entered in making the abdominal incision, and the rent, 6 inches in length, was immediately sewed with fine silk. The case did well, and no untoward complication resulted.

DR. COGGESHALL: I have been struck by the uniform tenor of the statements I have heard this evening, as to the generally satisfactory results of these accidents, if they are properly sewed up, and even when they are not sewed up at all. It is evident from what has been said, that such wounds can be equally well closed in many different ways. When I was a student, only 12 or 13 years ago, I happened to see 4 unfortunate accidents to the bladder. I saw an eminent surgeon in one of our Boston hospitals open the bladder on 2 successive days during 2 laparotomies. I saw another eminent surgeon in this city do the same thing once, and I saw it happen once when I was in London. All 4 of these patients died. I believe none of the cases were reported, and they are probably only a small part of those which have not been. On the other hand, I have seen the same accident happen once to myself and 3 times to others within the last few years, with no bad results. As far as one may judge from so few cases, this offers an encouraging suggestion as to the progress we have made in operative technique and asepsis.

One gentleman this evening seemed to imply that the accident was nearly always due to haste or carelessness. I believe that we ought to admit that this is true. The best operator is sometimes off his guard, and one hasty or thoughtless movement has done the mischief before he knows it. I am sure that the early experience to which I alluded, which has made wounding the bladder an ever-present dread to me while operating, is the reason that I have never met with this accident in performing either an abdominal or vaginal celiotomy.

The case, which I am sorry to have to report, was certainly due to carelessness. It is different from any of the cases which have been mentioned this evening. I was not trying to enter the peritoneal cavity, and the bladder was not on my mind at all. I was doing a hurried manual dilatation of the cervix, to extract a 5 months' fetus in a bad case of puerperal eclampsia. I had done what I could with the dilators and was beginning to use my hand, and was steady the anterior lip, which was very edematous, and was also abnormally short, with a pair of volsellum forceps. These tore out several times, and in taking a fresh hold they entered the prolapsed bladder, and tear-

ing out again, made a rent in it more than an inch long at a point not more than three-quarters of an inch above the external os. The first I knew of it was that, having withdrawn my fingers from the os, and going to put them in again, I passed them directly into the bladder. The tear was sewed up hastily with one continuous kangaroo suture, and a self-retaining catheter was left in for 10 days. There was a little leaking into the vagina for the first 2 days. The patient ran a temperature of 100° for about 48 hours. Her recovery was uninterrupted and complete. There was no cystitis or evidence of vesical irritation. I think the catheter might just as well have been removed at the end of 5 or 6 days.

DR. TWOMBLY: I was exceedingly interested in looking up the literature of these cases as far as I could, and I was surprised to see how scant the literature was. I am very glad the subject has been brought to our attention tonight. In 1889 Jackson gave an account to the American Association of 67 cases collected up to that time, of injury to the bladder during laparotomies, and he spoke of closing the wound with the Lembert suture, using silk, and said they all healed successfully. He gives the suggestion of making the rent tense by putting in a temporary suture at each end of the tear, while the other sutures are inserted. That was all I could get up to 1890. The last 10 years the cases seem to be few and far between, that are reported at all at length. It is mentioned in many cases that the bladder was opened, but immediately sutured, and the patient had no further trouble from that source. I think we ought to have a little more detail of those cases, and I should be glad to hear how Dr. Garcean and the other gentlemen put their sutures in, and whether they include the mucous membrane of the bladder.

There are three things to be looked out for: (1) Hemorrhage; (2) urinary infiltration, and (3) sepsis, which would naturally follow if the procedure was not successful, or imperfectly done.

As regards vaginal work, I have not done any of that for hysterectomy, so I cannot speak from experience. I should think the route with the landmarks which Dr. Cunston has presented would be the way. Work up and separate the bladder from the uterus in the middle line rather than go out on either side, until you have gotten up as far as you can go. The trouble is that, in operative cases so many of these landmarks are obliterated, or distorted, or twisted around. I have a case which I will briefly state, which will show the points I would like to emphasize. A young married woman, 20 years old, with a nursing baby of 9 months. The operation was for abdominal tumor by median incision. I had to use clamps for the removal of this tumor, which filled two-thirds of the abdomen, and there was so much vascularity and abundant adhesions that I had to work as rapidly as possible. After taking out the tumor, I found that an oval piece of the bladder about 3½ by 2½ cm. had been snipped off, and it was firmly attached to the tumor. The patient's condition, as she had lost a good deal of blood,

was pretty desperate, and the operation necessarily had to be completed as rapidly as possible.

Dr. Kingman came to my assistance at that time. The bladder was sutured over and over with No. 2 chromicized catgut through all layers, and then fastened to the thickened peritoneum, the abdominal cavity washed out carefully with salt solution, and the whole wound closed without any drainage from above. A self-retaining catheter was inserted, and the patient put to bed, the foot of the bed elevated 18 inches, which did not interfere with the draining of the bladder. The patient recovered very well in spite of the profound shock, and is now sitting up. First intention of the wound. Catheter was left in 10 days, and as soon as it was removed she passed her water naturally. It was an accident, of course, that I cut off the top of the bladder without realizing it was the bladder. It was a fortunate accident, because the tumor was a sarcoma, and the top of the bladder was firmly adherent to the sarcoma. If I had tried to separate the bladder, I fear the chances of the patient would not be as good as now. When the clamp was removed at first, the bladder being somewhat thickened on all sides, and the urine being very bloody, it was not at once recognized, and the urine splashed over the top of the wound into the abdominal cavity.

Here we have an anemic person, 20 years old, nursing 9 months, with a pulse of 120 when put on the table, a desperate case, everything as difficult to give a good result as could be found, and yet in spite of all these drawbacks, the patient has made an uninterrupted and excellent recovery.

(To be continued.)

Recent Literature.

Practical Surgery for the General Practitioner.

By NICHOLAS SENN, M.D., Ph.D., LL.D., Professor of Surgery, Rush Medical College, in affiliation with the University of Chicago; Attending Surgeon to the Presbyterian Hospital; Surgeon-in-Chief, St. Joseph's Hospital; Surgeon-General of the State of Illinois. With 650 illustrations, many of them in colors. Philadelphia and London: W. B. Saunders & Co. 1901.

Dr. Senn's productiveness is extraordinary, and this work, which is a volume of some 1,100 pages, is another example of his untiring industry. The work "is not intended to cover the whole field of surgery." "Its contents are devoted to those sections of surgery which are of especial interest to the general practitioner."

The book is divided into Emergency and Military Surgery, Traumatic Shock, General Anesthesia, Prophylactic Hemostasis, Treatment of Hemorrhage, Wounds, Gunshot Wounds, Rupture of the Urethra, Fractures, Special Fractures,

Compound Fractures, Dislocations, Exploratory Puncture, Subcutaneous and Parenchymatous Medication, Paracentesis and Drainage of Suppurating Joints, Aseptic Catheterization, Emergency Operations on the Air Passages, Empyema, 11 chapters on Abdominal Surgery, 1 chapter on Resection of Joints, and 1 on Amputations and Disarticulations.

The author's well-known interest in military surgery leads him to place emergency and military surgery in the first chapter. The advice that he gives is sound, and the book is full of practical hints. The chapters on traumatic surgery and general anesthesia are particularly full of suggestions, the result of the author's experience. Intestinal suture occupies a very prominent position in the volume and is, on the whole, satisfactorily presented.

We should differ somewhat from Dr. Senn in the selection of subjects which would be of the most practical value to the general practitioner. The book is defective in that too much space is given to the details of experiments and original work.

Unless a man is possessed of a fairly good knowledge of the subjects presented by Dr. Senn, he would find it very difficult to do the operation from the descriptions given, as the book takes for granted that the practitioner knows a great deal about surgery.

The book is fairly well illustrated. Some of the illustrations are new, and some of them are very time-honored. On the whole, we like Dr. Senn's book on "Practical Surgery," and it will unquestionably be of value to his students.

Diseases of the Thyroid Gland and their Surgical Treatment. By JAMES BERRY, B.S. (Lond.), F.R.C.S., Surgeon to the Royal Free Hospital and Lecturer on Surgery at the London (Royal Free Hospital) School of Medicine for Women, etc. With 121 illustrations. Philadelphia: P. Blakiston's Son & Co. 1901.

This book is based upon the Essay to which the Jacksonian Prize of the Royal College of Surgeons for 1886 was awarded and the Hunterian Lectures of 1891. The author has had unusual facilities for the study of this branch of surgery during the past 14 years.

Not the least of value in the book is the tabulated list of the author's 100 consecutive cases of removal of goitre by operation (extirpation and enucleation). This gives the details of treatment in a valuable way.

While there is a fairly complete literature of the subject in the body of the book and an alphabetical appendix of authors' names, yet in a future edition of the book, which we are sure will be called for, a complete bibliography would add to the value of the work as one of reference.

The book is an admirable presentation of the diseases of the thyroid gland; in fact, the best with which we are familiar. It is a book which is well written, profusely illustrated, and is well bound.

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THE GROWTH OF THE SANATORIUM IDEA.

It is rapidly becoming apparent that the sanatorium for special diseases is coming to occupy a very definite place in medical practice. This is simply a manifestation of the gradual wearing away of old prejudices. It is quite within the memory of many of us when a hospital of any sort was regarded by the laity as a place to be avoided at any cost,—a prejudice which still frequently enough crops out, but on the whole has been successfully overcome. One occasionally hears even now that patients are ill treated, and particularly is this idea still prevalent with respect to hospitals for the insane. In spite of all the prejudice, however, the development of hospitals has gone steadily on; people in all walks of life have availed themselves more and more of the privileges offered by such institutions, until now the supply is rapidly becoming insufficient to meet the increasing demand.

Out of this has grown what any observer of medical progress must regard as a most interesting and significant fact; namely, the rapid growth of hospitals or so-called sanatoria for the treatment of special forms of disease. Private institutions for the care of persons suffering from disorders of the mind were perhaps the first to gain general recognition and patronage, for reasons which are not far to seek. Others, however, soon appeared for the care of the merely tired and exhausted, of which Dr. Weir Mitchell's sanatorium is a striking example. Soon the same idea was further enlarged to include persons suffering from various chronic diseases who felt that they required the seclusion and systematic care which such an institution gives. Within the last few years the hospital for the separate treatment of tuberculosis has taken for itself a perfectly definite position in the community, and persons are flocking to it for treatment, who ten years

ago would have looked upon such an idea as wholly preposterous. People who are taken ill now with almost any disease are apt to turn their thoughts to the hospital or health resort most fitted for their care, rather than, as a matter of course, to remain at home, a source of care and anxiety, and oftentimes of great inconvenience, to their families.

The whole movement is of interest, not only because of what has been accomplished in the past, but particularly because of what the future has in store for us. Where is it all going to end? Will the next fifty years see all cases of serious disease, as a matter of course, treated in an appropriate institution, rather than in their own homes? The tendency is a clearly defined one, and we see no reason why it should not go on developing into a well-recognized system of medical treatment. The essential reason for this willingness to submit to treatment in specialized hospitals evidently lies first in the subsidence of prejudice, and secondly in the fact that treatment by rational hygienic means is rapidly coming to occupy in many affections a far more important place than drugs. It frequently happens that such courses of treatment, by water, or graded exercises, or simply by a highly systematic method of life, is only possible at institutions supplied with the necessary apparatus and all the accessories of discipline and regularity which make such forms of treatment efficacious. Physicians and laity alike are fast realizing the fact that these rational methods are best carried out at places devoted to their practice, hence the multiplication of special hospitals goes on, and probably will go on until a very different face is put upon medical practice than that which now exists.

A further suggestion of the tendency to which we have alluded is given in a recent paper by Prof. Martin Mendelssohn of Berlin, in which he advocates the establishment of institutions for the special care of persons suffering from heart diseases. Not many years ago heart disease would have been considered one of the diseases which might with greatest propriety be treated at home. Now, however, we have an urgent appeal for the necessity of special sanatoria for this class of cases. The common arguments are used, with which we are now perfectly familiar,—regularity of life, special forms of treatment, when indicated, systematic exercise under the direction of trained persons, constant personal supervision by physicians skilled in that department of medicine,—all these, it is maintained, are secured at a sanatorium in a way which they could not be at home. It is not our purpose to discuss the soundness of this point of view; it certainly has much to commend it, and there is also something

to be said against it. It serves at least to demonstrate again the point we have been making, that sanatoria for the most varied forms of disease are coming more and more into prominence. No doubt a condition of equilibrium will ultimately be reached; in the meantime, the pendulum seems to be swinging very far in one direction.

RANK, PAY AND PROMOTION IN THE MEDICAL SERVICES OF THE ARMY AND NAVY.

THE annual report of the secretary of the navy, just published, refers to the *personnel* of the Medical Department of the Navy in the following words: "The passage by the last Congress of the act giving assistant surgeons in the navy the same rank as assistant surgeons in the army has proved of great benefit to the corps. A very desirable class of young medical men is now seeking admission, and the number of vacancies has been reduced from 17 at last report to 4, and it is probable that these will soon be filled."

The above statement by Secretary Long merely confirms the fact—if testimony to prove such a self-evident proposition be necessary—that the character of the men presenting themselves as candidates for commissions in the medical services of the government directly depends upon the emoluments offered, as expressed in terms of rank, pay and promotion. For a generation past, the inducements offered to young medical men by the Medical Department of the Navy were inferior to those offered by the same branch of the service in the army, and it was found impossible to secure a sufficient number of applicants whose qualifications satisfied the rigid requirements of the naval medical examining boards. The naval medical authorities were thus confronted with the necessity of either accepting as medical officers of the navy young men of inferior professional qualifications, with resulting deterioration in the character of the *personnel* of their corps, or to maintain existing standards, and, as a consequence, to see an already large number of vacancies undergo a progressive increase. The choice of the latter alternative was wisely made, in the hope that ultimately Congress would remedy an obviously faulty state of affairs.

At the end of the war with Spain, there were nearly 40 vacancies in the Medical Department of the Navy,—a deficiency partly met by legislation transferring a number of volunteer medical officers, then serving on board ship, to positions at the foot of the list in the regular establishment. This relief was, however, only partial

and temporary, and in the session of 1899-1900 Congress passed an act giving assistant surgeons in the navy the same rank and emoluments on entrance to that service as was at that time enjoyed by young medical men on entering the army. The beneficial result of this more liberal policy was at once apparent, as shown in the statement by Secretary Long above quoted; and for the first time in a generation a sufficiency of well-qualified candidates has enabled the Medical Department of the Navy to fill its vacancies.

With the object lesson before its eyes presented by conditions obtaining for many years in the medical service of the navy, as outlined above, and in opposition to the earnest protests of Surgeon-General Sternberg and the senior medical officers of the army, in its session of 1900-1901 Congress passed the army reorganization bill presented by Secretary Root, reducing by nearly one-half the promotion up to that time enjoyed by medical officers of the army. This bill did not affect the immediate grading of young medical officers on entrance, nor did it injure the prospects of medical officers already commissioned in the Army Medical Corps, but, as pointed out to Congress at the time, it so reduced the chances of promotion for medical men subsequently entering the corps as assuredly to impair the efficiency of the latter in the future. Young physicians of high attainments would scarcely elect to enter the military service, if, by entering the navy, they could, at the end of a few years, be in possession of a much greater salary and the greater allowances and privileges of higher rank. The trend of candidates, formerly toward the army and away from the navy, would thus be reversed. In spite of these and other equally forcible arguments, Secretary Root was apparently unwilling to recede from his original position, and the legislation proposed by him was enacted by Congress.

The present result of the passage of this bill is exactly what was prophesied at the time. The army examining boards, in session for the past 9 months, recently concluded their examination of all the young medical men who could be induced to present themselves for this purpose, and there remain at the present time more than three score vacancies unfilled in the Medical Department of the Army,—or a number equal to 20% of the entire strength of that department. This, too, in spite of the fact that there are many hundred medical men at the present time serving with troops as surgeons of volunteers, or contract surgeons, who, with reasonable prospect of advancement with length of service, would undoubtedly be glad to exchange their present temporary positions for those of a permanent character.

These men, and others in civil life, fully appreciate, however, that the future holds but little for them should they enter the Medical Department of the Army under present conditions,—hence they cannot be blamed if they now decline to appear before army examining boards and are entering the navy, or are returning to, or remaining in, civil life. Until the past few months, there has never been a time in nearly 40 years when the Army Medical Department, with its former fair promotion, could not secure a sufficient number of well-qualified candidates to fill promptly all vacancies; and, on the other hand, until within the past few months, there never has been a time when the Medical Department of the Navy, with its previous inferiority as to emoluments, could do so.

The conditions now obtaining in the army, with respect to the unduly slow promotion of medical officers, cannot be regarded except as of great importance and gravity, and as materially impairing the future efficiency of the Army Medical Department,—a branch of the government service in which the profession of this country feels a justifiable pride, and to professional achievements of which it has owed much, from the early days when the investigations of Surgeon Beaumont explained the phenomena of digestion, over the scientific work of later army surgeons, among whom the names of Woodward, Billings, Sternberg and Smart furnish illustrious examples, down to the recent brilliant discoveries of Reed and Carroll with respect to yellow fever. The profession cannot afford to permit the efficiency of a corps which has done so much in the past to be crippled in the future as a result of unjust discrimination, but should impress upon Congress the urgent necessity of at once restoring to it that rank and expectation of promotion which past experience has shown will secure the entrance into the corps of a class of men who will prove a credit to it and to their profession. Under present conditions, with the prospect of remaining through their entire service in inferior grades, with corresponding inferiority of pay and perquisites, it is safe to say that the class of men who have reflected so much credit upon the Army Medical Department in the past will not enter it in the future. It therefore behooves the profession of this country—individually and collectively—to arouse itself to action in the matter. Medical men in civil life cannot afford to remain indifferent to anything which affects the efficiency of their representatives in any of the medical services of the government, and they have in their own hands the political influence necessary to secure favorable consideration by Congress upon any demands they may choose to make.

IMPURE ICE.

In our editorial of last week on "Ice as a Conveyer of Disease," it was our purpose to direct attention to the fact that disease of a serious character, notably typhoid fever, is very rarely contracted through the use of ice. It was, however, furthest from our mind to advocate any relaxation in the care which should be exercised in the cutting and storing of what has come to be almost as much an essential of modern life as water itself. As has been very rightly said, we need pure ice just as we need pure water, uncontaminated by foreign substances of any sort. To this end ice should be cut from bodies of water which are known to be essentially pure. It is also certainly possible that minor disorders may be produced by a failure to comply with this somewhat self-evident sanitary proposition. The cases reported many years ago by Dr. A. H. Nichols, to which we alluded in our last issue, may have been of this character, although it is not easy, in the light of our present knowledge, to explain such widespread disturbance without the intervention of bacteria. Important as it is that every precaution should be taken to preserve the purity of our ice supply, and that dealers should be required to supply only such as is free from avoidable impurities, it is none the less important for the peace of mind of the community at large to demonstrate the fact that serious disease like typhoid fever is not transmitted by this means. As we have said before, recent investigations appear to have shown that in process of freezing bacteria are either forced entirely out of the solidifying mass, or else are rendered innocuous in a few weeks after the ice has formed.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Nov. 27, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 55, scarlatina 26, measles 138, typhoid fever 13, smallpox 86.

BOSTON MORTALITY STATISTICS.—The number of cases of smallpox for the week ending Nov. 23, was 49, with 3 deaths. The total number of deaths from all other causes was 214, against 200 the corresponding week last year, showing an increase of 14 deaths, and making the death-rate for the week 19.5. Of this number 102 were males and 112 were females; 210 were white and 4 were colored; 133 were born in the United States, 81 in foreign countries; 46 were of American parentage, 151 of foreign parentage, and 17 unknown.

The number of cases and deaths from infectious diseases reported last week is as follows: Diphtheria, 58 cases and 2 deaths; scarlatina, 30 cases and 1 death; typhoid fever, 13 cases and 2 deaths; measles, 138 cases and 1 death. The deaths from pulmonary consumption were 25, pneumonia 36, whooping cough 1, heart disease 14, bronchitis 6, and marasmus 4. There were 14 deaths from violent causes. The number of children who died under 1 year was 35, the number under 5 years 54. The number of persons who died over 60 years of age was 44. The deaths in public institutions were 63.

NEW YORK.

ENFORCEMENT OF STATE INHERITANCE TAX.—The Court of Appeals, in a decision rendered at Albany on Nov. 12, holds that all charitable institutions must pay the State inheritance tax on bequests made by will. The decision was rendered in reference to a bequest of \$20,000 each to the Roosevelt Hospital, the Children's Aid Society, the New York Society for the Relief of the Ruptured and Crippled, and the American Female Guardian Society. The first two named institutions claimed that their bequests were exempt from paying the tax under special provisions of their charters, but the court holds that the inheritance tax supersedes all laws heretofore enacted, and that bequests to these institutions are taxable.

DR. T. GAILLARD THOMAS' SEVENTIETH BIRTHDAY.—A dinner was given to Dr. T. Gaillard Thomas of New York, at Sherry's, on Thursday evening, Nov. 21, in honor of his seventieth birthday. It was attended by about 300 of the leading medical practitioners of New York and other cities. Dr. J. W. McLane presided. The speakers, in addition to Dr. Thomas himself, were Dr. S. Weir Mitchell, Rev. Dr. Greer, Judge Henry Howland, Prof. Wm. H. Welch and Dr. George B. Shattuck. The occasion was extremely well managed by the committee in charge, the speaking was felicitous, and the tributes to the guest of the evening were warm, spontaneous and interesting.

THE NEW YORK SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—This society took its origin at a social gathering of the profession at the house of Dr. Edward Delafield in New York, early in 1842. The funds now amount to \$249,720.10 securely invested, and the income for 1900-1901 was \$10,419.95. The members of the society now number 134, of whom 112 are life and 22 annual members. The society has extended aid to 17 widows and 1 child of deceased members during the past year. The work of this society is evidently similar to that of the Massachusetts Medical Benevolent Society.

MEETING OF MANAGERS OF WOMAN'S HOSPITAL.

—The forty-sixth annual meeting of the managers of the Woman's Hospital was held on Nov. 21. The principal address was made by Dr. Wm. M. Polk, who referred to the admirable gynecological work which had always characterized the hospital, and urged that the advantages afforded by it should be made as free as possible to physicians and advanced students.

RABID COWS.—On Nov. 19, Dr. S. D. V. Clark, secretary of the local Board of Health, caused eight Jersey cows on his farm near New Brunswick, N. J., to be destroyed. Ten days previously they had been bitten by a rabid dog, and, it is said, had already begun to show signs of rabies.

OPENING OF NEW PAVILION AT STATE HOSPITAL, MORRIS PLAINS.—The new pavilion of the State Hospital for the Insane at Morris Plains, N. J., which has 1,000 beds and has cost \$325,000, was opened by Governor Voorhees on Nov. 21.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOV. 16, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrhœal diseases.	Diphtheria and croup.	
New York.	3,487,202	1,164	308	25.51	13.25	1.54	4.12	3.18	
Chicago.	1,698,575	—	—	—	—	—	—	—	
Philadelphia.	1,293,697	371	74	22.90	12.13	.80	.32	3.23	
St. Louis.	575,238	—	—	—	—	—	—	—	
Baltimore.	508,957	158	41	25.00	11.51	1.28	5.13	3.20	
Cleveland.	381,768	—	—	—	—	—	—	—	
Buffalo.	352,387	—	—	—	—	—	—	—	
Cincinnati.	325,902	—	—	—	—	—	—	—	
Pittsburg.	321,616	116	40	17.22	27.55	4.30	1.72	5.17	
Washington.	278,718	—	—	—	—	—	—	—	
Milwaukee.	265,315	—	—	—	—	—	—	—	
Providence.	175,597	57	15	33.32	10.52	3.50	3.50	8.77	
Boston.	560,802	210	54	31.90	10.85	1.42	4.28	5.24	
Worcester.	118,421	38	9	13.15	23.68	2.63	—	2.63	
Fall River.	104,863	37	13	45.93	5.40	8.10	27.62	2.70	
Lowell.	94,969	38	13	15.79	10.52	—	—	10.52	
Cambridge.	91,886	30	10	31.58	10.00	—	—	3.33	6.67
Lynn.	68,513	21	6	33.33	4.76	4.76	—	—	
Lawrence.	62,559	22	11	9.09	18.18	—	—	4.54	4.54
New Bedford.	62,442	15	7	6.67	6.67	—	—	6.67	
Springfield.	62,059	19	2	31.58	—	5.26	—	5.26	
Somerville.	61,643	16	2	18.75	—	—	—	—	
Holyoke.	45,712	—	—	—	—	—	—	—	
Brockton.	40,063	6	1	33.33	—	16.67	—	—	
Haverhill.	37,175	7	1	—	14.30	—	—	—	
Salem.	35,866	7	4	14.30	—	—	—	—	
Chelsea.	34,072	3	—	—	—	—	—	—	
Malden.	33,664	9	2	11.11	11.11	—	—	—	
Newton.	33,587	9	2	11.11	11.11	—	—	—	
Fitchburg.	31,631	7	1	28.60	—	28.60	—	—	
Taunton.	31,036	14	2	21.42	14.28	—	7.14	—	
Gloucester.	26,121	4	—	25.00	—	—	—	25.00	
Everett.	24,836	6	3	—	—	—	—	—	
North Adams.	24,200	9	4	22.22	33.33	—	—	—	
Quincy.	23,899	5	—	20.00	40.00	—	—	—	
Waltham.	23,481	8	—	12.50	—	—	—	—	
Fittsfield.	21,766	4	—	25.00	—	—	—	—	
Brookline.	19,935	—	—	—	—	—	—	—	
Chicopee.	19,167	3	1	—	33.33	—	—	—	
Medford.	18,244	8	—	25.00	25.00	—	—	—	
Newburyport.	14,478	3	1	66.67	—	—	33.33	—	
Melrose.	12,962	7	2	—	—	—	—	—	

Deaths reported 2,444; under five years of age, 639; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrhœal diseases, whooping cough, erysipelas, fevers and consumption) 608, acute lung diseases 318, consumption 310, scarlet

fever 21, erysipelas 2, typhoid fever 42, whooping cough 8, cerebrospinal meningitis 14, smallpox 18, measles 10, diarrheal diseases 85.

From whooping cough, New York 5, Philadelphia 3, From scarlet fever, New York 13, Philadelphia 1, Pittsburgh 2, Boston 3, Cambridge 1, Salem 1. From typhoid fever, New York 18, Philadelphia 3, Baltimore 2, Pittsburgh 5, Providence 2, Boston 3, Fall River 3, Fitchburg 2, Worcester, Lynn, Springfield and Brockton 1 each. From erysipelas, Pittsburgh 1, Providence 1. From measles, New York 8, Philadelphia 1, Boston 1. From smallpox, New York 3, Philadelphia 12, Boston 3.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Nov. 2, the death-rate was 17.6. Deaths reported 3,839; acute diseases of the respiratory organs (London) 327, whooping cough 35, diphtheria 71, measles 65, scarlet fever 46.

The death-rate ranged from 8.1 in Croydon to 23.7 in Blackburn; Birkenhead 17.8, Birmingham 20.9, Bolton 14.8, Bradford 16.6, Brighton 13.1, Bristol 15.7, Burnley 20.2, Cardiff 11.0, Derby 15.2, Gateshead 14.6, Hull 16.2, Leeds 17.6, Leicester 11.5, Liverpool 21.5, London 17.4, Manchester 19.0, Newcastle-on-Tyne 21.5, Norwich 22.4, Oldham 17.1, Portsmouth 14.0, Preston 22.1, Salford 22.1, Sheffield 20.3, Swansea 10.3, West Ham 18.4.

METEOROLOGICAL RECORD

For the week ending Nov. 16, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Wet-bulb		Rainfall in inches			
		Daily mean.	Maximum.	Minimum.	8:00 A.M.	8:00 P.M.	Daily mean.	8:00 A.M.	8:00 P.M.	8:00 A.M.	8:00 P.M.				
S...10.30.24	34	42	35	42	66	54	N	W	N	W	32	23	C.	C.	
M...11.29.18	33	42	24	44	86	65	N	W	N	W	12	3	O.	O.	.02
T...12.29.54	34	43	35	100	100	100	N	E	N	W	8	16	R.	R.	.50
W...13.29.34	35	41	29	60	75	78	W	W	W	22	29	F.	S.		.06
Th...14.29.32	35	43	23	63	77	70	W	W	W	18	8	O.	O.		.03
F...15.29.68	38	43	32	72	59	66	W	S	W	S	16	10	C.	C.	
S...16.29.59	38	41	32	76	55	60	W	W	W	14	9	C.	C.		
Mean for week.	29.71	42	30		70										.41

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; S., snow. † Indicates trace of rainfall.
 Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING NOV. 16, 1901.

J. COWAN, pharmacist. Ordered to the Boston Navy Yard.

G. T. SMITH, surgeon. Detached from the "Amphitrite" and ordered to the "Puritan," when commissioned.

R. S. BRAKEMAN, passed assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the "Hartford."

E. G. PARKER, assistant surgeon. Detached from the "Hartford" and ordered home to wait orders, upon reporting of relief.

W. L. BULL, assistant surgeon. Detached from the Naval Hospital, Cavite, P. I., and ordered home to wait orders, when relieved.

L. W. BISHOP, assistant surgeon. Detached from the "Independence" and ordered to Naval Hospital, Cavite, P. I.

H. C. CHASE, assistant surgeon. Detached from the Naval Hospital, Cavite, P. I., and ordered home to wait orders.

G. M. MAYERS, assistant surgeon. Detached from the Pensacola Navy Yard, and ordered to the Naval Hospital, Cavite, P. I.

C. M. D'VRIES, passed assistant surgeon. Detached from Naval Hospital, Portsmouth, N. H., and ordered to the "Rainbow."

S. G. EVANS, passed assistant surgeon. Ordered to the Naval Hospital, Portsmouth, N. H.

W. H. BULL, assistant surgeon. Detached from the "Franklin" and ordered to the Naval Hospital, Norfolk, Va.

SOCIETY NOTICE.

NEW YORK ORTHOPEDIC DISPENSARY AND HOSPITAL.—The trustees of the New York Orthopedic Dispensary and Hospital announce that the Surgeon-in-Chief, Dr. Russell A. Hibbs, will give a course of clinical lectures on Orthopedic Surgery at the institution, on Monday and Thursday afternoons, at 5 o'clock, from Dec. 2 to Jan. 2 (both inclusive). The course will be free to the medical profession and students.

SUFFOLK DISTRICT MEDICAL SOCIETY. SURGICAL SECTION.—The section will meet in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, Dec. 4, at 8 P.M.

Papers: Dr. R. C. Cabot, "The Diagnostic Value of Blood Examinations in Surgery"; Dr. J. Payson Clarke, "Report of Two Cases of Operation for External Deformity of the Nose"; Dr. Francis D. Donoghue, "A Case of Gangrenous Cholecystitis, Cholecystectomy, Recovery."

F. S. WATSON, Chairman.
 F. B. LUND, Secretary.
 529 Beacon Street.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of the society will be held in Sprague Hall, Medical Library Building, 8 The Fenway, on Monday, Dec. 12, at 8:15 P.M.

Papers: Drs. F. L. Jaek and G. H. Walton will together present "A Successful Operation upon a Case of Brain Abscess Following Suppurative Middle Ear Disease and Study of the Aphasia Persisting after the Operation on the Brain Abscess"; Dr. Thomas B. Shea, on "Vaccination"; Dr. J. H. McCollom, "Observations on Smallpox." Illustrated with lantern slides.

The profession is cordially invited.

ARTHUR K. STONE, M.D., Secretary,
 543 Boylston Street.

EXAMINATION.

STATE BOARD EXAMINATION, NEW HAMPSHIRE.—The next examination for licenses to practice medicine in the State of New Hampshire will be held at the State House Concord, on Tuesday and Wednesday, Dec. 10 and 11, beginning at 8 A.M.

CHANNING FOLSON, Regent.

RECENT DEATH.

RICHARD EDWARD EDES, M.D., M.M.S.S., of Roxbury, died Nov. 25, 1901, aged 32 years.

BOOKS AND PAMPHLETS RECEIVED.

The Case Method of Teaching. By Charles H. Frazier, M.D. Reprint. 1901.

Clinical Aspects of Spa Treatment. By Beverley Robinson, M.D., New York. Reprint. 1901.

The Catapathic Treatment of Cancer. By G. Betton Massey, M.D., Philadelphia. Illustrated. Reprint. 1900.

The Modern Treatment of Tuberculo-dermat. By Noah H. Aronson, M.D., Ph.G., Detroit, Mich. Reprint. 1901.

The Relation of the Medical Editor to Original Communications. By Harold N. Meyer, M.D., Chicago, Ill. Reprint. 1901.

Acute Endocarditis: Benign and Malignant, with Illustrative Cases. By Thomas E. Satterthwaite, M.D., New York City. Reprint. 1901.

Report of a Remarkable Case of Fractured Skull. By Granville P. Conn, M.D., Concord, N. H., Chief Surgeon Boston and Maine Railway. Illustrated. Reprint. 1901.

Simple and Ethersal Sulphates. A Simple and Rapid Method for their Separate Determination—Thirty Minutes. By G. W. McCaskey, A.M., M.D. Reprint. 1900.

The Surgical Treatment of Disfigurements and Deformities of the Face. By John B. Roberts, A.M., M.D. Second edition, with a chapter on the Reconstruction of Syphilitic Noses. Illustrated. Philadelphia: The Philadelphia Medical Publishing Co. 1901.

The Complications and Degenerations of Fibroid Tumors of the Uterus as Bearing upon the Treatment of these Growths. By Charles P. Noble, M.D., Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Reprint. New York: William Wood & Co. 1901.

Original Articles.

HERNIA EPIGASTRICA AND FATTY TUMORS IN THE EPIGASTRIUM.¹

BY HOWARD A. LOTHROP, A.M., M.D., BOSTON,

Assistant Visiting Surgeon, Boston City Hospital; Assistant in Surgery, Harvard University.

(Concluded from No. 22, p. 592.)

ETIOLOGY.

As described previously, there are 4 general groups into which these cases may be classified from an etiological point of view.

(1) *Embryological Defect*.—In very rare instances there may be a failure of the abdominal parietes to close in the median line, so that weakened points may remain, through which abdominal viscera may protrude in the epigastric area.

(2) *Weak abdominal parietes*.—In certain instances the abdominal walls may be so thin in consequence of atrophy, that portions appear to protrude more than others whenever abdominal pressure is increased. The recti muscles may be thinned, and their internal borders so separated that there would seem to be a localized bulging along the linea alba. This is more apparent when there is much loss of fat tissue. It is possible for certain areas to become thinner than others, so that increased abdominal pressure causes these places to yield and eventually to form pockets into which omentum or bowel may be forced. This is probably a very unusual cause for the origin of these tumors.

(3) *Trauma*.—There are undoubted cases where trauma has been the direct cause of epigastric hernia. There is a growing feeling among surgeons that trauma is less of a direct factor in the causation of hernie in general than was previously entertained. Hernie are looked upon more and more as a result of some pathological process of gradual development, whereby the parts become thinned and weakened and consequently stretch, thus allowing the abdominal viscera to escape gradually through the abdominal parietes. Whenever the abdominal pressure is increased in consequence of any trauma, these weakened spots can be stretched so that a hernia may appear for the first time soon after such trauma, or a pre-existing hernia may be enlarged. It is common to find in the inguinal region a well-developed hernia on one side, but no sign of hernia on the other, although the rings may be large and the tissues thin. The term "hernia disposition" refers to this condition, although there may be no actual hernia formation.

On the other hand, the undoubted cases where trauma has been the direct cause of hernia in the epigastric region have been cases of comparatively severe injury. For example, in Case XV the patient was struck in the abdomen by a pole. The skin and peritoneum remained intact, but the abdominal muscles were ruptured, so that soon after

injury there was hernial protrusion. Other recorded cases of trauma, which have been the undoubted cause of epigastric hernie, have also been severe and attended by early subjective and objective symptoms.

(4) *The influence of preperitoneal fat and terminal vessels and nerves in the causation of hernia in the epigastrium*.—There is but little question that fatty tumors and epigastric hernie are usually of slow origin, and are developed at points where the vessels pass forward through the anterior sheath of the rectus muscle, particularly in the vicinity of the linea alba. The various steps in this process can be demonstrated on the specimens dissected, and is seen frequently at operations. The essential points will be described under pathological anatomy.

In order to understand the conditions which favor the development of these hernie, one must be familiar with the normal anatomy of the epigastric region. In that this anatomy has been described previously in some detail, suffice it merely to mention the structures which must be understood, such as the arrangement of the sheaths of the rectus muscle and the formation by the fibres of the aponeurosis of the broad abdominal muscles of rhomboid meshes; the formation of the linea alba, linear semilunaris, lineæ transversæ, the round ligament, the falciform ligament containing the obliterated umbilical vein and parumbilical veins which may persist as vessels of some magnitude, the openings observed in the aponeurosis of the external oblique muscle for the passage of vessels and nerves; occasional slits between the fibres of these aponeuroses, as shown in Figs. I, II and III; the presence of preperitoneal fat and its distribution. The association between the fibres of the spinal nerves, which pass through these openings, with the sympathetic system, which in turn supplies the stomach and intestines through the epigastric plexus, must be understood in order to explain the stomach symptoms which are sometimes associated with these apparently simple fatty tumors. Such normal anatomy will not be reconsidered here.

PATHOLOGICAL ANATOMY.

Method of origin of fatty tumors and their relation to hernie in the epigastrium.—At one or more points the abdominal wall becomes weakened and less able to withstand increased abdominal pressure. The points generally correspond to the site of passage of vessels through the anterior sheath of the rectus muscle or the immediate vicinity of the linea alba. Prolonged tension and atrophy of tissue in these areas furnish small openings in this sheath through which a small portion of preperitoneal fat is forced. This is a slow process, but when once established it tends to progress until a small mass of fat has appeared external to the aponeurosis. There may or may not be a portion of peritoneum pulled forward by the fibrous tissue which connects the fat and peritoneum. Thus we have the formation of a fatty tumor which has many of the characteristics of a

¹ Contributed to the twelfth series of Medical and Surgical Reports of the Boston City Hospital.

hernia, and may be the forerunner of such a condition. Such a tumor may be reduced through the ring, or this external mass of fat may be augmented and connected with deeper fat only by a narrow neck, and thus become irreducible. The size of these tumors varies, but they are usually small. It is probable that peritoneal fat is of much importance in the formation of hernia in part of the abdominal wall. These tumors are probably constant when once formed. They may remain unchanged, or may aid in the formation of a true hernia.

It is probable that most epigastric hernia are preceded by a condition which, at one time, could be considered only as a fatty tumor, such as has just been described. In time this mass may pull forward a pocket of peritoneum into which omentum may enter, or an increased abdominal pressure may serve to increase this depression. Thus, omentum, and eventually intestine, may be forced through the abdominal wall, and true hernia formed thereby. Original depressions, or pockets, in the peritoneum are not sufficient to give rise to hernia. The essential feature is a giving way of muscles and fasciae of the abdominal walls. The mass of peritoneal fat covering such a hernia may be slight or considerable. A hernia formed thus would be covered by the following layers, which were demonstrated well in Case XVI, Fig. VI: Skin, superficial fascia containing subcutaneous fat, deep fascia, peritoneal fat, fascia transversalis and peritoneum. It is very probable that many of the so-called umbilical hernia developed subsequently in consequence of fatty tumors which have appeared near the umbilicus.

SYMPTOMS.

The symptoms, which may be caused either by fatty tumors or epigastric hernia, are classified, as in a previous paper, for descriptive purposes, into 3 groups; namely: (1) Presence of a tumor which gives rise to no disturbance whatever; (2) symptoms attending the presence of a tumor in consequence of trauma; (3) the insidious and progressive variety. This latter group includes most of the cases.

Fatty tumors.—Fatty tumors in this area are comparatively common, and most of them tend to cause no disturbance whatever. As a rule they are discovered by accident, but occasionally the patient is aware of their presence when not too small. No recorded cases have been found where a single peritoneal mass of fat has appeared directly in consequence of trauma. That such could be possible is demonstrated by the presence of small masses of fat in the dissecting-room, when by chance the aponeurosis is nicked here and there, in consequence of which the internal pressure is sufficient to force through a small mass of fat. It sometimes happens, on the other hand, that these small fatty tumors are the source of more or less disturbance, occasionally causing severe symptoms. These symptoms do not differ in any respect from those caused by the smaller epigastric hernia, and they will be considered

under that group. These tumors can be detected usually by careful examination. Most of them are irreducible as a result of ordinary pressure, but occasionally they can be reduced readily, and this can be accomplished more frequently when considerable force is used. As has been demonstrated on the specimens, such reduction consists in simply pushing the tumor back through the ring and making a corresponding swelling on the peritoneal side. It is practically a "reduction en bloc." Pain associated with these tumors may be due either to muscular contraction, which pulls on the mass, or to pressure on the nerve filaments.

Epigastric hernia.—It is very common for the hernia to be present without causing any subjective symptoms whatever, notwithstanding the size of the tumor present, as demonstrated by many cases. The patient may be aware of the presence of such tumor, or it may be discovered in a routine examination.

As a direct result of trauma, these hernia are rare. As has been noted above, the trauma must be sufficient to rupture directly the abdominal wall. Such injury is usually attended with considerable violence, and is usually in the nature of a blow by some comparatively sharp object. In certain instances, unusual vertical strain may tend to separate the oblique fibres of the aponeurosis, giving rise to a small transverse tear. In these cases, in addition to the constitutional effects of such injury, there is usually local pain. The hernia appears whenever the abdominal pressure is increased, while lying or standing. In addition to the local pain and tenderness, there is frequently nausea and vomiting.

The common type of epigastric hernia is one of insidious origin, attended by more or less gastrointestinal disturbance, with or without local pain. It is this variety that is apt to visit the medical clinic on account of some gastric disturbance, which should invariably make one suspicious of the presence of a small fatty tumor or an epigastric hernia. It is a good rule to examine the epigastrium for this condition as a routine procedure. The symptoms referred to the stomach may be nausea, vomiting, increased acidity, eructations, and occasionally palpitation whenever an increased gas formation embarrasses the action of the heart. The motile power of the stomach may be interfered with. Pain is commonly present. All of these symptoms usually follow a meal, and are sometimes worse in proportion to the amount rather than the nature of the ingesta. Intestinal indigestion may be a sequence. The pain is sometimes spasmodic, so that these gastric disturbances are known as "crises." An explanation of the presence of these symptoms in cases of simply fatty tumors is somewhat theoretical. It is supposed to be due to the intimate connection between the intercostal nerves and the sympathetic system which is anatomically well established. In cases of true hernia, however, this same supposition may hold good, but a more probable explanation in these cases is the pull of the omentum, which becomes frequently irreducible, so that the

changing position of the stomach when full or empty exerts more or less traction, hence patients learn that they are more comfortable when they take small amounts of ingesta frequently than when they have overloaded their stomachs. They have learned that vomiting produces relief.

Tenderness may be present or absent in any of these cases. Most of them are a little tender, if sufficient pressure is exerted. The tenderness is, on the one hand, local over the tumor itself, or it may be referred to the deeper structures, so that sometimes there is a tender area to the left of the linea alba, just below the xiphoid cartilage. This is supposed to be due to the sensitive condition of the sympathetic plexus. In rare instances the patient may be so obese, and the tumor so small, that it cannot be palpated. In most cases, however, a careful examination will reveal its presence.

These tumors are small as a rule, and commonly are not larger than an English walnut. At times they may have a diameter of 4 to 7 cm., while Mongie reports a case where the tumor was the size of the head of a fetus at term and occupied the whole epigastric area. This is a most unusual case. These tumors are always lobulated, but this fact is difficult to determine by palpation. There is almost always some impulse on cough. As a rule, a certain portion of the tumor can be reduced. The patient should be examined in different positions, standing, lying on the back, lying on the abdomen, also with the abdominal muscles lax and during tension of such muscles, which is best carried out with the patient lying on the back, having his head and shoulders raised. This makes the recti muscles tense, and any tumor, even when small, can usually be detected. The common viscus present in the hernial sac is omentum, and this may be adherent either within the sac or in the vicinity of the ring. Unless the sac is large, the intestine is an unusual complication. Such an incarcerated omentum becomes strangulated readily, as in the umbilical variety. The transverse colon has been very rarely observed, but a loop of small intestine is the usual portion of the intestine which finds its way into the sac. At one time these hernie were called "gastrocele," but there are no authentic cases where a portion of the stomach has been found in the sac. Only two cases of strangulated bowel have been found recorded in literature, so that Case XVI is one of great rarity.

As an end result in certain cases, where gastrointestinal disturbance is considerable and prolonged, the nutrition of the individual becomes impaired, the patient loses strength and weight and becomes anemic. Whenever these cases are accompanied by much pain and tenderness, in addition to the gastric disturbance, nervous disorders of a neurasthenic type may develop. Occasionally the condition may have lasted so long that the patient fails to recuperate, even after the cause has been removed.

Diagnosis.—If one is on the lookout for these cases in the course of an examination, they will

usually be discovered. This condition should be thought of in all cases where the symptoms, whether subjective or objective, are referred to the stomach or intestines, or to a tumor of any sort in the epigastrium. Suffice it at this time merely to mention the conditions which might arise for differential diagnosis whenever symptoms are referred to this region,—namely: All diseases of the stomach, pain referred to the epigastrium and vicinity as suggesting, furthermore, biliary calculus, inflammation of the gall bladder, renal calculus, ulcers of the duodenum, diseases of pancreas. Tumors in this vicinity should suggest fatty tumors limited to the subcutaneous tissue and tumors in the vicinity of the umbilicus, such as gumma, carcinoma, sarcoma, cysts of urachus, hydatid cysts, dermoid cysts and fibroma associated with the terminations of nerves. Caries of the lower end of the sternum or intercostal cartilages may be attended by small pus collections which resemble these hernie.

Prognosis.—When a fatty tumor or epigastric hernia has become well established, it will not disappear spontaneously. It may never cause any trouble, or it may give rise to symptoms at any time. The discomfort may be moderate or severe, irrespective of objective symptoms. One of the dissected specimens showed that the sac had become shut off at the plane of the peritoneal surface of the abdominal wall, and a fatty tumor remained, which contained the obliterated sac. A fatty tumor, or hernia, may remain undiscovered and continue to cause discomfort. Such patients are treated for some disease of the stomach. In severe cases conditions due to malnutrition may follow. In rare instances the patient becomes a hopeless invalid.

Treatment.—If the hernia causes no trouble, no treatment is indicated, for it may never be the source of any annoyance. If symptoms are present, operation offers the only means of certain relief, and this measure should be suggested, provided there are no complications which would contra-indicate surgical intervention. Trusses and swaths do not retain the hernie satisfactorily after reduction, and such treatment only aggravates the condition where the tumor is irreducible. In extreme cases of local pain without objective signs, where a hernia is suspected, an exploratory operation is justified. It is very important to free the omentum from all adhesions. As a rule operative treatment brings early relief with a minimum of risk. Recurrence is unusual. The general principles made use of in the relief of umbilical hernia are of value in the treatment of these cases, and need not be considered at this time.

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²Continued from Lothrop. Hernia Epigastrica. Boston Medical and Surgical Journal, 1897.

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ONE'S HEALTH IN EGYPT.

BY F. GORDON MORRILL, M.D., BOSTON.

Visiting Physician to the Boston Children's Hospital.

(Concluded from No. 22, p. 589.)

LUXOR.

WHAT remains of the "Hundred Gated Thebes" lies on the east bank of the Nile, 241 feet above the sea, and 450 miles south of Cairo, from which it may be reached by steamer, or still more easily (if time is an object) by an excellent *train de luxe* which leaves the city three evenings in the week, and arrives in Luxor about nine o'clock the next morning.

Wonderfully preserved tombs and ruins have made the place a favorite resort of tourists and Egyptologists, and while the climate is not so well suited for a prolonged stay to such invalids as require a *desert* climate, the air outside the native town is particularly sweet and refreshing. There are qualities in an atmosphere which can no more be described by quoting its temperature and relative humidity than can the bouquet of a wine by giving the chemical analysis. This remark applies at Luxor in the early morning, when before opening the eyes one might easily imagine himself in a New England village in early autumn weather. And it is this essential difference between the climate of Luxor and that of other stations which makes it desirable in certain cases, either for the entire season, or when a prolonged stay in the extremely dry air of Assouan proves debilitating, for a fortnight's sojourn before returning there to complete a "cure" already begun. There are two very fair hotels, the Tewfikieh and Luxor House. For any one needing quiet surroundings, the former is preferable, while for those wishing

a certain amount of mild excitement, the latter is directly opposite the steamer landing, and offers more entertainment in the way of fresh arrivals and the coming and going of the Nile boats. Both are surrounded by beautiful gardens (that of the Tewfikieh is especially fine), and it is advisable for an invalid to sleep in an upper room rather than on the ground floor.

The rainfall is much less than at Cairo, Mena House or Helouan,—as a rule there are 2 or 3 showers of 10 or 15 minutes' duration in a season, and occasionally (but rarely) none at all. In January, 1891, this record was rudely broken by a copious rain, which washed out the railroad bed and stopped traffic between Luxor and Assouan; but such a thing is hardly likely to occur again in the near future.

The 24 hours' relative humidity during the winter months is 52.2°, and that of the daytime only is but 36.3°. In the cultivated fields outside the town the relative humidity for the 24 hours, during January and February, is 75.2°, but in March, when the crops have been harvested, it drops to 61°, showing clearly the effects of giving the sun's rays free access to the ground, and the stopping of irrigation. Luxor is warmer both day and night than any place in Lower Egypt, but the mean temperature range during the 24 hours is greater than at any of the other health resorts,—28.4° F., as compared with 21.7° at Mena House, 22.3° at Helouan, and 27.6° at Assouan. The drop at sunset is also more abrupt, and the nights seem colder than elsewhere, for while the temperature is actually higher, the difference between it and that of the daytime is more marked. The inference to be drawn from all this is, that it is just as well for the healthy, and decidedly safer for invalids, to be indoors before sunset—an easy rule to observe, as there is nothing to tempt one abroad in the evening, and all excursions can easily be made in the warm hours of the day.

The program usually arranged for visiting the tombs and ruined temples is far too hard for anyone not in robust health; and double the time usually allowed is none too much. Moreover, at the rate which the sights are usually "done" ("half done" would be perhaps better), there is but little opportunity for anything like real appreciation of what one sees. Mind and body are alike too tired, for the distances to be covered are considerable, and the objects of interest almost superabundant.

Riding a (frequently hard-gaited) donkey for hours with necessarily short periods of rest, during which the eyes and brain are busy and the ears trying to catch the dragoman's free and easy explanation of what *Rameses II* is represented as doing in each of the many sculptures which prove his objection to posthumous self-effacement, is a great physical strain,—and this, too, under a hot sun, and in an atmosphere so dry that the surface moisture of the body is almost instantly absorbed.

So far as the health of the native population is concerned, it is excellent; for notwithstanding

the fact that the inhabitants sleep on the floors of their mud huts, and in close proximity to growing crops, the worst result seems to be occasional rheumatic pains. The native physician in charge of those whose lack of means prevents their paying for medical advice stated that he had treated but one case of rheumatic fever among them during the year 1900. Malaria, too, is practically unknown at Luxor. Khamseen winds, which constitute a disagreeable feature in Lower Egypt, are rare,—a strong north wind, which occasions a drop in the temperature and a raising of dust in the streets which the water-carriers (and there are many of them) are unable to lay, is more to be expected.

Mosquitoes and flies seem to almost completely desert Luxor for the remainder of the season after Jan. 1, and beggars are fewer and far less persistent than in Lower Egypt.

ASSOUAN.

Syene of the ancients is on the east bank of the Nile and not far below the second cataract. It includes the island of Elephantine, and is the capital of the province of El Ibadud. It has a population of 7,000, aside from many other thousands employed on the works of the Great Barrage, a number of whom will undoubtedly become residents after this huge undertaking is completed.¹⁷ Since the Khalifa's defeat and death the station has been improved by the erection of two good hotels, and the traffic which naturally attends the presence of a very large force of workmen. Assouan is easily the best health station in Egypt. The atmosphere is dryer, the temperature greater, and there is less rain than in any of the other resorts. Even Wadi Halfa, although well within the tropics, cannot rival it in climate; and there is probably no place in the world where the air is purer. The average mean maximum temperature for the season (2 P.M.) is 86.6° F., and the like minimum (6 A.M.) is 54° F. The average mean of the 24 hours is 68.3° F., and the drop between 4 and 6 P.M. is 7° F.

The mean average relative humidity from 10 A.M. to 6 P.M. is 30.5°, and that of the 24 hours not quite 41°. This extreme dryness of the air is due principally to the absence of cultivated land, and in a small measure to the fact that the river is here confined between steep and often rocky banks. A refreshing wind from the north and northwest is common, and gives life to the air. Occasionally it blows too hard for comfort, but, on the other hand, there is a fair proportion of calm days, when the shade is grateful. Of the hotels, the Cataract, which is on the main land, has the best location, as it is protected from strong winds by an adjacent hill, and has the further advantage of absolute freedom from the influence of any vegetation, while from the western terrace there is a most picturesque view of the river. On the island of Elephantine there is the Savoy, a

¹⁷ It is stated that the visible masonry of the dam contains about one-tenth as much stone as that used in building the pyramid of Cheops. The foundation and superstructure together about one-fourth.

very comfortable house, which is much frequented by "old Egyptians," who pass the season at Assouan, or stop there in their private dahabieh, and apparently do not mind the somewhat steep ascent on either side of the river when they make use of the ferry.

From Dec. 1 until the middle of February there is no better climate; but later on it becomes too hot for comfort, and one does well to drop down the river to Luxor.

The public sanitary arrangements are well looked after, and the streets are very systematically cleaned and watered. As a *health resort* the place has no rival in Egypt. Its only fault is the absence of a golf links. There is plenty of available desert land for the purpose, and native labor is even cheaper than in Lower Egypt. A clubhouse of simple design would cost but little, and it seems a pity that a station with such great natural resources should lack facilities for a sport which is so universally popular.

The native inhabitants, Egyptians, Nubians, Soudanese and Bisharins, are an interesting lot; but aside from Philæ there is but little in the way of ruins to be seen.

The facilities for riding, boating and walking are excellent. Here, as at Luxor, one escapes in a great measure the annoying howl for back-sheesh, although this comparative freedom is probably due more to good police regulations than to any voluntary forbearance on the part of the natives. The only portion of the town where beggars (in this case always children) apparently rise out of the ground is the Bisharin camp; and when there one must be hard-hearted indeed if he does not respond to the outstretched palms and winning smiles of tiny scraps of dark humanity, who are apparently the only ones in that queer community to ask alms. Nor have they the monopoly of amiable manners; for their elders are almost invariably civil and obliging,—apparently contented with their lot, which is to eke out none too good a living by making charcoal from the wild mimosa trees in certain parts of the adjacent desert, necklaces from shells and beads, and breeding camels, goats and sheep,—a good-natured and thoroughly dishonest crowd.

The presence of a large force of Soudanese troops in well-kept barracks, which are in close proximity to the two villages, in which their families live, is an interesting feature; for these dauntless and spider-legged warriors cannot endure the discipline and restraint of army life without frequent opportunities for relaxation in the family circle; and the British government, or rather the "British advisers of the Egyptian government," have wisely granted them privileges which would speedily demoralize white troops, rather than part with such excellent fighting material.

But to return to the climate: It seldom rains at Assouan. There was a shower, which lasted quite 10 minutes, in April, 1890, and no more afterwards until January, 1891. Some winters are recorded, when the "sun was obscured by

passing clouds for a quarter of an hour at a time on several occasions!" The rule is, a sky of clear blue from horizon to horizon during the greater part of the season; but in January there are occasionally cloudy skies, cool days and cold nights. In December, and from Feb. 1 on, it is certainly very hot in the sun, between 12 and 2 p.m., but the greater part of the day and the entire night are the perfection of fine weather. The night air is harmless, but if for any reason a warmer temperature is desirable, it can be had by closing the windows about 4 p.m. and permitting the heat, which the thick walls have accumulated during the day, to radiate with full force. By this means an equable temperature is assured in average weather; but there are two or three weeks every season during which an open fire in the morning, and from sunset on, is often required by a delicate person. When the temperature of one's room is too high, the above-described process can be reversed, and the cool night air (so dry that steel shavings from a lathe show no indications of rust after weeks of free exposure) imprisoned by closing the windows on rising.

As to the healthfulness of the climate, no better example could be cited than the excellent physical condition of the workmen at the Barrage. Here are employed at times no less than 10,000 men of various nationalities, and while typhoid is extremely rare among them, none have anything resembling malaria, unless they happen to have had it before coming to Assouan, where the absence of the mosquito of the *genus anopheles*, together with the natural purity of the atmosphere, prevents others from contracting it. The extremely small number of cases of typhoid and dysentery among men where the very large native element of the community drink Nile water just as it is taken from the river, while a majority of the others take it merely filtered through *zeers* (large porous earthen jars), if they happen to feel thirsty when only a moderate distance from the regularly filtered supply, is quite remarkable, and speaks well for Nile water in places not subject to constant pollution. The comparative absence of flies during the winter, and also of mosquitoes of any variety, is perhaps an aid in obtaining such marked average immunity from all infectious diseases, although of course such exemption is in a great measure due to the able and active supervision of Dr. Arthur White, the medical supervisor at the works; but even he would find it difficult to obtain such excellent results in a different climate, for aside from accidents and cases of sunstroke in hot weather, it would look as if a workman must "bring his germs with him" in order to qualify for a bed in the well-arranged hospital wards. The only precaution which visitors need observe is to avoid being out of doors in the early morning and after 4 p.m. without wraps, and to shun the direct rays of the sun between noon and 3 p.m. after the heated term begins.

The question naturally arises as to what effect upon the climate of Assouan will the holding

back of a body of water larger than Lake Geneva produce? Will it be as cruel to climate seekers as to artists and Egyptologists?¹⁸ There is no precedent to help in forming an opinion, but let us hope that the almost constant north winds and the vast expanse of the surrounding desert will blow away and absorb any increase of humidity "like a small ink spot on an enormous blotting-pad," as an enthusiast remarked. Should this optimistic prophecy prove true, Assouan is destined to become a very Mecca of invalids.

Beyond lie Abou Simbul (which artists regard as the finest of all Egyptian temples) and Wadi Halfa, but strange to say, the latter is not so warm, nor is its climate so equable, as at the First Cataract.

Further yet to the south lies Khartoum, which can be reached by a tedious railroad journey (involving dirt, heat, and the absence of many conveniences which make far longer distances tolerable in America), to find at the end of the route very little of interest for the everyday traveler aside from a white expanse of bleaching bones on a battlefield.

THE SANITARY ORGANIZATION OF EGYPT.

The country is divided into 13 *Moudiriches*, or provinces; each of these is subdivided into *Markazes*, or districts, which comprise on an average about 50 villages each, but Cairo, Alexandria, Suez, Port Said and Damietta have separate and independent organizations. In each *Moudirich* there is a health inspector, living in the principal town, who has charge of the sanitary administration of his province. In each *Markaz* a subordinate sanitary inspector is responsible for such questions as may arise in any village of his district.

There is a government hospital in the capital of each province, and the medical man in charge is also an official of the Sanitary Department. In each of the principal district towns there are also government dispensaries, which are in charge of the local sanitary officer. In the larger districts there is occasionally a medical officer in charge of the dispensaries, so that the local sanitary inspector may devote his whole time to the affairs of his district.

In all the villages there are "certified" barbers and midwives appointed by the Sanitary Department. These people receive no pay, but they enjoy certain privileges, such as exemption from military service in case of the barbers, who are licensed to vaccinate, apply leeches, bleed, and generally practice minor surgery.

Unless a person dies under the care of a qualified practitioner, a certificate of the cause of death must be presented before burial is permitted. In case of males above 5 years of age the inspection of the body which precedes the granting of a certificate is made in the large towns by the local sanitary inspector; but in case of females and all

¹⁸ Reference is here made to the submersion of Philæ, which when covered the floor of the temple of Isis with six feet of water, and eventually cause the complete destruction of every temple on the island.

children under 5 years, this is the function of the *Hakeema*, or female doctor, a sanitary official of whom there is one in each district town. In the villages the "certified" barbers and midwives view the bodies, and except in well-marked types of disease, the cause is usually stated as *El-Ada*, meaning "the ordinary," or *Ghair Maloum*, which signifies "unknown."

To recognize smallpox, measles, and well-marked cases of infectious fever, is about all that can be expected from these comparatively uneducated people; but as they are in position to know of any increase of mortality in their respective communities (which they are bound to report), the sanitary administration finds them most useful in conveying the first intimations of infectious outbreaks, and is thus enabled to immediately take measures to stamp out threatened epidemics.

The above description applies when the general health of the country is normal, but when an epidemic actually occurs, measures are taken to suppress it which are both radical and stringent.

In 1895-6 there occurred (for the first time since 1883) a serious outbreak of cholera, and the difficulties of dealing with it effectively were increased by the fact that the habits of the people tend to wholesale pollution of the water supply,¹⁹ that no town or village had anything resembling a drainage system at that time, and, it may be added, that practically the same condition of affairs exists today. There was total lack of appreciation of the danger of infection, and absurd reports were actively circulated to discredit the motives of the health authorities in their endeavors to arrest the progress of the disease. It was stated (and believed by many ignorant people) that the agents of the Sanitary Department "threw yellow handkerchiefs in the faces of those whom they desired to remove to the hospitals, so as to render them insensible," and in this condition they were supposed to be carried off and never seen again.²⁰ The health authorities were also accused of poisoning the water supply, and scattering poisoned sweetmeats in the streets of Cairo! Moreover, the post-mortem diagnoses of the barbers and *dajahs* (midwives), either through ignorance or intention, were not to be relied on.

The natives (encouraged by the readers of the Koran) did their best to render the work of the sanitary officials useless by concealing the sick and dead in all sorts of unimaginable places (ovens, wardrobes, rubbish heaps and cotton fields), and open opposition at the Al-Azhar University to the removal of one of the infected students to the hospital, resulted in the killing and wounding of five persons before the order could be executed. Yet in spite of all these difficulties, by protecting the water supply, closing government schools, disinfecting houses, baths and latrines, isolation of the sick and sanitary

burial of the dead,—all of which measures were carried out with tactful firmness,—the epidemic was stopped with what may be termed admirable promptitude, when all the facts are duly weighed.

Egypt is exposed to the danger of plague and cholera through the annual pilgrimage to Mecca,²¹ as well as by her large and constant traffic with India and the Red Sea littoral. Moreover, there are ports in the Levant, north of Alexandria and Port Said, where quarantine and disinfection are more or less of a farce²² on certain occasions, and where the reports of the wily oriental health officers (to whom truth is far more of a stranger than fiction) are by no means always reliable. The principle that "all men are liars" has to be constantly borne in mind by the Egyptian Sanitary Board in dealing with these people, and the cleanest bills of health from certain ports regarded with suspicion and accepted (metaphorically speaking) with tongs.

It is greatly to the credit of this organization, as well as to that of the local port authorities, that quarantine against Egypt is hardly ever declared—so firmly impressed are the sanitary officials of other countries by their vigilance and efficiency in dealing with infectious diseases. Perhaps, too, the fact that Englishmen are truthful may carry weight with Turks, Greeks, *et id genus omne*.

When the plague first made its appearance in India in 1896, the sanitary authorities realized the danger of its being brought to Egypt, and early in 1897 a commission was sent to Bombay to investigate the disease; and it was largely due to the knowledge thus acquired that the endemic at Alexandria (1899-1900) was so successfully dealt with. Whether the infection came from India or the Red Sea littoral is by no means certain; but probabilities point to the latter.

The service of disinfection was no novelty to the natives of Alexandria, after their experience with cholera, and but slight opposition was experienced in carrying it out. The chief trouble lay in obtaining early information of suspicious cases, as the disease mainly attacks the poorer class, and only well-to-do Egyptians, as a rule, summon medical aid in case of illness. To obviate this difficulty all the sheikhs of the city were given assistants, appointed to aid them in discovering every case of sickness and to report it at once. In addition to their ordinary pay the sheikhs of the various districts received 40 piastres (\$2.00) for each case of plague brought to the notice of the authorities.

A special control was organized over the class of people (chiefly Greeks) among whom a majority of the early cases had occurred, and they were regularly inspected by physicians of their

²¹ Nothing but the "want of money or being in *articulo mortis*" prevents an infected pilgrim catching the first train for home when he has once landed on Egyptian soil. A wholesale infection of the annual pilgrimage is far less likely to occur from plague than from cholera, as the former is not likely to take a very firm hold amongst pilgrims living under canvas and constantly on the move.—Report of the commission sent by the Egyptian Government to Bombay to study plague.

²² Even at Naples the disinfection of a suspected ship can hardly be called ideal, consisting as it may, of breaking a bottle of carbolic acid forward and aft, and persuading the steerage-passengers to consent to a very perfunctory fumigation of a few old rags!

¹⁹ This practically consists of the Nile and its canals, whose banks are used as public latrines by the natives, and in whose waters the ablutions prescribed by their religion are performed, while women are seen drawing water for household purposes within a few yards of others who are washing soiled linen.

²⁰ Official report of Sanitary Department, Cairo, 1897.

own nationality. The Jewish element were placed under the supervision of doctors of their own community. In short, arrangements were carried out by which each nationality was inspected and controlled by fellow countrymen, and prejudice tactfully reduced to a minimum. "It is hard to realize the difficulties met with in a cosmopolitan town like Alexandria, in carrying out such an inspection, in houses where several families, often of different nationalities, are congregated. To cite one example: In the first house infected in the Hamanial Quarter, on the ground floor was a restaurant kept by an Austrian, a wine-shop by a Greek, and another restaurant by an Italian; in the first story, a Jewish Roumanian family, only speaking Wallachian and Hebrew, and a Jewish hotel frequented chiefly by Russians, etc."²³

Insufficient accommodations for cases (all of which were immediately removed to hospitals) led to the remarkably prompt transformation of a building which had been used as a slaughter-house into an excellent infectious hospital equipped for 100 patients, with considerable power of extension in case of necessity. All persons who had come in contact with cases of plague were segregated for 6 days in buildings handed over to the Sanitary Board by the International Quarantine Department. These were got ready for use, provided with a staff of cooks, watchmen and laundresses, and made capable of accommodating 500 or 600 people, in 24 hours' time! The "contacts" were fed at government expense, and all the males over 16 years of age were paid 3 piastres a day as compensation for labor lost. Result: Contentment and riches. Considering the prompt and eminently practical measures²⁴ employed to combat the disease, it is no wonder that the total number of cases did not exceed 130, and that nothing like an extensive epidemic is likely to occur in any part of the country.

Smallpox is always present in some part of Egypt, and the compulsory vaccination of *for-eigners* is not always feasible, the law being that in case an unprotected person objects, his consul can enforce his submission only in case that compulsory vaccination obtains in the country of which he claims citizenship. In this way Turks and Italians escape; but, so far as the natives are concerned, there is no hesitation on the part of the Sanitary Department,²⁵ as witness the 360,000 vaccinations performed by its agents in Cairo alone during the months of May and June, 1900. In case of an infected village, a military cordon is promptly established, and thorough vaccination of the inhabitants carried out.

To convert a dirty and superstitious race into a cleanly and sensible one, exceeds the power of any government organization, even under the able supervision of Director-General Pinching and his associates of the Egyptian Sanitary Department; but the general health and sanitation

of the country are in efficient hands, and cannot fail to show marked improvement as time goes on.

CONCLUSION.

To all sanitary intents and purposes there are two Egypts, an Upper and a Lower, which differ essentially in many respects.

So far as the ordinary tourist or invalid is concerned, Lower Egypt includes but three stations: Cairo (together with Gezireh and Mena House) Helouan and Ramleh. The latter is the favorite resort of the better class of Alexandrians during warm weather, and merits a longer notice than the writer's personal experience warrants; for it is the one place in Egypt where healthful surroundings, comfort and an agreeable climate can be enjoyed before the season begins and after it is ended,—or rather after it is safer to consider it as ended.

Upper Egypt is too hot to be agreeable by the first of March, and the risk of being ill is sufficiently great to make it unadvisable to linger about Cairo or Helouan. Visitors who contract any grave sickness are very apt to be those who come too early, or such as stay too late; and it is for those who do either (by choice, or for reasons connected with their health) that Ramleh is particularly suited. It has two good hotels (the larger at San Stefano), and the temperature is as a rule not uncomfortably high between the middle of October and the first of December, when it is just as well to avoid Cairo and Helouan, and the best hotels in Luxor and Assouan are not yet opened. Khamseen winds are comparatively rare at Ramleh, and the average temperature (during the period above mentioned) is several degrees less than that of Alexandria (73° F.), and the absolute extremes recorded in 5 years were 92° F. and 55° F.

Between March 4 and April 15 the average temperature is 65° F., with absolute extremes of 106° F. and 26° F.; but it must be remembered that the highest and lowest temperatures recorded during five years give no idea of the normal range.

April 10 is perhaps the best time for delicate people to leave Ramleh, for notwithstanding all that is said and written about the mild air of various European resorts, there is none where the climate can be relied on before April 1, and not one which an invalid who has passed the winter in Egypt will not find too cold before the 10th, when Taormina or Palermo, Capri, Naples and Sorrento are all delightful.

As regards the disposition of one's time while in Egypt, there are several courses open to those who enjoy good health and are looking only for comfort and amusement. Both may be had in Cairo between Nov. 25 and Christmas, and again in February, while from Dec. 1 until Feb. 10 Assouan, and until March 1 Luxor, are at their best.

Concerning invalids, all depends upon their ability to withstand the fatigue of travel, and what they may be trying to accomplish. If a pure, dry air and a phenomenal amount of sunshine is what they seek, there is nothing in Lower

²³ Sanitary Department's Report on Plague in Egypt. Cairo, 1900.

²⁴ The commission sent to Lombay to investigate plague had not sufficient confidence in Dr. Haffkine's prophylactic serum to warrant its employment.

²⁵ Which assumes entire charge in any emergency.

Egypt which can compare with Assouan. If a little greater relative humidity of the atmosphere is desirable, and a temperature only slightly lower, then Luxor is the place. The next best station is Helouan, where the air is pure, the relative humidity slightly less, and the temperature a little higher than at Mena House. Moreover, Helouan is a safe resort from Nov. 25 until early in March when Ramleh is preferable. It is in the spring that visitors occasionally contract typhoid, and the mosquito (*genus anopheles*) improves the shining hours.

Whenever gripe is epidemic in Great Britain or on the continent, it is sure to make its way to Egypt sooner or later. No part of the country is exempt; but one stands a better chance of escape in Upper Egypt than in Cairo and its environs, or Helouan, all of which become badly infected. As to the precautions to be observed while in the Nile valley, the most important is to avoid a chill; and to do this there is a large portion of each 24 hours which an invalid should pass indoors. The hours during which a person who is not quite strong may remain in the open air with safety and benefit differ at the various stations, and aside from this there are other points concerning which professional advice should be had. Wherever an invalid (or tourist, for that matter) is likely to go, he will find competent English doctors, but the chances of becoming seriously ill, if the time of sojourn at the various resorts is limited to the periods which the writer has indicated, are slight. So far as statistics (as yet unpublished) go to show, very few visitors have died in Egypt during the past 10 years. In fact there have been years when no such death is recorded; but allowance must be made of course for very possible omissions to mention the fact of temporary residence in the returns.

A slight chance of grave disease, and a very fair one of a harmless, but unpleasant, digestive trouble, may be avoided by never drinking water or other liquids (unless of well-known brands and properly corked and wired) outside reputable hotels and restaurants. In moving about it must be remembered that the nights on the river are often intensely cold, while the railway journey between Cairo and Luxor is most comfortable. From Luxor to Assouan the night temperature on the Nile is higher than it is further north, but there are, of course,²⁶ cases in which a few hours of dirt and discomfort may be preferred to ever so slight a risk.

The night air of Cairo is distinctly bad, aside from any question of temperature or humidity, while that of Helouan and Assouan are harmless to any one warmly clad. Unless one has been successfully vaccinated within five years, he should certainly give the operation a fresh trial before visiting Egypt. It would be easy to cite quite recent incidents to prove the wisdom of so doing. So far as out-door sports are concerned, there is golf at both Gezereh and Helouan, tennis at all

the stations, and those who enjoy riding will find good footing for four-legged beasts in various parts of the desert and on the road from Cairo to Mena House. Donkey riding is a pleasant way for the average invalid to obtain exercise in the open air, requiring, as it does, but slight exertion or equestrian ability, and being perfectly safe under proper conditions; but to seat a nervous person on a lively beast in charge of a donkey boy who has his own ideas of what constitutes fun, is to place him in a disagreeable and precarious situation. The best course is to rely upon the hotel concierge to hire for you, by the week or month, a quiet and sure-footed ass, and an attendant whose hopes of backsheesh are strong enough to overcome whatever sense of humor he may possess.

Good hunting is found in the Fayoum by those who are willing to go a moderate distance afield; but while I have often seen individuals in the ordinary track of travel who were fully equipped for the sport, I have rarely happened to observe one who displayed either fur or feathers to prove his skill. But modesty may have led to concealment. It is said that if you choose to place yourself under the guidance of a professional *shikaree* (and are willing to pass the greater part of a night in a hole dug in the desert), you may hit a jackal and miss a pleurisy — or *vice versa*.

The diseases of the respiratory organs for which a prolonged sojourn is likely to prove beneficial, are: Incipient phthisis (even if accompanied by hemorrhage), the more advanced forms (if quiescent), chronic bronchitis, asthma, convalescence from any acute pulmonary trouble and catarrhal affections of the larynx and pharynx, and renal diseases. Cases of beginning pulmonary tuberculosis do remarkably well at Helouan, and still better at Assouan, where, on account of the dryness of the air and freedom from rain, tent life in the desert is often tried with the best results, while at either of these stations a modified form of life in the open air is easily accomplished by pegging out a manifold screen at a convenient distance from one's hotel, for protection against the wind, and sending along with it a light table, chairs, books, etc. Certain hours of every pleasant day (which vary with the season and station) can be thus profitably spent in an atmosphere which is entirely free from micro-organisms, and has undoubted healing properties. Such screens are made in the tent bazaar at Cairo, and even the very ornamental ones cost but little.

Of 251 cases of phthisis sent by Dr. C. T. Williams to various places in Southern Europe, Northern Africa, Madeira, etc., those who wintered in Egypt furnished "by far the best land results." In chronic bronchitis with emphysema, the cough and expectoration diminish.

For such asthmatics as have proved by experience that they do better in sea air, Ramleh is the best resort, while for the opposite type there can be nothing better than Assouan.

Sufferers from nervous exhaustion (real or imaginary) do well, and it is particularly for such

²⁶ The railroad between Luxor and Assouan is of narrow gauge and the cars extremely dirty.

people that dahabieh life is suited; but for the usual run of diseases the heavy mists, dampness and unreliability of the night temperature on the Nile are to be avoided.

People who always feel depressed and shrivel up during the winter in a cold climate, bloom and regain their spirits in the sunshine and pure air of Egypt, while those who suffer from insomnia often find relief.

Both moderately thick and summer clothing should be taken along—the latter for Upper Egypt during any month but January, and for Lower Egypt after Feb. 15. A flannel belt worn next to the skin is of real value in warding off attacks of diarrhea.

Some of the views here expressed may appear rather heterodox; but so far as minor dissensions from those of other writers in the same field are concerned, it must be remembered that American and English ideas of comfort are not always the same, and that the saying *de gustibus non, etc.*, is kindly as well as classic. As to the times which the writer believes to be the safest for visiting and leaving the various stations, a careful study of the questions involved warrants no other conclusions.

THE SIMILARITY OF THE EARLY SYMPTOMS OF SIMPLE ABDOMINAL CONTUSION AND ONE ACCOMPANIED BY SEVERE INTESTINAL INJURY; THE NEED OF EXPLORATION CELIOTOMY AS AN EARLY ROUTINE MEASURE.

BY JOHN T. BOTTOMLEY, M.D., BOSTON.

To the surgeon who has to deal with the emergencies of hospital practice, no class of cases may offer greater difficulty in deciding the question, "What shall I do here?" than injuries of the abdomen produced by blunt violence. For operative treatment is either entirely unnecessary or, to be of avail, is most urgently and speedily demanded. If the local effect of the injury is limited to the abdominal wall, very simple or no operative measures are to be considered; if, on the other hand, the underlying viscera have suffered, a capital operation becomes a necessity. The responsibility of deciding is weighty. No one cares to do a needless laparotomy; yet it is surely not desirable to sacrifice a life because of one's indecision or inactivity. Are there any signs, subjective or objective, that will indicate to us the proper course to pursue?

It is not the purpose of the writer to consider here injuries of the liver, spleen, kidneys or bladder, complicating contusions of the abdominal wall; these usually give more or less definite signs of their presence. Rather will he discuss the possibility of distinguishing between a simple uncomplicated contusion of the abdomen and one associated with injury to the underlying intestine.

It is not easy to collect reliable statistics in a number of such cases sufficient to warrant the drawing of conclusions. Hospital records, the

written observations of many different men, are often unsatisfactory; some cases are brought to the hospital immediately after an accident; others not for hours or even days. Very careful records are kept in some cases; scarcely any in others. And right here the writer wishes to make plea for a careful recording of all the signs and symptoms in these cases, and a particularly careful observation of their course, especially for the first few hours—and they are the important ones—after the injury.

The writer has taken all the available cases, 20 in number, of undoubted severe intestinal injury caused by blunt violence (undoubted, because proven later by autopsy, operation, or death from a rapid general peritonitis) and an equal number of cases of undoubted simple contusion of the abdominal wall (undoubted, because the symptoms disappeared in a comparatively few days and left the patient well). These latter were *chosen* cases only in that an attempt was made to have the causes of the cases of simple contusion be as nearly identical as possible with those of the cases of intestinal injury. Only such cases of either class were considered as were admitted to the hospital immediately, or very soon, after the receipt of the injury.

As far as the age of the patients is concerned, by far the great majority were adults. All but 3 of the cases of intestinal injury, and all but 4 of the cases of simple contusion, were 19 years of age or over.

Causes.—The following table shows the various agents and the number of times each was active in either class of cases.

	Simple Abdominal Contusion.	Intestinal Injury
Struck by a wagon shaft	3	2
Fall from various heights	3	4
Horse kick	5	4
Human kick	3	1
Run over by a team	2	1
Fallen on by objects	2	1
Struck by flying objects	0	4
Caught between moving and fixed bodies	2	2
Struck by a poker	0	1

Severe violence, well localized, is usually the important factor in the production of injury to the intestines and other abdominal viscera; hence, a careful history of the accident itself should be obtained. Even then, as the table of causes indicates, it must be remembered that what are apparently identical (as far as we can judge) causes may produce either a comparatively unimportant or the most severe injury. It is equally difficult to measure the amount of force exerted by the acting agent and the power, or lack of power, of resistance on the part of the object. It is noteworthy in this connection that of 7 cases of injury caused by being struck in the abdomen by the shaft of a wagon, only 4 resulted in injury to the intestine; in the 3 others a simple contusion of the abdominal wall followed. The injuries resulting from horse kicks tell a similar story. On the other hand, injuries caused by flying objects, such as pieces of board from circular saws, etc., seem very apt to be serious. It may be said that

¹ Contributed to the Twelfth series of Medical and Surgical Reports of the Boston City Hospital.

knowledge of the point of impact, as careful an estimation as possible of the amount of force exerted, and the direction from which it comes, are very important.

Symptoms.—It is certainly true that people differ in their sensibilities. Similar injuries may cause profound shock in this patient, none or very slight in that; may be followed by the most intense pain in one patient, by only slight pain in another. It is probable, however, that in a series of cases these things even themselves up, and deductions drawn therefrom can be safely applied in the average case.

Let us consider and compare the symptoms of these 2 series of cases. When we say symptoms, we mean here only those shown upon entrance to the hospital or immediately after. May we depend on any one symptom, or combination of symptoms, to indicate to us the correct diagnosis and consequently the correct treatment?

Pain.—Pain was present in all the cases of the more severe injury, and in all but one of those of simple contusion. It is the most constant symptom, and while it is evidently of no particular diagnostic value, yet it may be the only symptom of a most serious injury. Manley reports such a case, in which pain in the right groin was the only symptom of a complete rupture of the ileum. The pain may not be continuous; it may disappear and return again. Neither is its severity always marked; shock, for instance, may deaden the patient's sensibility to pain. In 6 of each class of cases it was noted as severe. As to its being local or general, it was mentioned as local in 2 of the cases of intestinal injury and in 1 of the cases of contusion.

Vomiting.—This symptom was present in 10 of each class of cases; it was absent in 2 cases of intestinal injury and in 7 cases of simple contusion, and was not mentioned in 8 cases of the former, and 3 of the latter, class. Of the 10 cases of simple contusion in which it did not appear as a symptom at entrance, in 4 it appeared within the first 24 hours. Of the 10 similar cases of the more severe injury, it appeared in 6 within 24 hours. So, while the presence of vomiting as an initial symptom is not of marked diagnostic importance, its absence, while by no means conclusive, would incline us to think rather of the less severe form of injury. Its appearance late in or after the first 24 hours may be usually regarded as of serious import, and yet in 1 case of this series a 3,000-pound load of coal passed over the epigastric region of an adult, and vomiting did not begin till after 48 hours had passed; beginning then, it continued for a number of hours, passed away, and did not reappear. The patient recovered. The vomiting was his only serious symptom, and his case was one of simple contusion. The symptom may continue for a while and cease, even in cases that later prove fatal. Continuous vomiting is considered by some to point strongly to intestinal injury. While the records of the cases now under discussion tell but little on this point, 1 case is perhaps worthy of mention in this regard. A carpenter

fell from a ladder and struck on his abdomen across a board partition. He was brought to the hospital immediately and vomited continuously for 36 hours, and more or less for 12 hours longer. In addition, he had severe abdominal pain, distention and muscular spasm, and lay with flexed knees; yet in 3 days all symptoms had disappeared, and shortly afterwards he was discharged from the hospital well. J. B. Blake recently operated, about 24 hours after injury, on a case of perforation of the intestine, in which neither nausea nor vomiting had at any time appeared as symptoms.

Shock.—This appeared as an initial symptom in 11 cases of intestinal injury and in 7 of contusion of the abdominal wall. It was recorded as absent in 6 cases of the more severe injury and in 3 of the less severe, and was not mentioned in 3 cases of the former and 10 of the latter. As to its degree, it was severe in 3 cases of visceral injury and in 2 of simple contusion; it was said to have been moderate in 4 cases of the former and in 2 of the latter, and was designated as slight in 1 case of intestinal injury. So that neither from its presence nor from its degree can we draw certain conclusions as to the seriousness of the injury. This is to be expected, for shock is variable, and its degree is dependent on many factors, and many things influence its expression.

Faintness at the time of the accident was spoken of in 3 cases of intestinal injury and in 1 of simple contusion. In 1 case of each class there was complete unconsciousness immediately following the accident. These facts are mentioned as possible expressions of the amount of shock.

Muscular spasm.—This symptom was present at entrance in 11 cases of intestinal injury and in 10 of simple contusion; it was absent in 2 cases of the more severe, and in 4 of the less severe, injury, and was not mentioned in 8 of the former, and 5 of the latter, class. The spasm may be general or local. It was general in 5 cases of each class, and local in 2 cases of intestinal injury and 4 of simple contusion. Absolute rigidity of the abdominal wall was present at entrance in 2 cases of simple contusion and appeared in 2 others within 24 hours. Even the retracted belly, usually considered pathognomonic of a severe general peritonitis, appeared on the second day in a case of contusion, continued for about 20 hours, and then disappeared. Thus, the presence or absence of muscular spasm was not particularly associated with either lesion. It is sometimes hard to distinguish between voluntary and involuntary spasm, and this should always come into consideration in the examination of a patient.

Distension.—Distension was present at entrance in 2 cases of the more severe injury and in 5 of the less severe; it was absent in 12 of the former, and in 7 of the latter, class, and not mentioned in 6 of the former and in 8 of the latter. It is not a common early symptom, but is apt to develop with the onset of peritonitis. Its presence or absence as an initial symptom is of no practical importance.

Tenderness.—Next to pain this is the most constant sign in both classes, but is apparently of no particular value in the making of a diagnosis. It was present in 18 cases of each class, was noted as absent in none of the cases of the more severe injury and in but 2 of the less severe, and was unmentioned in 2 cases of the latter. It was said to have been local in 6 of the cases of intestinal injury and 7 of the cases of simple contusion, and general in 8 of each class.

External signs of violence.—As has been said, it is often very difficult to estimate from the patient's story the real force of the acting agent, and in this we are not markedly aided by the visible signs of the injury; even these are not always present. They were found in 9 cases of the more severe injury and in 6 of the less severe, were absent in 6 of the former and 10 of the latter, and unmentioned in 5 of the former and 4 of the latter. The external signs usually appear in the form of an abraded or ecchymosed area; but the violence may occasionally be so severe as to rupture the abdominal wall and cause a hernia of the intestine. Yet even so marked a sign as that does not necessarily indicate the existence of intestinal injury. In 2 cases under consideration here, hernia through the abdominal wall followed the impact of the blow. In 1 there was a coexistent rupture of the intestine. The other case occurred in a man of 40, who, while riding on the step of an electric car, was struck in the abdomen by the shaft of a wagon coming in the opposite direction. He was brought to the hospital unconscious and in marked shock. Just above the umbilicus, and 2 inches outside the outer border of the right rectus, was an excoriated area about as large as a silver dollar, covering a soft tumor, which was not tender. This proved to be a hernia. Operation was refused; all unfavorable symptoms disappeared in 24 hours, and the patient was discharged with a hernia, which, when unreduced, was about the size of an orange. The bowel had apparently suffered no marked injury, even though the external violence had been great.

As to the locality of the external sign, it was found on the right side in 2 cases of intestinal injury and in 3 cases of contusion, in the middle line in 1 case of each class, and on the left side in 6 cases of intestinal injury; above the umbilicus in 2 cases of the more severe, and in 1 of the less severe, cases; below the umbilicus in 7 cases of the former and in 3 of the latter. From these figures it appears that a blow on the left side and below the umbilicus is apt to cause the more serious injury. Makins² considers a blow on the lower half of the abdomen of much more serious import than one on the upper half, and claims that, while blows on the upper abdomen can and do cause intestinal rupture, injury to the mesentery or omentum is equally probable.

Dulness.—In discussing this symptom, Makins distinguishes 2 kinds, namely: (1) extensive areas of deficiency of resonance fixed in position, most commonly in one or the other flank, and (2)

definite local areas of small extent. His remarks concerning these are worthy of repetition. "Of the 2 varieties the less extensive is regarded as of the greater importance. It is to be explained by the local infection produced by the rupture, and is due to the effusion and development of plastic lymph producing early adhesions; this is a very early occurrence, and at first is localized to the seat of injury. The larger areas of dulness are due to the contraction and collapse of large segments of small bowel almost invariably accompanying these injuries; this contraction may follow abdominal injuries where the gut is not injured. The importance of the sign depends rather on its fixity, which, as indicating its independence of free fluid in the belly, is an important exclusive sign, since ruptures of the intestine—excluding those accompanied by a rent of the mesentery—are rarely cases of free hemorrhage, and are not followed by free escape of intestinal fluid into the peritoneal cavity."

In our series dulness was present in 6 cases of intestinal injury and in 3 cases of contusion. Its absence was remarked in 4 cases of the former, and in 10 of the latter, class; and in 10 of each series its presence or absence was not mentioned. Excluding instances where it was found in the flanks, it was present as a definite, localized area in 4 of the more severe, and in 2 of the less severe, cases. It seems somewhat questionable that in the first few hours following the injury there should be sufficient plastic exudation about the injured spot in the intestine to give detectable dulness. We would, perhaps, be more apt to find an area of intense congestion about the point of injury. In a case of ruptured intestine, operated on by Watson within a very few hours of the injury, he found the intestine in *all directions* covered with fibrinous flakes. Though these local areas of dulness were found more frequently in the cases of injury to the intestine, yet they were noted in the cases of simple contusion, and in neither class of cases were they sufficiently common to be a marked aid in deciding the diagnosis. However, it is a point worthy of careful observation in all such cases.

The temperature and pulse.—The temperature was subnormal in 6 cases of intestinal injury, in 3 of simple contusion; it was normal in 3 cases of each series; it stood between 99° and 100° in 1 case of the more severe injury, in 4 of the less; in 1 case of each class it was between 100° and 101°; in 2 of intestinal injury and 1 of contusion, between 101° and 102°, and it was not mentioned in 7 of the latter class. Other than the fact that the temperature was subnormal in more cases of intestinal injury than of contusion, consideration of this symptom affords us no information.

The pulse was 70, or less, in 2 cases of injury to the intestine and in 3 cases of contusion of the abdominal wall; it was below 90 in 7 cases, below 100 in 10 cases, and over 100 in 3 cases of each class. Its quality was described as good in 7 cases of the more severe injury and in 5 of the less severe, and as poor in 3 of the former, and in

² Annals of Surgery, xxx, 137.

6 of the latter, class. A case illustrative of how deceptive the pulse may be was recently admitted to the City Hospital. The patient had suffered an abdominal contusion from having been caught between 2 electric cars. He was brought to the hospital immediately. He vomited and was rather restless, but was not pale; his pulse was 110 and of good strength. He was operated on 12 hours after receiving the injury; at the time of operation his pulse was still 110. His belly was found full of blood, and active bleeding was still going on from a torn mesenteric artery.

So we obtained nothing definite from a study of these symptoms. As shock lessens, here as elsewhere, the temperature is apt to rise and the pulse to fall. Unfortunately, in most of these cases a careful hourly record of the pulse and temperature was not kept; it is probable that if we hope to get any information of value from a study of these signs, it is only from such a record that we can get it. A single observation of either or both signs is of absolutely no importance. Repeated observation of the *course* of the pulse and temperature, especially of the former, would probably prove of value. The temperature is of as little importance in these as in other abdominal cases. Observation of the pulse is unquestionably of importance.

Consideration of the combination of symptoms leaves us in just as much doubt regarding the diagnosis as that of the individual symptoms. In the 20 cases of intestinal perforation there were 11 different combinations of symptoms. Pain, tenderness, muscular spasm and vomiting were found associated 4 times; pain, tenderness and external signs of injury, 3 times. These are the combinations found associated in the greatest number of cases. They are certainly not incompatible with a very simple injury, and are of no importance from a diagnostic standpoint.

Results and conclusions.—Of the 20 cases of injury to the intestine, 19 died and 1 recovered. Eleven of the cases underwent operation; 9 were treated expectantly; of the latter, all died; of the former, 1 recovered. Of the operated cases, 1 was submitted to operation less than 4 hours after entrance to the hospital, and recovery followed; 4 were operated on 5 or 6 hours after; 1, 12 hours; 4, 24 hours; and 1, 48 hours after,—all these died.

In the fatal unoperated cases the average duration of life after the receipt of the injury was 2.33 days, the extremes being 7 days and 1 day; in the fatal operated cases the patients lived on an average 2.85 days after the receipt of the injury, the extremes being 9 days and one-half day. Thus operation tends to lengthen, rather than to shorten, the patient's existence.

In the cases of simple contusion of the abdominal wall, the symptoms disappeared in an average of 4.4 days, and such cases were discharged in from 8 to 15 days. In 2 cases of this series exploratory incisions were made; nothing abnormal was found in either, and uneventful recovery ensued in each case.

A further study or discussion of the symptoms of these 2 classes of cases can bring us to no other conclusion than that the physical signs correspond neither to the amount of violence exercised nor to the amount of injury done. No one sign or combination of signs is sufficiently constant to indicate the nature of the injury or to serve as a basis for diagnosis. Our only present means of making an exact diagnosis sufficiently early for treatment to be of avail is an exploratory laparotomy. When we wait for the usual signs of intraperitoneal trouble to present themselves, we wait too long. Even improvement in the symptoms in the first few hours should not be allowed to deceive us. The reaction from the shock may cause such a temporary improvement, even in the most dangerous cases; but instead of causing us to hesitate in our procedure, it should, on the contrary, be seized as a favorable opportunity to go ahead. True, many, and perhaps very many, laparotomies may be done and no visceral injury found; but the danger to life in such an event is exceedingly small, and the necessitated additional time to be spent in bed is not to be weighed against the possible life that may be saved, and will be saved, in many a case. Early operation will not lead to the recovery of every case of intestinal injury; but it seems far more reasonable than operation after signs of beginning general peritonitis have appeared, and almost all chances of recovery have disappeared.

As far as statistics go, they tend only to strengthen our position. Nimier³ mentions 307 cases of abdominal contusion caused by horse kicks. All were treated expectantly, 215 recovered, and 92 died. The 215 cases that recovered offer no particular lesson to us. Our interest lies in the 92 that died. How many of them would have been saved by an early exploratory incision and the knowledge thus obtained?

Schmitt⁴ finds that a mortality of 97.5% has followed the expectant treatment of cases of abdominal contusion with symptoms sufficiently severe to suggest possible perforation of the intestine. On the other hand, Petry (Quoted in *Progressive Medicine*, June, 1901) presents a table of 42 similar cases, operated on between 1883 and 1896, which show a mortality of 66.7%, while Kirstein's (*Ibid.*) 18 cases, operated on between 1897 and 1899, resulted in a mortality of 55.5%; in 4 of his cases laparotomy was done within 5 hours after the receipt of the injury; all these recovered, and his statistics bear out the fact that every hour that goes by after the receipt of the injury lessens the prospect of cure by operation. The reported mortality of cases operated on in the first 24 hours is 45%; after the first 24 hours, 66.6%. These figures, compared with the 97.5% mortality of the expectant plan, speak for themselves, and make a strong plea for very early interference.

To sum up in a few words, it may be said that, at present, we have no certain means of distin-

³ Arch. mèd. et Pharm. Mil., March, 1898.

⁴ Münch. Med. Woch., July 19, 1898.

guishing between a simple abdominal contusion and one complicated by severe intestinal injury, except through an exploratory incision. This, to be of most avail, must be done within a very short time (3 to 5 hours) after the receipt of the injury. Having no other certain method of diagnosis, and the promptness of the operation being the feature necessary for its success, exploratory laparotomy, combining as it does opportunity for a certain diagnosis and the best possible treatment, if severe injury be present, should be a very early routine measure in all but the most trivial cases of contusion of the abdomen.

THE SCOPE OF VAGINAL SECTION IN THE TREATMENT OF PUS IN THE PELVIS. WITH A REPORT OF EIGHTY-TWO ABDOMINAL SECTIONS WITHOUT MORTALITY; AND EIGHTEEN VAGINAL SECTIONS WITH ONE DEATH, DUE TO ACCIDENTAL CAUSES.¹

BY EDWARD REYNOLDS, M.D., AND L. V. FRIEDMAN, M.D., BOSTON.

EVERY gynecologist must have been struck by the fact that if we set aside the rare deaths due to technical mistakes, for example, deaths from secondary hemorrhage or accidental infection, almost all our losses are to be found in two classes of cases: (1) Deaths from hysterectomy done for large fibroids or cancer in feeble women (to which should, perhaps, be added the removal of excessively large tumors in any situation in the abdomen), and (2) deaths from peritoneal infection due to the opening of infected masses, such as tubal, ovarian or other abscesses.

The mortality in the first class of cases can, I believe, be greatly minimized by thorough constitutional preparation of the patient, rapid operating, careful technique, and in some cases by the adoption of the vaginal method of attack. But with this class of cases the present paper is not intended to deal.

My experience in preceding years had impressed me so strongly with the considerable mortality necessarily incident to the abdominal extirpation of recently infected tubes and other collections of pus in the abdomen, and with the therapeutically good results of thorough vaginal drainage in such cases, that in the summer of 1899 I resolved to adopt the rule that in all cases of inflammatory masses in the pelvis which presented acute symptoms, and in which there had been a fairly continuous temperature, averaging 100 or more during the attack for which the patient sought treatment, I would, if operation were indicated at all, confine myself to thorough drainage by the vagina, without attempting the removal of the affected viscera (excluding, of course, cases in which a diagnosis of twisted pedicle, or similar nonpurulent affections could be definitely established), and would persist in following this rule until I had obtained a sufficiently long series to estimate its result upon my mortality percent-

ages. The cases on which this paper is based were consecutive and entirely unselected. They comprise so much longer a series of abdominal operations than I have ever before completed without mortality, as to have greatly confirmed my belief in the soundness of this principle; to which point, and to which point only, I now report them.

In following the rule I have not thought it necessary to be influenced by the position of the tumor, so long as it was definitely below the pelvic brim, as gynecological lesions must almost of necessity be. We know well that the escape of some pus collections into the abdomen is almost innocuous, while other collections of similar appearance may be exceedingly virulent, in accordance with their bacteriological reaction. I had expected to report also a study of the possibility of fully determining the degree of virulence by comparison of the clinical symptoms and the blood count for leucocytosis, taken beforehand, with the bacteriological examinations of the pus found; but as the results of my observation in this direction were thoroughly inconclusive, and as, in the conditions under which the work was done, I am not confident of the accuracy of all the scientific tests, I prefer to report the series as a purely clinical study, bearing only upon this one question of the relative mortalities of the abdominal extirpation, and vaginal drainage, of acute tubes and other pelvic abscesses. Between June 6, 1899, and April 1, 1901, I performed 82 consecutive abdominal operations without a death, the series being preceded and followed by deaths, due in each instance to an abdominal extirpation of an ovarian abscess: the one, an operation performed *in extremis* after rupture, and the other under a mistaken diagnosis.

That the series was not composed mainly of trivial operations, but averaged on the whole a rather higher degree of severity than common, will be seen by inspection of the careful summaries and skeleton reports of the cases, which my coadjutor has prepared; and I want to reiterate here that I attribute the great improvement in my mortalities in this series as compared with my previous efforts solely to the almost complete exclusion from the abdominal list of recent pus cases.

In the comparatively few cases in which such pus was unexpectedly found during the course of an abdominal operation, the infected tubes were removed *in toto*, if the degree of adhesions permitted this to be done without undue prolongation or severity of operation.

In cases in which unexpected pus was buried beneath unusually dense adhesions, it was simply evacuated, drained with gauze in the abdominal wound, the vaginal vault opened, and through-and-through drainage established, as will be seen on looking at the reported cases.

In two similar cases I was able to obtain a shorter convalescence by abandoning the abdominal operation, so soon as the condition was recognized, and immediately draining by the vagina. In these cases the abdominal wound was closed by a sponge and a single provisional suture during

¹ Contributed to the twelfth series of Medical and Surgical Reports of the Boston City Hospital.

the performance of the vaginal operation; this suture was then cut, and the adhesions again inspected from the abdominal side in a search for any possible escape of pus, after which the abdomen was closed. If the gloves and sleeves are changed, or the second abdominal exposure conducted by an assistant who has not been concerned in the vaginal operation, I believe such an exploratory abdominal incision to be an excellent procedure in some few cases in which the condition present and the choice of route are both doubtful.

During the same period I performed 18 vaginal sections, all done for recent infection, or acute and threatening exacerbations of old symptoms, many of them upon exceedingly sick women; and had one death, due probably to a technical accident during after-treatment, arising from a misunderstanding of orders on the part of one of my assistants. It is very difficult to convey a licentious impression satisfactorily in print, and for such points the statistical method is equally useless. It seems to me best simply to record my opinion that the class of cases submitted to vaginal section was such that abdominal sections performed upon the same women must necessarily have yielded a very high mortality, not less, probably, than 20%, which, if I am right in this opinion, would have resulted in a very different length of series without mortality had the abdominal route been selected for them.

As regards the ultimate result of the vaginal sections, I am unable to give any really satisfactory report, as with but few exceptions they were hospital patients who were lost sight of within a few weeks or months after the operation. I can only say that at the time of their discharge from the hospital the result, both therapeutic and anatomical, was usually good; that my previous experience has been that, among private patients and in hospital patients whom I have happened to see afterwards, the remote results of thorough vaginal drainage of pus, while not uniformly satisfactory, have as a whole been surprisingly good, both from the symptomatic and anatomical standpoint; and that in the few cases in which I have been obliged to perform a subsequent abdominal extirpation, the previous vaginal operation has not seriously complicated it. The form of operation which I have used in vaginal sections has consisted of a wide cut, usually across the posterior fornix, and frequently supplemented by an additional incision in the median line, thus making a total incision of the shape of a T. This first incision only penetrates the vaginal walls, but is always extended on the sides out to the pelvic walls, and posteriorly as far as may be necessary to give good room. The vaginal incision having been carried to its full extent, the flaps are dissected back; then a similar incision is carried through each succeeding layer, until the abscess mass is itself plainly in view of the eye; its wall is then incised, and the incision extended with scissors, or the fingers, until it is as wide as the original incision in the vaginal vault.

All edematous inflammatory tissue is torn open with the fingers as far as possible, and the cavity is then lightly packed without douching. There is usually free venous bleeding until the abscess mass is opened, but it should receive no attention, as it is due to back pressure on the veins and will cease as soon as the mass is lessened by the escape of its contents.

With the relief of tension from below furnished by free division of the supporting structures, even masses which are at first placed high in the pelvis descend within easy reach of the vaginal method of attack. The whole operation can usually be performed under the guidance of the eye, and in a surprisingly intelligent and diagrammatic manner. I believe our knowledge of the choice of cases for the vaginal method of attack in inflammatory pelvic disease to be very far from complete, and with these preliminary observations I report my work of the last two years as a contribution towards its study. For the compilation of cases and clinical remarks I am indebted to Dr. Friedman.

The cases presented here have statistical value for several reasons. They form a genuinely consecutive series (covering 2 years) of nonselected cases. They include cases seen in private practice, as well as those treated in a large public hospital, and it may be stated with very reasonable assurance that nearly half (31 out of 71) of the operations included under abdominal sections were unusually difficult, as many of them were characterized by dense chronic adhesions, and their classification shows that of the 100 cases, 15 were hysterectomies, 9 were Cesarean sections, and 4 for extra-uterine pregnancy. There was no mortality in the 82 abdominal cases. The single death of the whole series occurred as the result of a distinctly post-operative accident following vaginal section.

The vaginal sections are divided naturally into 2 classes.

1. Those cases in which a definite abscess cavity containing liquid pus (a pus-tube or an encysted peritonitis) was isolated by a more or less heavy wall of inflammatory exudate.

From these cases we may deduct 4 advantages of the vaginal over the abdominal route: (1) The risk of general peritoneal infection is greatly diminished; for, with proper technique the vaginal section becomes a dissection by means of which each layer is seen before it is incised, and the pus is reached long before there is danger to the general cavity which lies above the abscess, and is separated from it by a wall of exudate. (2) Excellent drainage can be secured and maintained, because the vent is at the bottom of the pocket and can be wedge-shaped; that is, the outlet can be made as broad as the greatest width of the pocket to be emptied. (3) Vaginal hernia is a very rare sequence of vaginal section. (4) Severe post-operative shock is almost unknown.

The efficiency of vaginal, or a combination of abdominal and vaginal drainage, is well illustrated in one of my cases. The abdomen was opened

with the expectation of finding merely an adherent chronic tubal inflammation, dating from a criminal abortion with sepsis, 2 years previous. Instead, the pelvis was a bowl of foul, liquid streptococcus pus, which, with the dense adhesions, quite obscured the anatomical relations. These conditions prohibited radical operation; consequently the vaginal vault was pierced, and the pelvis drained with gauze in both directions. Forty-eight hours later the gauze drains were replaced by a rubber tube of large calibre, which passed into the abdominal wound and out of the vagina. The bore of this tube was kept clear (in spite of a fecal fistula which appeared on the fifth day) by frequent irrigation with boiled water. The convalescence was protracted, but when seen 6 months after operation, not only was the patient in apparent health, symptomatically well, and working, but menstruation was regular and painless, and a careful bimanual examination failed to reveal any mass of pelvic exudate.

II. Those cases characterized by the infiltration and subsequent degeneration of the cellular tissue of the pelvic septa.

In these cases vaginal section gave no immediate and obvious result,—frequently there was no pus and only a small amount of lymph drained by the incision; yet the therapeutic result was unquestionable. These cases were commonly in patients with a history of long-standing inflammation, who by a recent acute exacerbation had been driven to bed with pain and a persistent slight elevation of temperature. There were also acute cases with the frank symptoms of acute pyosalpinx or encysted peritonitis; high temperature and pulse, distention, exquisite abdominal pain and tenderness, nausea and vomiting.

In the cases with a previous history there had been apparently an absorption or partial organization of pus, or of the lymph of an encysted peritonitis, and the searching finger entered a cavity, the walls of which were formed of thick, fibrous, inflammatory exudate. In the acute cases a cavity remained after the passage of the finger through the partially disorganized cellular tissue. In either case the result of the section was a rapid drop in temperature and pulse, with prompt symptomatic relief.

Only a short period of complete anesthesia was required. There was little or no shock; patients bore nourishment by the mouth early, and usually on the fourth day had a general diet; at the end of a week or ten days they left their beds. This rapid resumption of systemic tone, with its consequent possibilities of fresh air, was in strong contrast to the longer convalescence in bed of the abdominal cases. Considering the excellent anatomical condition of patients seen months after operation, it seems quite possible that vaginal section, in selected cases, may leave the patient with pelvic organs capable of normal function; and if this be true it should have precedence over the radical operation which is, after all, always available after the failure of the vaginal operation to secure an absolute result.

CLASSIFIED SUMMARY.

Abdominal salpingectomy or appendectomy for inflammatory disease	20
Abdominal hysterectomy for inflammatory disease	9
" " " fibroid	2
" " " other causes	2
Vaginal hysterectomy for carcinoma	2
Abdominal section for separation of adhesions	3
" " " ventro-suspension, only	11
" " " extra-uterine pregnancy	4
" " " Casarean section	9
" " " oophorectomy	9
" " " myomectomy	2
" " " hydrosalpinx	2
" " " pelvic abscess	1
" " " (exploratory)	4
Lumbar nephrectomies	3
Vaginal section for inflammatory disease*	18
	101
Deducted for case counted twice	1
Total	100

Outlined reports of the individual cases referred to will be published in the Boston City Hospital "Medical and Surgical Report" for 1901.

PROSTATIC CALCULUS REMOVED THROUGH PERINEAL SECTION.¹

BY CHARLES G. LEVISON, M.D., SAN FRANCISCO, CAL.,

Chief of Surgical Clinic, Medical Department, University of California; Associate Professor of Surgery, Post-Graduate Department, University of California; Consulting Surgeon to the Mount Zion Hospital.

THE following case was recently operated by the writer, and is of interest on account of its infrequent occurrence and the manner of its recognition.

Essential prostatic calculus occurs less frequently than the adventitious form; by essential is understood the concrement which develops spontaneously within the prostatic tissue, and having no connection with the urethra. It does not develop in consequence of the gradual deposition of urinary salts. On the other hand, the adventitious form is frequently the result of some substance (uric acid crystals or vesical calculus) dropping into the prostatic sinus and becoming encysted. This body, acting as a nucleus, increases in size coincident with the deposit of urinary salts, and eventually breaks through the urethral wall into the prostate.

This form can also result from the introduction into the prostate of some stone fragments, in consequence of trauma, secondary to a lithotripsy, forming a nucleus for the development of a prostatic calculus. Here it would simulate an essential prostatic calculus. Minute prostatic concretions are not all uncommon. Eastman states that out of 21 prostates examined post-mortem, in individuals ranging from 14 months to 74 years of age, small concretions were found in all but 2. These were in boys aged 14 months and 7 years, respectively. These concretions correspond to the corpora amylacea, whose origin is due to a colloid degeneration of the gland epithelium, which subsequently undergoes amyloid degeneration, when the iodine reaction becomes positive.

¹ Case No. 28 had both lumbar and abdominal incisions.

² Read before the San Francisco County Medical Society, Oct. 8, 1901.

Prostatic calculi of adventitious origin are not at all frequent, as a reference to the literature will readily show. This form of calculus, as before stated, is the direct result of the deposition of urinary salts around a nucleus, which has become encysted in the prostatic sinus. Naturally, its chemical constitution differs from the essential, whose chemical nature is the result of the deposit of calcic phosphates and carbonates around and into the corpora amylacea, or around bacteria which may have gained entrance into the gland. The character of these calculi varies; in the essential the surface is generally smooth, while in the adventitious the calculus is not so firm, on account of its infiltration with urinary salts.

The etiology is not all clear, for a reference to the literature giving the data of cases makes it apparent that there is no well-marked etiological factor influencing the formation of this class of stone. Cases have been reported in children, proving that it is not a condition of old age and its accompanying manifestations.

Diagnosis.—The essential form frequently remains unrecognized "intra vitam." Guyon states that when this form remains confined to the prostate, without encroaching upon the "pars prostatica urethrae," it is only of pathological interest, having no clinical significance. In a number of cases which have been reported, the essential calculus has only been recognized in the course of a perineal section. The difficulties of diagnosis are great, and in all probability many cases of prostatic calculi are passed by as indurated or hypertrophic prostates. This occurred in the case to be reported presently. In the adventitious form the stone is most frequently recognized during the passage of a urethral sound, which, as it passes through the prostatic urethra, impinges upon the stone, or, as in the case reported by Spencer, who came upon a stone in the course of a "Bottini." Spencer very correctly remarks that these conditions are frequently overlooked by competent observers, a fact which should serve as a stimulus to more painstaking methods of diagnosis.

In my own case it was the first impression, as the finger came upon the gland, which was the most reliable; when the examination was continued for a time, I became less positive as to the presence of stone, and my assurance only returned with the renewal of the examination. Other factors in diagnosis, such as stricture, tenesmus, cystitis, pain, etc., occur so frequently when no stone is present that these symptoms are of no real value from a diagnostic standpoint. In my case the patient, who was 35 years of age, gave a history of cystitis of gonorrheal origin of 7 years' standing, during which time he had consulted a number of physicians. He complained of great perineal pain, vesical tenesmus, and frequent micturition, pain in the back, etc.

The urine contained quantities of pus. Chemical examination showed traces of albumin due to pus. No serum albumin. Microscopical examination revealed quantities of pus and epithelial

cells. Neither blood nor tubercle bacilli could be demonstrated. Harris' segregator collected clear urine from both ureters. Cystoscopic examination revealed clear urine escaping from both ureteral openings. The cystoscope presented a picture such as is usually seen in the hypertrophy of the aged.

At this time pyelonephritis was excluded, but later this condition became manifest. It will have, however, no bearing upon the case. Metallic sounds introduced into the urethra did not come in contact with a stone, hence the adventitious calculus was excluded.

Rectal examination revealed an enlarged prostate with indurated lobes. The right lobe was found to be the size of a pigeon's egg. A so-called middle lobe could be palpated; this had a smooth surface, and produced the impression as if a stone lay imbedded in the prostatic substance. Repeated examination made the diagnosis more probable. Firm pressure upon this part of the gland caused less uneasiness than when a normal gland is manipulated. The patient himself could recognize when the finger passed over the indurated region. Massage of the prostate expressed less secretion than normal.

Diagnosis of a concretion of a middle lobe of the prostate, with hypertrophy of the lateral lobes (inflammatory), was made, and the removal of the stone was advised, for it was felt that the stone was an active factor in the causation of the pain and tenesmus.

The operation was carried out as follows: With the patient in the exaggerated lithotomy position, a horseshoe incision $1\frac{1}{2}$ cm. anterior to the anus was made, and the rectum separated from the bladder by blunt dissection. Strong retraction with wide retractors was made in all directions, so that the prostate was beautifully exposed. Hemorrhage was slight and easily controlled. An incision into the central part of the gland exposed a concretion the size of a hazel nut, which was shelled out. As part of the concretion had infiltrated the surrounding gland substance, this part of the tissue was removed. The prostate was here dissected from the urethra without difficulty. But slight hemorrhage occurred when the prostate was incised. The wound was closed, with gauze drainage. Convalescence was practically unimpeded. The pain and vesical tenesmus have disappeared since the operation, confirming the belief that the stone was the causative factor of the bladder symptoms.

Microscopical examination of the prostatic tissue removed revealed an increase of the interstitial substance, together with an atrophy of the glandular elements. It was infiltrated with microscopic concretions.

Chemical examination was unfortunately not made.

A glance over the literature as collected by Spencer shows that this condition is an unusual one, especially the essential calculus. Spencer's statistics extend over a period of 50 years,—1851 to 1900,—during which time only about 20 cases

have been reported, most of these having been of the adventitious form, which were recognized per urethram.

A few cases of essential calculus have been recognized per rectum, but these have generally been quite large. In the author's case the stone weighed about 6.0 gm., and should be classed with the essential form.

LITERATURE.

Eastman. Journal American Medical Association, July, 1897.

Spencer. Transactions of Medical Society, State of California, 1900.

Clinical Department.

THE TREATMENT OF PILES BY THE INJECTION OF CARBOLIC ACID.¹

BY GEORGE W. GAY, A.M., M.D., BOSTON.

THE object of this paper is to draw attention to the method of treating a certain form of hemorrhoids by the injection of a weak solution of carbolic acid. The method has heretofore been largely in the hands of pretentious and unreliable people. Nor have the educated surgeons always treated the subject with that calm, judicial spirit demanded for all proposed plans of combating disease. The method has been lauded to the skies and condemned to oblivion, both of which verdicts are unwise, as well as untrue.

While the field of this operation is limited, yet it has considerable value, and can be used with confidence and satisfaction in appropriate cases. The operation has been brought into disrepute by being applied to unsuitable cases, by using a preparation of too great strength and in too large quantities. By paying sufficient attention to these three points, the method will give satisfaction, and prove of enough value to give it a recognized standing in the treatment of internal piles.

It is to be distinctly understood, that in a majority of cases this plan of treatment is simply palliative. The palliation, however, is not infrequently so pronounced, that nothing further in the way of an operation is required.

The operation is safe. It can be done in the physician's office without fear of any untoward results. It is not painful, and hence requires no anesthetic nor opiates. It does not lay the patient up, nor does it interfere with his usual vocation or habits of life. Bleeding is controlled, protrusion is prevented, and the tumors are so shrivelled up that they give little or no discomfort for an indefinite period. The treatment can be resorted to in case of relapse at any time, with the prospect of very considerable relief.

The writer has used this method of treating a certain variety of piles a number of times during the past ten years, and, with one exception, has never seen any undesirable results. The case re-

ferred to was one of *external* piles, and therefore was not suitable for this method of treatment.

As showing the usual results of this mode of treating internal piles, a brief reference may be made to a few cases in the experience of the writer. An elderly gentleman, well known in this city, underwent an operation by ligature for piles several years before I saw him. He had two internal piles the size of a large filbert, which protruded at stool, bled freely, and were more or less painful. Each was injected once, and the operation was repeated a year later. The relief was satisfactory to patient and myself. A physician's wife had one pile the size of a walnut, which gave a good deal of trouble. One injection relieved her so effectually that no other treatment was required for at least two or three years, as reported by her husband. A gentleman of leisure, and sedentary habits, has been troubled with an internal pile of moderate size for six or eight years. It has been injected several times at intervals of about one year, with considerable relief. As the tumor is a little larger every time he applies for treatment a more radical operation may be required some time for his relief. Thus far he has been very well satisfied with this mode of treatment.

The worst case of hemorrhoids I ever treated by this method was that of a commercial traveler, who had several large internal piles, which bled so profusely at every stool that he was driven to seek relief. As it happened to be in the midst of his busiest season, he begged for some sort of treatment which would not lay him up. On being told that the injection method might relieve, but would not cure him, he eagerly accepted it. Two piles were injected at intervals of one week for three weeks. The relief was so complete that for two years he thought himself too comfortable to resort to any further radical measures. The hemorrhage was controlled to a great extent, the tumors were shrunk, so as to give little trouble, and he was able to continue his business as well as usual. He was not cured, and very likely further measures will be necessary in the future to permanently relieve him of his infirmity.

A radical cure is not to be expected in a majority of cases. The relief, however, is usually very pronounced, and lasts for an indefinite time.

In applying this mode of treatment, especial attention should be paid to the following points; namely: (1) The variety of piles; (2) the strength of the solution; (3) the amount used at each treatment.

Internal piles are the only ones that should ever be subjected to this method of treatment. Those piles which are above the internal sphincter, or which will remain there, when so placed, are the proper ones, and, so far as the writer knows, the only variety that will yield satisfactory results from the treatment by injection. This point is of vital importance to the success of the operation. External piles are made worse by the procedure, as they swell up, and are sorer

¹ Contributed to the twelfth series of Medical and Surgical Reports of the Boston City Hospital.

and more troublesome in every way after injection.

The strength of the solution of carbolic acid should not exceed 10%. The writer has always used the following: Carbolic acid (95%) one part, glycerine and water, each, one part. I have had no experience with any other preparation, but can recommend this one as being efficient, and not attended by any unfavorable symptoms.

The amount of solution which should be injected into each pile depends upon the size of the tumor. For one as large as an ordinary filbert, one minim is sufficient. For larger ones two minims are required. More than this last amount is seldom necessary. In the experience of the writer this quantity has never produced any untoward results.

The operation may be performed in the following manner: The patient is directed to sit upon the stool for several minutes, and strain as in the effort to evacuate the bowels. In this way the piles are distended and brought down to the anus. The patient then lies down upon his left side with knees well drawn up. With his right hand he raises his right buttock, and strains down again, while the operator gently opens the anus with the fingers of his left hand, in case the piles are not in plain sight. An ordinary hypodermic syringe having a sharp needle and charged with the solution is thrust into the pile, and one or two minims injected into its centre. The needle is slowly withdrawn, and the piles replaced above the internal sphincter.

The introduction of the needle is not painful, and the carbolic acid causes only a slight burning sensation, which is of short duration. The patient goes about his ordinary business. The bowels are encouraged to move regularly, and no change is made in his daily habits.

The operation may be repeated in a week or later. I never inject more than two piles at one visit, and have never had occasion to repeat an operation upon the same tumor inside of a year, although there can be no objection to doing so, after the effects of the previous operation have disappeared, say in two or three weeks.

By way of summary it may be said, that if the following points receive careful attention, relief, more or less complete, is pretty certain to follow this operation; a relief that in some cases will result in a permanent cure: (1) Inject only *internal* piles; (2) the solution of carbolic acid should not exceed 10%; (3) do not repeat the operation under a week; (4) inject only one or two minims into each tumor; (5) inject not more than two piles at any one time; (6) promise relief only, and not a radical or a permanent cure.

THE English Royal Commission on Tuberculosis has begun experiments, to test Dr. Koch's theory of the nontransmissibility of bovine tuberculosis to man, on a government farm. English scientists are alive to the importance of the subject, and are sparing no efforts to reach the truth by independent research.—*American Medicine.*

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

[Concluded from No. 22, p. 605.]

Here are the points:

I find, as far as I have looked up the literature and heard about these accidents, that, with few exceptions, they are not dangerous to life, nor do they necessarily increase the risk of the operation if properly cared for. And in using the word "properly," it seems that we may care for such injuries of the bladder in a variety of ways, provided we close the bladder wound thoroughly, even if hastily. I should say Dr. Cumston's way was exceptionally fine, although many of the writers prefer to go to (not through) the mucous membrane of the bladder and put the sutures in, either continued or interrupted, and get good results. Here it was sewn through and through, and, as far as I can judge, our patient has done very well. The second point I want to call attention to, is that urine in the abdominal cavity is not necessarily dangerous. This urine contained albumin, abundant leucocytes, irritating urates, and yet with this hasty washing out of the cavity and the filling of the cavity before closing with salt solution, seemed to do away with all sepsis from what urine had dribbled over. The hemorrhage, to my mind, was rather alarming. There was a sort of sinus in the muscular wall of the bladder, and we had to sew over and over a number of times to control the bleeding. I asked a number of men how long they would expect the blood to remain in the urine. One said: "About a day." Very little is said about that in our books. As a matter of fact, the bleeding was so free that I almost feared there was secondary hemorrhage going on in the bladder; in fact, I went over 2 or 3 times in the evening to see whether that was increasing or diminishing. It seemed as if one-half of the urine coagulated in the dish. It did not seem to lessen in 12 hours, but in 15 hours the urine became normal and remained so. In other cases I have known it to be longer in clearing up.

The fourth point is about the catheter. I suppose we all have our ideas about leaving it in. I believe the longer we leave it in, the better result we get in healing. I see no reason why, in many cases, we should not leave a self-retaining catheter in for a week or 10 days, rather than 2 or 3 days and then have to draw the urine by catheter for a week every 4 or 5 hours, as the books wish us to do. I believe the catheter should be changed, although I have not changed it in this case as often as Dr. Cumston does. I think if he is going to change every 3 or 4 hours, he might as well draw the urine after the first few days. I do not know that it has been the gentlemen's custom here to use a self-retaining rubber catheter in their

perineal work, but we are using it more and more, and we find the results are very good. The nurses, even with the most careful instructions, are apt to give us a case of cystitis every now and then, when they draw the urine every 5 hours in perineal work. We all agree that we must get perfect drainage in some way after wounds of the bladder, and drainage is very easily procured by the self-retaining catheter. In only a few cases do women complain and object to its use.

DR. HARE: I am a thorough believer in vaginal hysterectomy in certain cases, and have done quite a few, but so far I have had no accident. My own feeling is that, if we do pelvic work carefully by the vaginal route, we are not going to get any more accidents than by the abdomen. I have had bladder accidents in pelvic work done through the abdomen. About 3 years ago I was leaving the hospital one morning, when an undertaker's wagon drove up and left a very short, stout woman, who told me she had been to a prominent operator in New York a year previously who advised her to go home and live as long as she could. She had then been in bed about 6 or 7 weeks, vomiting much for 3 or 4 weeks and nourished by rectum for several days. She had decided to take her chances. I opened the abdomen and found a fibroid about as large as a cocoanut, a multilocular cystoma weighing 8 pounds, and double pus tubes underneath that. Fortunately it was a very thick-walled cyst, from which adherent intestines and omentum were simply peeled off. Everything was so adherent to the uterus that a hysterectomy was done. There was much oozing, and the pelvis was packed full of gauze and drained by the vagina and by the abdomen. For a few days she leaked what we thought was urine; I think it probable that I did injure the bladder. She made a good recovery and went home well.

No one has mentioned tying the ureter. I did that about a year ago. I opened the abdomen in a case of multiple fibroid and tubo-ovarian abscess. The pelvis was full of fresh adhesions. I did hysterectomy and dug out the pus pocket, making a hole in the rectum about one inch long.

She died in 18 hours from shock. The autopsy showed chronic sepsis, and also that I had included the left ureter about 3 cm. from the bladder in one of the loose sutures closing the peritoneum. This was not tight enough to entirely shut off the urine, but tight enough to back up the urine and dilate the ureter.

I have had this winter an interesting, but very disagreeable, experience with catgut. I did within a week 2 abdominal hysterectomies for fibroid, 1 weighed about 2 and the other about 3 pounds, both simple and easy. Everything went smoothly about 2½ to 3 weeks when both developed an abscess, and both emptied into the bladder, one without any symptoms of cystitis, and the other with slight cystitis. Both went home well. I had used a large catgut prepared by a baking process.

DR. BRECK: There are two conditions, both met with in vaginal work, which I think increase the danger of wounding the bladder very materially; first, the necessity of making a wide margin between cervix and the wound for hysterectomy, as in cases of cancer, in which you wish to go well outside of the growth. In such cases your guide between the vagina and bladder is very ill-marked; you have not the firm anterior wall of the uterus to go by. One of my instances of bladder puncture was in that kind of case. There is another condition, that of prolapse of the anterior wall of the bladder. Under such circumstances the bladder comes very low down in relation to the uterus anteriorly, and even extends to the tip of the cervix. In one of my cases it was necessary to separate it from the tip of the cervix by slow dissection, and I could easily see how the bladder might have been punctured if the precaution of passing a sound had not been taken. I have had one case of puncture of the bladder in the removal of fibroids by incision anterior to the cervix. Unfortunately both my cases resulted in fistula and required secondary operation.

DR. LUND: Although having not personally wounded the bladder during operations, I have seen it done by first-rate operators. I should think the condition in which it would be most apt to be done would be in adhesions. I saw the bladder drawn up in front of an enormous fibroid, and it was cut through before the operator got to his tumor. It was sutured, and the patient did well. In another I have seen the bladder torn with the hand in separating it from the anterior wall of the uterus. It was rather low down. It was done early in the operation, so that no urine flowed out. It was easily sewed up, a self-retaining catheter put in, and the patient recovered perfectly. On another occasion, during an abdominal hysterectomy for cancer which was very difficult, the base of the bladder being infiltrated with cancer, it was torn and could not be sewn up. That patient died of shock. I have seen the bladder wounded once in the radical cure of hernia. That case did perfectly well.

It seems to me that the drainage is more important than the method of suture. The bladder contracts down like a collapsed balloon in the bottom of the pelvis, practically shuts itself up, as in one of the cases Dr. Cumston reports. It seems to me the best way is the quickest way, other things being equal, and I have found a simple continuous suture folding in the bladder to answer perfectly well, though Dr. Cumston's method, if one had plenty of time, I should think was possibly more secure. Permanent drainage is the most important matter in connection with these wounds, I think. A self-retaining glass catheter has given excellent results and, it seems to me, need not be left in more than 3 or 4 days; then having the patient catheterized every 6 hours I should think would be sufficient, and it has been in the cases I have seen. It is an accident bound to happen a certain number of times.

DR. W. H. GRANT: In my short experience I have seen 5 or 6 cases where the bladder had been entered during vaginal or abdominal operations, all in the practice of men whom I was assisting. In all of these I have seen but one bad result following this accident, that being in an operation for an edematous fibroid dissecting into the left broad ligament and extending so low that it could not be removed as a whole. In tying off the tumor piecemeal, a piece from the top of the bladder was unconsciously removed, and the patient died from infection.

During vaginal operation, I have seen the bladder opened at least 4 times, but in no case was there any untoward result. The vagina was packed with gauze in each case, holding up the lower wall of the bladder, and a self-retaining catheter was used, giving permanent drainage. In none of these cases was there any attempt made to suture the rent in the bladder. The majority of the cases where the bladder has been accidentally opened, I think, can be traced directly to a neglect in passing the catheter before the operation. I remember distinctly one case of abdominal hysterectomy for carcinoma, where the first intimation of any trouble was when a stream of urine poured from a small rent in the bladder over the abdominal contents and the etherizer. In this case the rent was sutured with catgut, and the patient made an uneventful recovery.

DR. LUND: This week I barely escaped opening an enormously distended bladder in doing an operation for purulent appendicitis. The patient had a greatly distended abdomen and every symptom of advanced general peritonitis. He was sent to the hospital and was on the table. I asked if he had been catheterized and was told that he passed his urine. We drew off a quart and a half of urine, and the abdominal distention entirely disappeared. There was pus in the urine, and I was in doubt whether the whole trouble had not been from the urinary infection. We decided to explore, and found a perforated appendix with general peritonitis, of which paralysis of the bladder was probably a symptom. That would certainly have been opened, if we had not catheterized him. I have known a distended bladder to be opened, it having been mistaken for an abdominal tumor.

DR. HARE: I meant to say, if we do vaginal work as carefully as abdominal work, we shall not have any more accidents by the vagina than by the abdomen. So far as the name mentioned is concerned, I don't think a man who does vaginal hysterectomy in 3 or 4 minutes can exactly be called a careful operator.

DR. BOLAND: It would seem, from what little experience I had from the old operation of lithotomy, that free urinary drainage was the principal means of safety. That was in the days of dirty surgery. The patient usually got well. Sometimes a catheter was left in, sometimes not. We counted on the wound closing in 15 days.

DR. CUMSTON: I think that Dr. Lund's remark about the bladder involvement in appendicitis

should always be borne in mind. I never have perforated the bladder in doing an operation for appendicitis with pelvic abscess, but came very near it, and I think that perhaps of all the intra-abdominal viscera, with the exception of the tube on the right side, probably the bladder is the most often involved of any in abscess formation. As my paper dealt with vaginal and abdominal hysterectomy, I did not consider the general surgical aspects of the bladder. Another remark of Dr. Lund's, certainly a very good one, refers to cases where a rapid suture of the bladder is necessary, using a Lembert suture, or the suture that he described is very proper, and the fact that he double in the borders of the wound makes no difference. Here we are not dealing with a small cavity like the small intestine, where you do not want to turn in too much tissue.

Dr. Hare is an advocate of vaginal hysterectomy. Dr. Garceau is also, and I am myself. I don't think that you will wound the bladder with any more ease through the vagina than through the abdomen; and one thing is very peculiar: I have noticed in my reading that the large majority of cases, where the bladder has been opened doing vaginal hysterectomy, were in those very cases where there were no adhesions at all. I think you will find, if the statistics are looked over, that there are fewer bladder lesions in doing hysterectomy in cases of pus than in doing it for fibroid, and it is usually the *moveable fibroids*, where you go about the operation with less apprehension, and do not think you are in danger. In my case the patient had passed her urine before the operation, but I regret to say the bladder was not emptied on the table. However, there was very little urine in it, so that I cannot suspect that this neglect had any effect in the production of the perforation.

Three remarks Dr. Twombly made were very well brought out. One is the question of the presence of blood in the urine after suture of the bladder, or where you simply drain. In the case of vaginal hysterectomy, where I simply drained and packed the vaginal wound with gauze, and thus supported the bladder, as near as I remember there was more or less blood present in the urine for about 2 days. In the case where I sutured the bladder, the blood was present for 24 hours.

Another point which is a very important one, and which would change my decision about immediate suture after wounding the bladder, would be the question of the condition of the bladder and the urine before operation. If a patient had a septic condition of the bladder, and I think cystitis in the female is about as badly treated and neglected a condition as we have, I believe drainage alone is indicated, and suture of the wounded organ should not be considered.

In those cases, if you open the bladder and get urine in the wound, you will have trouble. I would not close that wound. I should suture it to the abdominal incision, and put in large drainage tubes. When you get urine into the abdomen, if it comes from a perfectly normal bladder,

which to my mind is a very rare thing in people over 30, I don't think you will have any trouble from it at all; and the reason I make that remark is this, that you now and then find reports of undoubted rupture of the bladder following traumatism, where the patient recovered without operation. About changing the catheter: Dr. Twombly said I might as well catheterize the patient as to have the catheter changed every 4 or 5 hours. I don't think so, because the catheter is constantly in place. The nurse just removes one to insert another. The urine, which would otherwise accumulate during the 4 hours the catheter was left out, would be drained off immediately. In my paper I laid special stress on the importance of having the catheter attached to a tube connected with a receptacle under the bed, to get constant aseptic drainage from the syphonage thus produced.

Recent Literature.

Operative and Practical Surgery. For the Use of Students and Practitioners. By THOMAS CARWARDINE, M.S. (London), F.R.C.S., Assistant Surgeon, Bristol Royal Infirmary. With 550 illustrations, most of which are original drawings by the author. Bristol: John Wright & Co.; London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. 1900.

A practical book, in which the author has selected such subjects as he believes would be necessary for the student and general practitioner, and is designed to supplement the many excellent works on scientific surgery. Certain subjects of every-day importance, such as fractures, are dealt with fully. It is by no means exhaustive. The author has not gone sufficiently into detail to make clear some of the operations. The illustrations are diagrammatic, very clear, and are really of value. However, some of them are rather crude; for example, that of "An improvised irrigating arrangement with a foot-bath and dressing-table."

It is a concise, comprehensive work on surgical examinations, diagnosis and procedures. We should differ from the author as to the value of the splints recommended for the treatment of Colles' fracture. The important detail in the treatment of Colles' fracture is its primary and entire reduction under an anesthetic. The so-called "Middlesex" treatment of fractures of the patella, which takes a year to complete, is hardly abreast of modern methods.

The book is well printed and bound.

DR. GEORGE WOODWARD has donated to the University of Pennsylvania \$20,000 to endow the "Woodward Fellowship in Physiological Chemistry" in the Pepper clinical laboratory. The work of the incumbent will consist entirely of chemical investigations of disease.—*Medical News.*

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THE ARGUMENT RELATIVE TO VACCINATION.

A PRACTICE so thoroughly established everywhere in civilized countries as vaccination, ought not, under ordinary circumstances, to require a public statement of its *raison d'être*; but the fact of the extremely spasmodic occurrence of smallpox, and its almost entire absence from many communities for considerable periods of time, together with the consequent neglect of vaccination among the people; these facts prevent a large share of the younger members of the profession from acquiring a clinical acquaintance with the disease, and often from recognizing the importance of, or learning the reasons for employing vaccination as a measure of prevention. A majority of the medical profession, at the present time, have never had an opportunity to become familiar with the disease.

The argument in favor of vaccination may, as a matter of convenience, be stated as follows:

(1) *The temporal argument.*—Comparison of populations at different periods of time before and after the introduction of vaccination. The mortality from smallpox has been enormously reduced since the introduction of vaccination at the beginning of the nineteenth century.

For example: In Boston in the eighteenth century, in 6 epidemic years, 1721, 1730, 1752, 1764, 1778 and 1792, there were 2,405 deaths from smallpox in an average population of only 13,250 inhabitants. In 1721, when Boston was a town of only 11,000 people, 6,000 of its population, or more than half the whole number, were taken sick with smallpox, and 850 of these died, or nearly 8% of the whole population. Again, in 1730, 4,000 were taken sick with smallpox, and 500 of them died. In 1752, 7,669 were taken sick, and 569 died, etc. What would be said if there were

275,000 sick with smallpox in Boston today, with 30,000 or 40,000 deaths from the same cause? Yet this is no more than might occur under the same conditions as prevailed in 1721 and 1752.

In Sweden, where accurate statistics have been kept for more than a century and a half, the deaths from smallpox per million inhabitants, before the introduction of vaccination, rose to 7,200, 5,800, and 5,100 successively in 1779, 1784, and in 1800; but at no time since 1810 has the smallpox mortality risen to more than 700 per million. Similar instances might be cited from the history of almost every civilized country in the world.

The only great epidemic of smallpox which Massachusetts has experienced in the nineteenth century was that of 1872 and 1873, when the smallpox mortality amounted to less than one-tenth of 1% of the living population, a mere fraction only of the mortality which was suffered in the previous century.

Wernher says in his work, "Zur Impffrage": "Before the introduction of vaccination smallpox had become a permanent disease, which never entirely ceased in 1 year, and every 3 or 5 years became a great epidemic. In non-epidemic years one-tenth of all mortality was from smallpox, and in epidemic years one-half. Very few men escaped smallpox till old age. Almost every one sickened at least once in his life of this horrible murderous disease."

"Countless mortals, who escaped death, were maimed by loss of sight. Of newborn children, one-third died of smallpox before their first year, one-half before their fifth year of life. There was no family which had not heavy losses to deplore."

(2) *The local argument, or comparison of the vaccinated community and the unvaccinated in the same or in neighboring places in the same period of time.*—The most convincing argument in favor of vaccination is the comparative immunity of the entire German nation from smallpox at the present day as compared with neighboring countries. In Germany, by a strict law enacted in 1874, each child must be vaccinated before the September of the year following its birth; and all scholars in public and in private schools must be revaccinated in their twelfth year, if they have not had the smallpox.

As a result of the strict enforcement of this law, Germany is, while occupying a central position in Europe, far more free from smallpox than any of the neighboring countries. From the official records of its Board of Health for the years 1893 to 1899, as published in the annual reports of the board,¹ it appears that the comparative immu-

nity from smallpox enjoyed by Germany was as follows:

TABLE SHOWING THE COMPARATIVE MORTALITY FROM SMALLPOX IN EACH OF THE FOLLOWING COUNTRIES AS COMPARED WITH GERMANY IN THE YEARS 1893-1899, THAT OF GERMANY IN EACH YEAR BEING REPRESENTED AS UNIT.

Countries	1893	1894	1895	1896	1897	1898	1899
Switzerland	8	96	3	17	—	25	—
England	24	108	19	23	16	4	42
France	34	201	201	1176	123	22	231
Austria	67	132	28	177	247	121	67
Belgium	158	145	25	57	21	86	174
Holland	—	64	81	147	7	5	—
Germany	1	1	1	1	1	1	1

In the foregoing table the figures for each year are considered independently, and are to be read as follows: Taking the death-rate from smallpox in Germany as a unit, in 1893 it was 8 times as great in Switzerland, 24 times as great in England, etc. In France in 1896 it was 1,176 times as great as that of Germany for the same year, notwithstanding the contiguity of the two countries. The average smallpox mortality of any of the countries shown in the table far exceeded that of Germany.

A more careful examination of the German reports of each year also showed that the cases and deaths from smallpox which did occur in Germany were mainly referable to certain classes of people. In 1899, for example, 14, or one-half of all the smallpox deaths of that year, were those of infants under 2 years old,—the unprotected class. Of the cases of smallpox reported from all parts of Germany in 1879, 346 in number, 249, or 72%, occurred in the frontier towns, and chiefly among Russian and Austrian workmen and immigrants, or their families. A careful supervision is had over each case, and its history learned as far as possible.

The principal sources of the disease as occurring in Germany are stated to be the frontier trade, immigrants and their baggage, and the marine commerce.

Of countries where vaccination has been but little practised in the past century, the deaths from smallpox in Bengal in 1866-1869 were 140,000 out of a population of 40,000,000. In India in 1875-1876, there were 200,000 deaths from smallpox, and in the two preceding years there were 500,000.² In the city of Lahore 7,000 died of it in 2 months in 1875. In Corea almost the whole population were pockmarked. These were practically unvaccinated populations.

(3) *Change in the age-incidence of smallpox since the introduction of vaccination.*—If smallpox is excepted, there is no evidence that the comparative mortality from infectious diseases at different ages of life has undergone de-

¹ Ergebnisse der Amtlichen Pockenentodes falls statistik im Deutschen Reiche 1893-1899; Berlin, 1901.

² Hirsch Historisch-geographischen Pathologie, vol. 1.

cided changes since these diseases first became known. Ninety per cent. of the deaths from scarlet fever are those of children under 10 years of age, and 95% of the deaths from whooping-cough are those of children under 5 years of age, and there is no evidence that these ratios have materially changed for centuries. But the facts relating to smallpox present an entirely different aspect.

In the eighteenth century, before the introduction of vaccination, smallpox was pre-eminently an infantile disease. Ninety-five per cent. of the deaths from this cause were those of children under 10 years of age. Today the proportion of smallpox mortality at different ages depends entirely upon the efficiency with which vaccination is carried out in any given population. In Massachusetts, during the 28 years (1863-1890), the proportion of deaths from smallpox among children under 10 years old was less than 40% of the total mortality from smallpox. In London they constituted 34%. If, however, we separate the vaccinated portion of the community in a class by itself, the figures are much more striking, since in Massachusetts, during the 12 years (1888-1899), the smallpox mortality of children in the total population constituted 26% of the total deaths from smallpox, but among the vaccinated portion of the population the proportion of such deaths was 0, no vaccinated child under 10 years of age having died of smallpox in that time.

These striking changes in the age-incidence of the smallpox mortality can only be accounted for by some interference with the natural history of the disease, and this interference is the practice of vaccination, which has thrown forward, so to speak, the smallpox mortality into later ages, when large numbers of the population are unprotected by revaccination, the immunity conferred by the early vaccination of infancy having ceased to protect.

A graphic picture of the terribly destructive effect of smallpox upon the infantile population in the eighteenth century is given by Dr. Mc-Vail in his historical sketch of the prevalence of smallpox in the little Scotch town of Kilmarnock.³ The facts are compiled from the careful records of an old parish schoolmaster, Robert Montgomerie, who kept a record of the name, age, date and cause of death of every one who died in this village of 4,200 inhabitants for the 36 years, 1728 to 1764:

As regards smallpox, there were, in fact, 3 Kilmarnocks. One, a Kilmarnock of 3,700 persons, had no fear of its attacks. These had already met and battled with

the disease fiend. On many were to be seen the marks of the conflict. Some were blind, some had lost their hearing, many were permanently injured in constitution, and very many were scarred and disfigured for life; and for every one that conquered, another had fallen, never to rise again. There was, indeed, a second Kilmarnock, under the green sod of the churchyard. The Kilmarnock which had reason to dread the epidemic's approach was a Kilmarnock the least able to meet it. It consisted of a band of little children, numbering less than 500 in all. Every such group that came into existence had to face, within 4 or 5 years of its birth, the most terrible physical enemy that it would ever meet; and, having fought the battle, some were added to the maimed and distorted who formed so large a proportion of the population, and others were laid beside those who had been destroyed by former epidemics. One can barely imagine what must have been the feelings of a mother regarding these fearful visitations. Even when the town was free from the pestilence, there would be the constant forboding of its all too certain coming; and when at last the first case occurred,—when the doctor was called in, and pronounced the disease to be the dreaded smallpox,—his words would be heard as a sentence of death to some member of almost every family containing little ones; and, as the news spread from house to house, with what a despairing clutch would each mother press her darling child to her breast, and beg Almighty God to command the destroying angel to pass by her door! After the lapse of 150 years, one can have little conception of the real meaning of a smallpox epidemic. But the old parish register has enabled us to apprehend something of its horror, and I venture to say that, if the anti-vaccinationists had their will, we would ere many years be again experiencing somewhat of the awful visitations which were so familiar in old Kilmarnock.

(4) *The argument from analogy.*—As a general rule, most infectious diseases are contracted but once in a lifetime. A small percentage, however, forms an exception to the rule. A child having once had scarlet fever, measles, or whooping cough is usually exempt from a second attack of the same disease after recovery. The attack of disease produces a certain degree of future immunity, which appears to differ in different individuals. The same is true of smallpox; and on account of this fact persons who have once had smallpox are selected as nurses for those who are ill with the same disease. A very small proportion of those who have had smallpox may contract it a second time, as observation shows. All experiment, observation and analogy appear to be in the direction of determining vaccinia to be a modified form of smallpox, shorn of its severity, its dangers, and absolutely of its power of contagion. It can only be made to take effect upon human beings by means of inoculation. It is, therefore, entirely reasonable to infer that it should produce immunity from the disease to which it bears so close a relation. The theory is entirely borne out by the facts, as well as by bacteriological investigations relative to other and similar infectious diseases.

³ Report of the Local Government Board, England, Health Supplement, 1884.

The following quotation from Dr. George Derby, the first secretary of the State Board of Health, written 30 years ago, will bear repetition:

We may speculate about the potency of vaccine being exhausted in the human family, we may be surprised to find that people with good vaccine scars sometimes have smallpox, we may dispute as much as we please about the average period when revaccination may be considered a prudent safeguard. We may turn the vaccine question with ingenious skill, so that its many facts shall reflect a multitude of curious lights, and after all we find that we rest in a security against this most horrid pestilence, unknown to former generations.⁴

SANITARY IMPROVEMENTS IN HAVANA.

A REPORT has been received in Washington from Maj. W. C. Gorgas of the Army Medical Department, chief sanitary officer of Havana, showing the great and progressive sanitary improvement which has taken place in that city. For the month of October, just passed, the general health of Havana is stated to be better than during the same month of any previous year, and to compare favorably with that of healthy cities of civilized communities. The most important relates to the control of yellow fever, not a single case of which occurred in Havana during the past month, notwithstanding the fact that October has in the past been the period of greatest prevalence of the disease. For the previous decade the average death-rate from yellow fever in Havana for the month of October has been 66.27, the lowest rate being 25 deaths, during October, 1899, and the highest 240, in 1896. In October, 1900, there were 308 cases of yellow fever, with 74 deaths, in Havana. From this it is evident that, as a result of an accurate knowledge of the manner in which yellow fever is propagated, the disease can now readily be controlled and stamped out; a fact in which Dr. Gorgas expresses his full confidence. It is interesting to learn that absolutely no disinfection of clothing or fomites from yellow fever patients has been practised, that infected houses have not been disinfected, except so far as to destroy any mosquitoes which they may contain, and no other precautions have been required to prevent the spread of yellow fever, except to protect cases of the disease against the bites of mosquitoes. The results obtained by this method of procedure afford the fullest confirmation of the truth and practical value of the discoveries made by Drs. Reed and Carroll of the army, with respect to the transmission of yellow fever and the methods by which the disease may be stamped out or avoided.

MEDICAL NOTES.

WRECK OF FORMER HOSPITAL SHIP "BAY STATE."—The wreck of the United States transport *Wright* in the Philippines is announced. The steamer was originally a fruiter, and at the time of the Spanish-American War was fitted out in Boston as a hospital ship. She was used in transporting the sick during the latter part of the war, and at its termination passed into the hands of the government. She had recently been used in the Philippines as a despatch boat and storeship.

TETANUS AND VACCINATION IN CAMDEN, N. J.—After a careful bacteriological and experimental investigation regarding the occurrence of tetanus after vaccination in Camden, N. J., the Board of Health officially reports that there is absolutely no evidence to show that the vaccine used was contaminated. The tetanus infection was in every case secondary.

ILLNESS OF FLORENCE NIGHTINGALE.—It is reported that Florence Nightingale, whose services for the English troops in the Crimean War were the practical foundation of modern nursing, is dangerously ill. She is now nearly eighty years old.

A NEGRO CENTENARIAN.—Mrs. Nancy Griffin, a negress who was born a slave in Huntsville, N. C., died at Millburn, N. J., on Nov. 28, at the reputed age of 103 years. She had been twice married, and was the mother of 18 children.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Dec. 4, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 58, scarlatina 25, measles 118, typhoid fever 8, smallpox 88.

BOSTON MORTALITY STATISTICS.—The number of cases of smallpox for the week ending Nov. 30 was 103 and 8 deaths. The number of deaths reported to the Board of Health was 212, as against 186 the corresponding week last year, showing an increase of 26 deaths, and making the death-rate for the week 19.3. The number of cases and deaths from infectious diseases is as follows: Diphtheria 48 cases, 8 deaths; scarlatina 23 cases, no deaths; typhoid fever 14 cases, no deaths; measles 150 cases, 1 death. The deaths from consumption were 19; pneumonia 44; whooping cough 1; heart disease 20; bronchitis 3; marasmus 6. There were 11 deaths from violent causes. The number of children who died under 1 year was 37; under 5 years, 60; persons more than 60 years, 42; deaths in public institutions, 58.

⁴Third annual report of the State Board of Health of Massachusetts, p. 303.

NEW YORK.

ENFORCEMENT OF IMMIGRATION LAW REGARDING TUBERCULOSIS.—In the United States District Court in Brooklyn, New York, on Nov. 29, Judge Edward B. Thomas approved the ruling of the Treasury Department at Washington in the case of Thomas Boden, barring him, under the present immigration laws, because, as alleged, he is a consumptive. Boden arrived from Ireland on Nov. 9, with his wife and child, on the *Lucania*. After a strict examination by the authorities at the Immigration Bureau on Ellis Island, he was pronounced to be suffering from tuberculosis. They contended that this was a contagious disease, and that under the law the man should be barred. Relatives of Boden in Philadelphia appealed to the Treasury Department, and a re-examination of the patient was ordered. The department, alleging that the re-examination had been unfavorable, ordered that he should be sent back on the next Cunard line steamer, the *Etruria*, which sailed Nov. 23. Before the steamer sailed, however, counsel for Boden secured a writ of habeas corpus, which was returnable on Nov. 29. In his argument before Judge Thomas the counsel made the claim that tuberculosis was not regarded by the majority of physicians as a contagious disease, and that his client had been illegally deprived of his liberty and improperly excluded from the country. The judge dismissed the writ, stating that the question before him was simply one of fact, and that he could not officially do otherwise than sustain the Treasury Department. No question of law, he said, had been propounded in the writ of habeas corpus. Boden is at present in the Long Island College Hospital in Brooklyn, while his wife and child are detained at Ellis Island. It is claimed that he lived in this country for four years before he returned to Ireland. The case is said to be the first of its kind that has come before the Treasury Department.

ADDITIONS TO MONMOUTH MEMORIAL HOSPITAL.—It is announced that \$10,000 has been raised by popular subscription, largely from New York summer residents, for a wing to the Monmouth Memorial Hospital at Long Branch, and \$1,000 for furnishing the new nurses' home connected with the institution. The county will now appropriate, according to a previous agreement, a sum of \$10,000 to complete the construction of the hospital wing.

SALE OF ENGRAVED PORTRAITS.—The collection of 10,000 engraved American portraits, containing a large number of rare Revolutionary portraits and Washingtons, gathered by the late Dr. Samuel S. Purple, was recently sold at auction. When president of the New York Academy

of Medicine, Dr. Purple enriched its library with many valuable works from his extensive private library.

DR. WM. H. GUILFOY, REGISTER OF RECORDS.—Dr. William H. Guilfoy, a graduate of Bellevue Hospital Medical College in 1889, and connected with the Health Department for a number of years, has been appointed register of records, to succeed Dr. Roger S. Tracy, who a few months ago resigned, after one of the longest and most honorable terms of service in the department.

A CENTENARIAN.—Abraham Elmer died at Utica, N. Y., on Nov. 20, at the reputed age of 119 years, 9 months and 25 days. Notwithstanding the apparent exactness of the family record, however, it is probable that this extreme age is open to considerable question.

GIFT TO PHILADELPHIA JEWISH HOSPITAL ASSOCIATION.—Meyer Guggenheim of New York has presented to the Jewish Hospital Association of Philadelphia, of which city he was formerly a resident, \$60,000 for the erection of a new building.

ARMY NOTES.

INSPECTION AT MANILA.—A uniformed corps of sanitary inspectors has just been created in Manila, for co-operation with the municipal health department and to ensure proper and frequent inspection of all the buildings in the city. There are 48 inspectors, all told, divided into four grades.

INSTRUCTION AT WEST POINT IN MILITARY HYGIENE.—The Board of Visitors at West Point has recently recommended in its report to the Secretary of War, that the amount of mathematics required to be studied by the cadets be decreased, and that in the time thus saved the latter should be given instruction in military hygiene.

PREVENTION OF TUBERCULOSIS AMONG TROOPS.—In the prevention of tuberculosis among our troops in the Philippines, orders have recently been issued prohibiting all persons in the military service from spitting on the walls or floors of offices, barracks or other buildings used for military purposes. This action was taken through the recognition by the medical authorities that tuberculosis was both contagious and infectious.

CONDEMNATION OF CRUISER "ALBANY."—The U. S. cruiser *Albany*, an English-built ship, purchased in a partially finished condition from Brazil just before the war with Spain, has been condemned by medical officers of the navy as being unfit for human habitation, from the disregard during its construction of proper means of securing ventilation in many of its compartments. With the ship battened down, as would be re-

quired during heavy weather at sea, the temperature in some parts of the vessel used for sleeping purposes rises to as high as 136° F. Thus the United States pays for another costly object lesson as to the necessity for submitting the plans of ships, before the latter are constructed, to the sanitary experts of the Medical Department of the Navy, for criticism and recommendation. It seems to be a hard lesson for the authorities of the naval and military forces of all countries to learn, that time, labor and money expended in procuring the highest types of armament, equipment and supplies are often neutralized and lost, unless the men who are expected to operate the guns and use the equipment are kept in a state of bodily health which will permit them to perform with the highest efficiency the duties for which they were enlisted. Customs and ideas change, however, and there must certainly come a time, in the not far distant future, when the sanitary and administrative work of the medical services, ashore and afloat, will be recognized by all as being the chief factor influencing the success of battles and campaigns.

INSTITUTION FOR MEDICAL RESEARCH IN THE MALAY PENINSULA.—An institution for medical research has been recently established by the government of the federated native states of the Malay Peninsula, at Kuala Lumpur, the capital of these states. The institution is under the direction of Dr. Hamilton Wright, a graduate of McGill University. It is fully equipped for special and general pathological work and bacteriology, and for the study of clinical medicine and experimental physiology. There are also chemical and photographic laboratories and an excellent library. The institute is open to all nationalities. The attention of scientists and students of tropical diseases is called to the facilities afforded by this establishment for the preparation of collected specimens and for the study of tropical diseases, particularly beri-beri and malaria.

Obituary.

RESOLUTIONS ON THE DEATH OF DR. RICHARD E. EDES.

In the death of Richard E. Edes this community has lost a man of such pronounced character, and of such promise of broad usefulness, as to mark him among the young men of his time. In his short life of 31 years he had shown himself a man of real force, as well as of brilliant promise, and had exerted a marked influence on those about him.

The Journal Club, of which he was a member, many of whom grew up with him through school and hospital, who knew and valued him, desire to record their estimate of the man.

As a student and as a practitioner he was earnest and indefatigable in his search for knowledge and unflinch-

ing in his support of truth. His intellect was extraordinarily acute, with unusual originality of thought tempered by rigid self-criticism. Shams he abhorred, and his directness and simplicity rejected many of the formulae by which we are so apt to live. With all his independence it was characteristic of the man that his enthusiasm never clouded his perspective,—ready to sacrifice ease and even health to what he had in hand, he did not exaggerate the importance of his work, still less his own part in it. Personal ambition seemed always subordinate to the ends for which he strove,—“rather use than fame” might well have been his motto.

His inimitable fund of humor and his keen sympathy made coldness foreign to him and added a peculiar charm to any association with him.

His mental attainments we can only admire; his intellectual honesty, his suppression of personal ambition and strife for high ideals, his broad humanitarianism, his simplicity of character and purity of life we may not only admire but emulate. We feel that his life has been for us a stimulus toward higher and better living, and we take this opportunity to express our sympathy for those whose loss is greater than ours, who were bound to him by even closer ties than that of friendship and professional association.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, NOV. 23, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from						
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria.	and group.	
New York . .	3,437,202	1,161	322	23.33	13.69	1.58	3.61	3.96		
Chicago . .	1,698,575	442	93	18.68	14.92	.55	.23	3.84		
Philadelphia . .	1,203,691	—	—	—	—	—	—	—		
St. Louis . .	575,238	—	—	—	—	—	—	—		
Baltimore . .	506,957	200	59	19.50	14.50	1.50	4.50	1.00		
Cleveland . .	381,768	—	—	—	—	—	—	—		
Buffalo . .	352,587	—	—	—	—	—	—	—		
Cincinnati . .	325,902	—	—	—	—	—	—	—		
Pittsburg . .	321,616	101	26	23.14	19.58	1.78	1.78	4.45		
Washington . .	278,718	—	—	—	—	—	—	—		
Milwaukee . .	283,315	—	—	—	—	—	—	—		
Providence . .	175,597	60	14	28.22	19.62	—	—	8.30		
Boston . .	560,892	214	54	22.88	19.61	.93	3.74	.93		
Worcester . .	118,421	24	5	12.48	20.83	4.16	4.16	—		
Fall River . .	104,863	30	12	20.00	26.67	3.33	10.00	—		
Lowell . .	94,969	42	18	21.43	—	—	—	9.52		
Cambridge . .	91,886	20	8	5.00	10.00	5.00	—	—		
Lynn . .	65,513	—	—	—	—	—	—	—		
Lawrence . .	62,559	22	10	27.27	27.27	—	—	9.09		
New Bedford . .	62,442	21	8	—	14.29	—	—	—		
Springfield . .	62,059	17	4	17.65	—	—	—	—		
Somerville . .	61,645	25	6	20.00	12.00	—	—	4.00		
Holyoke . .	45,712	13	6	7.70	7.70	—	—	—		
Brookton . .	40,063	7	4	14.30	—	—	—	—		
Haverhill . .	37,175	12	1	16.67	25.00	8.33	—	—		
Salem . .	33,956	10	3	40.00	—	10.00	—	26.00		
Chester . .	34,072	11	3	—	—	—	—	—		
Mattien . .	33,664	11	3	36.36	18.18	9.09	—	—		
Newton . .	33,587	4	1	25.00	—	—	—	—		
Fitchburg . .	31,531	6	1	—	—	—	—	—		
Taunton . .	31,036	7	—	—	14.30	—	—	—		
Gloucester . .	26,121	6	2	16.67	—	—	—	—		
Everett . .	24,536	6	2	—	33.33	—	—	—		
North Adams . .	24,200	8	2	37.50	25.00	12.50	—	12.50		
Quincy . .	23,899	8	1	37.50	12.50	—	—	—		
Waltham . .	23,481	9	1	22.22	11.11	—	—	11.11		
Pittsfield . .	21,766	3	—	33.33	66.67	—	—	—		
Brookline . .	19,335	—	—	—	—	—	—	—		
Chicopee . .	19,067	7	4	14.30	28.60	—	14.30	—		
Medford . .	18,244	—	—	—	—	—	—	—		
Newburyport . .	14,478	—	—	—	—	—	—	—		
Melrose . .	12,962	4	1	—	—	—	—	—		

Deaths reported 2,537: under five years of age, 678; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 544, acute lung diseases 377, consumption 250, scarlet fever 21, erysipelas 8, typhoid fever 32, whooping cough 12, cerebrospinal meningitis 12, smallpox 12, measles 15, diarrheal diseases 67, diphtheria and croup 89.

From whooping cough, New York 1, Philadelphia 1, Baltimore 4, Pittsburg 1, Boston 1, Lawrence 1. From cerebro-

spinal meningitis, New York 3, Baltimore 1, Pittsburg 1, Boston 3, Worcester, Brockton, Malden and Gloucester 1 each. From scarlet fever, New York 12, Philadelphia 3, Pittsburg 3, Providence 2, Boston 1. From typhoid fever, New York 15, Philadelphia 2, Baltimore 3, Pittsburg 2, Boston 2, Worcester, Fall River, Cambridge, Haverhill, Salem, Malden and North Adams 1 each. From erysipelas, New York 2, Philadelphia 2, Pittsburg 1, Boston 2, Somerville 1. From smallpox, New York 1, Philadelphia 7, Boston 1. From measles, New York 11, Boston 1, Lowell 3.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Nov. 9, the death-rate was 19.7. Deaths reported 4,336; acute diseases of the respiratory organs (London) 445, whooping cough 41, diphtheria 88, measles 111, small-pox 16, scarlet fever 31.

The death-rate ranged from 11.0 in Wolverhampton to 26.7 in Sheffield; Birkenhead 15.9, Birmingham 19.0, Bolton 20.4, Bradford 14.7, Brighton 18.6, Bristol 16.5, Burnley 23.6, Cardiff 14.8, Derby 13.8, Halifax 17.4, Hull 18.3, Leeds 20.3, Liverpool 21.5, London 19.4, Manchester 23.9, Newcastle-on-Tyne 22.7, Norwich 16.8, Oldham 24.3, Plymouth 12.6, Portsmouth 16.2, Preston 24.2, Salford 26.1, Swansea 17.6, West Ham 20.8.

METEOROLOGICAL RECORD

For the week ending Nov. 23, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer Daily mean.	Thermometer Maximum. Minimum.	Relative humidity. Daily mean.	Direction of wind.	Velocity of wind.	Wet'th'r of wind.	Rainfall in inches.
S...17	29.89	40 45	35 64	74	69	W N W	
M...18	30.00	38 45	31 75	68	51	N W N	
T...19	29.98	34 28	30 100	90	95	W N	
W...20	30.20	34 39	28 83	80	82	N W N W	
Th...21	30.25	34 43	26 82	64	73	N W N W	
F...22	30.21	40 49	31 74	68	71	W S W	
S...23	30.26	37 40	34 78	81	70	N W N E	
Nov. 30, 12	43 31		77				.06

• O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threatening; N, snow. † Indicates trace of rainfall.
 ☞ Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING NOV. 23, 1901.

L. L. von WEDKIND, surgeon. Ordered to the "Cincinnati," Dec. 2.

L. G. HENNERBESS, medical inspector. Commissioned medical inspector from Oct. 29, 1901.

H. H. HAAS, passed assistant surgeon. Commissioned passed assistant surgeon from Dec. 28, 1900.

H. L. LAW, surgeon, retired. Additional duty as examining surgeon at Marine Recruiting Station, Buffalo, N. Y.

H. D. WILSON, passed assistant surgeon. Detached from Naval Hospital, Norfolk, Va., ordered home and granted three months' sick leave.

JOHN W. ROSS, surgeon, U. S. Navy, retired. The leave granted is extended one month. From Circular Letter, Department of Culm, dated Nov. 11.

SOCIETY NOTICE.

ANNUAL MEETING OF MEDICAL SOCIETY OF THE STATE OF NEW YORK.—The annual meeting of the Medical Society of the State of New York will be held at Albany, N. Y., Tuesday, Jan. 28, 1902, and continue for three days. The scientific part of the program is being prepared by the Business Committee, consisting of Dr. Nathan Jacobson, 130 S. Salina St., Syracuse, Dr. George R. Fowler, Brooklyn, and Dr. William C. Kruss, Buffalo. Members and delegates desiring to read papers will please communicate with the chairman of this committee. A rebate will be given by the railroads to members and delegates attending this meeting, but it is necessary, to obtain the rebate, that a certificate be obtained from the ticket agent at the starting point, which certificate will be given for the asking.

RECENT DEATHS.

DR. JOHN C. HART of Brooklyn, N. Y., died on Nov. 24, at the King's County Hospital, from injuries received a few days previous in a fall from his horse. He was graduated from the Long Island College Hospital in 1882, and was 40 years of age.

DR. STUART ELDRIDGE, inspector United States Marine Hospital Service, stationed in Japan, died in Yokohama, Nov. 19, at the age of 60. He studied medicine in Philadelphia, his native city, and after practising there a short time removed to Washington, D.C., where a few years later he was given an appointment in Japan by the United States Government. He went to Yokohama in the '60s and had remained there since, visiting America at stated periods.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the Maine Medical Association. Vol. XIV, Part 1. Portland: Stephen Berry. 1901.

Hypochondriasis and Hypochondriacal Ideas. A Case of Self-Mutilation. By A. W. Holsholt, M.D., Stockton, Cal. Reprint. 1901.

The Indeterminate Sentence in New York. By Clark Bell, Esq., LL.D., of the New York Bar; President of the Medico-Legal Society, Honorary Member of the Medico-Legal Society of France. Reprint. 1901.

Law and Medicine From a Legal Standpoint. By Hon. Abram H. Dailey of Brooklyn, N. Y., Ex-President Medico-Legal Society, Vice-President American Congress of Tuberculosis. Reprint. 1901.

The Value of the Tuberculin Test in the Recognition of Latency or Quiescence in Tuberculosis of the Bones and Joints. A Preliminary Report. By Charles H. Frazier, M.D., and Montgomery I. Biggs, M.D. Reprint. 1901.

Liverpool School of Tropical Medicine. Memoir V. Part I. First Progress Report of the Campaign Against Mosquitoes in Sierra Leone. By Ronald Ross, F.R.C.S., D.P.H.I., F.R.S. Liverpool: The University Press. 1901.

Intratracheal Injections in Bronchial and Pulmonary Affections. By Willis S. Anderson, M.D., of Detroit, Mich., Laryngologist to the Harper Hospital Polyclinic, Assistant to the Chair of Laryngology, Detroit College of Medicine, etc. Reprint. 1901.

The Operative Treatment of Cirrhosis of the Liver. Report of a Successful Case. By Charles H. Frazier, M.D., Professor of Clinical Surgery, University of Pennsylvania; Surgeon to the University and Philadelphia Hospitals. Reprint. 1900.

A Textbook of Medicine. Begun by the late Charles Hilton Fagge, M.D., F.R.C.P.; completed after his death and since revised and rewritten by Philip Henry Fyfe-Smith, M.D., F.R.S. Fourth edition. In two volumes. Vol. I. Philadelphia: P. Blakiston's Son & Co. 1901.

So-called "Cyclical Albuminuria," with Preliminary Report of Case. By Frank Spooner Churchill, M.D., Instructor in Diseases of Children, Rush Medical College, in affiliation with the University of Chicago, Chicago. Reprint. 1901.

The American Illustrated Medical Dictionary, a New and Complete Dictionary of the Terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry and the Kindred Branches, with their Pronunciation, Derivation and Definition, including much collateral information of an Encyclopedic Character. By W. A. Newman Dorland, A.M., M.D. Second edition, revised. Philadelphia and London: W. B. Saunders & Co. 1901.

Diseases of the Intestines; their Special Pathology, Diagnosis and Treatment, with Sections on Anatomy and Physiology, Microscopic and Chemie Examination of the Intestinal Contents, Secretions, Feces and Urine. Intestinal Bacteria and Parasites; Surgery of the Intestines; Dietetics, Diseases of the Rectum, etc. By John C. Himmeter, M.D., Philos. D., in two volumes. Vol. I. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

A System of Physiologic Therapeutics. A Practical Exposition of the Methods, other than Drug-Giving, Useful in the Prevention of Disease and in the Treatment of the Sick. Edited by Solomon Solis Cohen, A.M., M.D., Vols. III and IV. Climatology, Health Resorts—Mineral Springs. By F. Parkes Weber, M.A., M.D., F.R.C.P. (Lond.) with the collaboration for America of Guy Hinsdale, A.M., M.D. In two books. Illustrated with maps. Philadelphia: P. Blakiston's Son & Co. 1901.

Original Articles.

TWELVE CASES OF PNEUMONIA TREATED BY ANTIPNEUMOCOCCUS SERUM.

BY GEORGE C. SEARS, M.D., BOSTON,

Assistant Visiting Physician, Boston City Hospital.

THE high cost of antipneumococcus serum, which has not been compensated by positive proof of its efficiency or even its quality, has made it impracticable to test its value in a large number of cases. Those which follow are reported as a contribution to the gradually growing statistics of the serum treatment, yet, owing to their method of selection, some conclusions as to its merit may be possible even from so small a number. An effort was made to use only those cases in whom treatment seemed likely to modify the outcome; all, therefore, in whom death seemed a necessary consequence, as well as those whose youth and good habits made recovery probable, have been excluded. The attempt was also made to select only those which entered the hospital early in their illness, but although a large number of cases of pneumonia entered the writer's service during the winter and spring months, most of them had already reached the fourth or fifth day, and this requirement could not be rigidly fulfilled. The use of the serum, all of which came from one manufacturing house, did not preclude other measures. A cold sponge, unless especially contra-indicated, was given in every case where the temperature rose above 102.4°, while 3 cases received subcutaneous injections of normal salt solution (Cases IV, VIII and XII). Oxygen, alcohol and other stimulants were given when they seemed necessary.

CASE I. Mary C., 48 years old, was admitted Feb. 1, 1901, having had a chill 4 days before. The right lower lobe was consolidated, and she was also suffering from mitral regurgitation. The urine contained a large trace of albumin. The leucocytes numbered 27,800. The following day the process had extended to the whole right lung, although the consolidation was not complete. Twenty cc. of antipneumococcus serum were then given, which were repeated twice on the following day and once on the fourth. The temperature ran a fairly even course, between 103° and 104.2°, until crisis occurred on the eighth day (Feb. 5). There was no extension of the process after the first dose, and the pulse never rose above 118. On Feb. 14 general urticaria appeared, and 5 days later she complained of severe pains in the knees, hips, thighs and calves. She was comfortably sick throughout, and was discharged well on the 20th.

CASE II. Lawrence L., 28 years old, excessively alcoholic, was admitted Feb. 6. Three days before he had had a chill, and when admitted the right middle lobe and upper half of the lower were consolidated. His temperature was 103.8°, his pulse 100, and respiration 36. The leucocytes numbered 9,200. He was given 20 cc. of serum twice that afternoon. The following day the same amount was given at 9 A.M. and 4:30 P.M. In spite of the morning injection the temperature rose from 101.8° to 104° at noon. A fifth dose was given at noon on the 8th. The temperature throughout ran an irregular course, varying, as recorded by a two-hourly chart, from 101° to 104°, until crisis occurred on the seventh day. The respirations on the day following admission came down to 28, and never again rose above

30. The pulse made but one record over 100. The pneumonic process extended, in spite of treatment, to the upper right lobe, but consolidation was not absolute. He was discharged on the 19th, before resolution was complete.

CASE III. Nellie M., 19 years old, somewhat alcoholic, was admitted Feb. 8, in the fourth day of her illness. She was between 4 and 5 months pregnant. The right upper lobe was involved, and there was also a double pericardial friction sound over the base of the heart, to the left of the sternum. Two days later physical signs suggested the presence of a little fluid in the pericardial sac. The urine contained but the slightest trace of albumin. On the 9th 2 doses of 20 cc. were given. The morning temperature was 102.6°, the evening 102°. The following morning it dropped to 99.4°, but while only once rising as high as 101.6°, it did not reach normal till the 20th. The leucocytes numbered 45,700 on the day of entrance, and on the 18th a count still showed 28,500. The process extended, in spite of treatment, to the right lower lobe. March 1 she was discharged well.

CASE IV. Hannah S., 53 years old, was admitted Feb. 11, having been ill 4 days. She was obese, cyanotic, and suffered considerably from dyspnea. She had a moderate amount of mitral regurgitation. Both apices were consolidated. Pulse was 106, temperature 104°, and respiration 30. The white cells numbered 30,100. The urine contained a large trace of albumin. The following day at 8 P.M. 20 cc. were given, which was followed by a drop in temperature from 101.5° to 101°. Within 12 hours it rose to 104°. On the 15th the pulse was 120, and the respiration 43, although the temperature was not above 100.5°. Twenty cc. were given again. The following day (ninth of the disease) the temperature returned to normal. The leucocytes still remained high, numbering 41,400, and during the next 2 weeks the temperature occasionally rose several degrees above the normal. A moderate effusion developed in both backs. On March 8 she was discharged, although the signs in the backs had not fully cleared up.

CASE V. Charles F., age 32, alcoholic, was admitted Feb. 21. The disease began the day before with a chill and pain in the left chest. Signs of consolidation were present in the right upper lobe and middle third of the left back. He was slightly cyanotic and somewhat jaundiced. The leucocytes numbered 21,200. There was a large trace of albumin. Temperature was 101.8°, pulse 108, and respiration 25. On Feb. 22 he received 20 cc. at 12:40 A.M. and at 10 P.M. That afternoon his temperature rose to 103°, but dropped on the following morning to 100°. He became delirious, and later comatose, and died early on the fourth day of his illness.

CASE VI. Grant H., 31 years old, markedly alcoholic, was admitted with his fourth attack on March 1, having been ill 3 days. The left lower lobe was affected. Temperature 102.8°, pulse 100 and respiration 29. The leucocytes numbered 18,800. There was a slight trace of albumin in the urine. He apparently did well at first, but on the fourth day after entrance, as the temperature was rising, and the patient was becoming somewhat tremulous, 20 cc. were given in the morning and afternoon. The temperature began to fall soon after the first dose, and there was no subsequent rise, but considering the stage of the disease, it is more than doubtful if the serum was responsible for the improvement. It became normal on the 6th, the eighth day of the disease. March 18 he was discharged well.

CASE VII. Norman M., 39 years old, alcoholic, was admitted March 11, having had a chill the previous afternoon. His temperature was 100.2°, pulse 100, and respiration 34. The leucocytes numbered 25,900. The urine contained no albumin. His arteries were somewhat sclerotic. No signs were found in the lungs until the following day, when they appeared in the left lower lobe. On the 12th both temperature and pulse had risen, and the patient showed symptoms of alcoholism. The serum was given 3 times. On the 13th the temperature, which had fallen after yesterday's serum, again began to rise, and 20 cc. were given 3

times during the 24 hours, and another dose was given on the morning of the 14th, although the temperature was only 101.2°. It reached normal on the 15th, the fifth day after the chill. With the fall of temperature he became so delirious that he required restraint. On the 18th, 6 days after the first injection, an erythematous rash appeared all over his body, which was still slightly evident when he was discharged on the 22d. He applied for readmission 3 days afterwards with pain in his hips, knees, ankles, shoulders, elbows and hands, which were slightly reddened but exquisitely tender. The rash had then disappeared. The painful joints were troublesome only a few days.

CASE VIII. John F., 21 years old, moderately alcoholic, was admitted with a second attack, March 23, having been ill 2 days. He was markedly cyanotic. The right lower lobe was consolidated. His temperature was 102°, pulse 120, and respiration 32. The leucocytes numbered 31,700. Twenty cc. were given 4 times a day, from the 23d to the 28th inclusive. In spite of these large doses, pain, which was very severe at entrance, continued unabated. His mental condition remained good. His temperature was very irregular, varying from 100.8° to 104.8°. The urine at entrance contained a very slight trace of albumin, which had disappeared on the 28th. The temperature came down to normal on the 29th (the eighth day). April 11 he was discharged, resolution not being quite complete.

CASE IX. Mary C., 42 years old, was admitted March 24, having been ill 3 days. The right upper lobe was consolidated, and there were also areas in the right lower and middle lobes. Her temperature was 103°, pulse 120, and respiration 30. There was one-eighth per cent. of albumin in the urine, which contained many casts, hyaline, fine and coarse granular and brown granular, with a few renal and blood cells adherent; there was much normal blood. She appeared seriously ill. Three doses of serum were given on the 24th, 2 on the 25th, 3 on the 26th, and 1 on the 27th. Cyanosis increased, and she gradually failed, and died on the 27th, the sixth day of her illness.

CASE X. Michael M., 39 years old, was admitted March 29, having been sick 3 days. He used no alcohol. The right and left lower lobes were affected, and his temperature was 102.8°, pulse 100, respiration 31. The urine contained a slight trace of albumin. The leucocytes numbered 15,800. His condition was good, but serum was given twice that afternoon. The following morning his temperature had dropped to 99.2°, his pulse and respiration were lower, and he appeared better, but in the afternoon the temperature rose, and the respiration shot up to 54. At midnight another 20 cc. were given, when the supply gave out. March 30 he was delirious, and had tracheal rales, but lived until April 2, dying on the seventh day.

CASE XI. Tessa M., 28 years old, somewhat alcoholic, was admitted March 30. The afternoon before she had a chill, which was followed by nausea and cough. The right apex only was involved. Her general condition was fair. The temperature was 102.5°, pulse 140, respiration 34. The leucocytes numbered 34,700. March 31 the pneumonic process had extended downward, and she vomited frequently. Serum was given twice that day and on April 5, and 3 times on the intervening days. The temperature was very irregular, but no correspondence could be detected between the remissions in the fever and the administration of the serum. It returned to normal on April 5 (the seventh day) and the respirations dropped to 20. The former rose, however, that afternoon to 100°, and continued to show rather wide fluctuations until she left the hospital on May 31. Signs were then present at the right base, but were equivocal in nature, and no positive diagnosis was made. The aspirating needle failed to obtain fluid on several occasions, and repeated examinations of the sputum showed no tubercle bacilli. The leucocytes numbered over 15,000 at the time of her discharge. The urine after 11 injections showed only the slightest possible trace of albumin.

CASE XII. Felice C., 32 years old, without history of alcoholism, was admitted on April 15 with acute

rheumatism. His symptoms subsided, and he appeared to be doing well until the 14th, when the temperature began to rise without other symptoms, and steadily climbed until it reached 105° on the 18th. Although the chest was repeatedly examined, no signs were found until that night, when beginning consolidation showed itself in the left lower lobe. Twenty cc. were given 3 times that day, and the same amount was repeated from the 20th to the 23d inclusive. The temperature was irregular, but as in the previous cases, no correspondence between its remissions and the administration of the serum could be detected. The white count on the 18th showed 20,400. He gradually failed, and died on the 27th, the fourteenth day after the initial rise of temperature. Diplococci were found in the sputum, but a capsule could not be demonstrated.

CASE XIII. Jennie M., 29 years old, was admitted Feb. 10, with mitral insufficiency, and pneumonia involving both lower lobes. She failed steadily, and died on the sixth day of her illness.

This case does not fairly belong to the series, as no serum was at hand until the last 12 hours of her life, when she was practically moribund. Three doses were then given, in order that, being one of the employees of the hospital, she might have every possible chance. It is reported in order to include all cases to whom the serum was given, but has not been used in summarizing the results.

Eight of these 12 cases were over 30 years old; of the other 4 cases, 1 was excessively alcoholic, 2, both women, confessed to its moderate use, 1 of whom was pregnant and had pericarditis as a complication. The fourth entered on the second day and was given large doses in an attempt to cut short the disease, but as crisis did not occur until the eighth, no great measure of success can be claimed. The unsatisfactory character of the material selected is shown by the fact that, among the other 8 cases, 3 used alcohol to excess, 2 others had mitral regurgitation, nephritis and 1 arteriosclerosis. Albumin was found in the urine of 10 cases, in 4 in considerable amount; on the other hand, all but 2, 1 of whom died, had the benefit of a leucocytosis between 15,000 and 45,000. Four patients died, 1 of whom, owing to a temporary lack of serum, was insufficiently treated, a proportion which does not differ greatly from the mortality rate of all patients with pneumonia admitted to the hospital. In the 9 recoveries the temperature returned to normal in 1 on the fifth day, 1 on the sixth, 2 on the seventh, 3 on the eighth, and 2 on the ninth, a length of course which might fairly be expected in the disease under any form of treatment, and from which the only conclusion which can be drawn is the negative one that the course is not lengthened. An extension of the process after the use of the serum was noted in 3 cases. The somewhat extravagant claims which have sometimes been made as to its effect on special symptoms receive but little support from the writer's experience. It is certainly no specific against the pain resulting from the inflamed pleura, for in one case (No. 8) it remained the most distressing symptom for several days in spite of the large amounts which were used, yet it seemed, even in the fatal cases, that the patients were peculiarly

comfortable. Two gave unsolicited testimony to this, and asked for more injections, as they dated the beginning of their improvement from its first use.

While in some cases a drop in the temperature of a degree or two followed an injection, we were unable to succeed by repeating them in keeping the temperature down, and as an equal rise was occasionally noticed, it is impossible to assert that they produced any influence on the fever in these cases.

An attempt to determine the effect, if any, on the leucocytes unfortunately was made but once. It seemed to show a slight diminution in their number, but the decrease did not exceed the possible limits of error in counting.

Mental symptoms developed in but 3 patients, 2 of whom died. The third was an alcoholic, who developed a busy delirium on the day of crisis.

While distinct benefit may not be positively ascribed to the serum, no ill effects, beyond what may occur from the use of diphtheria antitoxin, were observed. Skin eruptions, together with pain and swelling in the joints, were occasionally produced.

A slight trace of albumin, which had not previously been noted, appeared in 1 case after 11 injections, but in another, after nearly as much had been used, the albumin cleared up. In the remaining cases no change was observed. Granting its antitoxic qualities, a great practical objection to its use is our ignorance of the strength of the serum and the consequent inability to measure the dose. Until this is possible, failure may always be explained by the inefficiency of the particular specimen, and definite conclusions are out of the question.

However, the results obtained, considering the unsatisfactory nature of the material, seem to justify a further trial of this form of treatment. Greater success might have been obtained if it had been begun earlier in the disease, as it was given before the third day in but 4 cases.

USE OF ANTISTREPTOCOCCUS SERUM IN A CASE OF SEPTICEMIA FOLLOWING MASTOID OPERATION; RECOVERY.

BY MARY F. HOBART, M.D., BOSTON,

Attending Physician to the New England Hospital for Women and Children.

Mrs. G., age 63, after one day of slight malaise, which did not prevent her going to the theatre in the afternoon, awoke at 2 A.M. with some earache; after this slept very little, and called me in the forenoon. At noon the temperature was 102°, pulse 120 and of high tension, face anxious and flushed, and there was great pain in the ear and much tenderness over the mastoid. I prescribed bromide and phenacetin and an ice-bag locally, and asked Dr. Alice G. Bryant to meet me in consultation at 5 P.M. Dr. Bryant found an

acute exacerbation of a chronic pharyngitis, more marked on the left side, with slight edema of the uvula. On examination of the ear by reflected light, she found bulging in the region of Shrapnell's membrane, and a large, tense hemorrhagic bulla, limited to the posterior half of the true membrane, overlapping the long process of the malleus. The anterior half of the membrane was red and rather edematous. The posterior upper wall at the end of the canal was red. The entire mastoid was normal in appearance. There was tenderness on deep pressure over the antrum and along the anterior border of mastoid toward the tip, and over the region of the Eustachian tube. Dr. Bryant performed paracentesis, under antiseptic precautions, and there was a free discharge of blood and serum. The wound was dressed with sterile pledgets, to be changed every hour. Hot compresses back of the ear were first ordered, to be replaced later by an ice-bag. The pain was markedly diminished by the operation.

From April 14, the day of the operation, until April 19, local and general improvement prevailed. The temperature ranged from 100.4° to 101.6°, with pulse 86 to 112. Nourishment was well taken; pain never quite absent, but only occasionally unbearable; the nights, however, were restless. On the 19th Mrs. G. seemed less well, with more pain in the head and the pulse higher in tension. On the 20th Dr. Bryant consulted with Dr. F. L. Jack, but on this day the patient was so comfortable, with temperature 99° and pulse 90, that no immediate interference seemed indicated, and it was decided to watch the case further. April 21: The patient had had a bad night, with pain and heavy feeling in the top of the head and back of the neck, several slight chills, some muscular twitching and disturbed vision and photophobia.

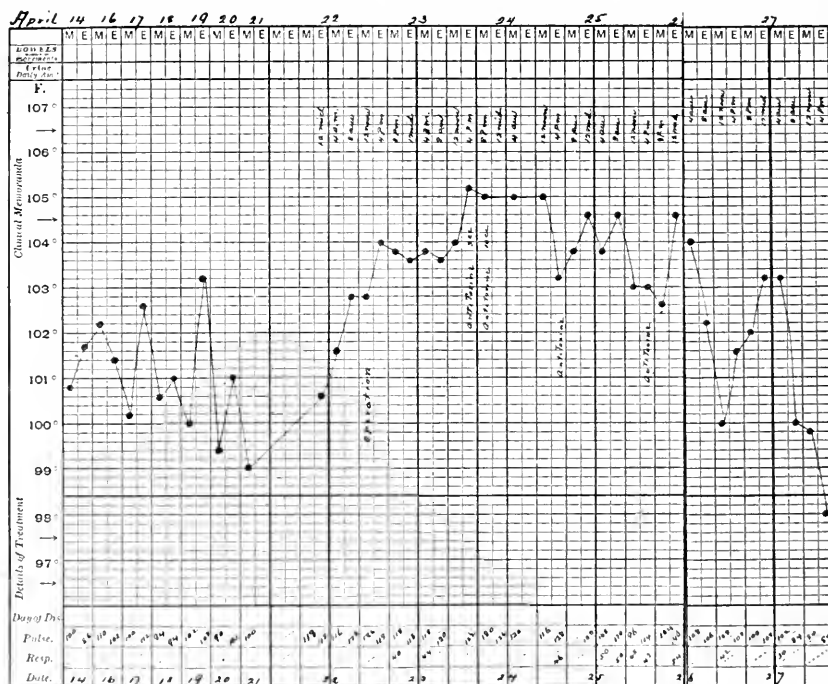
Dr. Bryant and Dr. Jack found the following condition: Pain limited to deeper part of ear and to left side of head, tenderness over entire surface of mastoid, and some stiffness on the same side of neck, with slight edema in front of tragus. The discharge was mucopurulent, and the upper cutaneous wall of the external auditory canal was markedly collapsed. It was decided to open the mastoid cells, and the patient was removed to a private hospital and prepared for operation.

The operation was performed April 21 by Dr. Jack, assisted by Dr. Bryant. After free paracentesis of the membrane, the usual skin incisions were made over the mastoid, followed by retraction of the periosteum. The mastoid was rather narrow, and in a condition of marked hyperemia. The outer cortex was chiseled away, bringing into view well-marked pneumatic cells filled with granulation, tissue and pus, this same condition extending to the antrum and inner cortex. The upper posterior corner was soft, and with a curette, the bone was cleared for a space one-third of an inch in diameter, exposing the dura. Every portion of the mastoid and antrum was thoroughly cleansed, and a solution of bichloride $\frac{1}{1000}$ flushed the cavities, passing easily from the mastoid cavity through the antrum and middle ear to the external

auditory canal. The edges of the wound were brought together by sutures, drainage established by iodoform gauze passed through rubber tubing, sterilized gauze and bandage, completing the dressing.

The patient bore the ether well, the pulse remaining good, 120 throughout the operation. The night was poor, great restlessness and moaning, flushed face, thirst, temperature rising gradually, till at noon the next day, April 22, it was 103°, and by 6 p.m. 104°, with pulse 118 and respiration 42. Through the night and until noon of the 23d this temperature persisted. Delirium became marked, there was constant restlessness amounting

condition was critical. The pulse increased to 150 and 180, and was so weak and irregular that it could scarcely be counted. All the symptoms of the past 24 hours were exaggerated. To all appearance the patient could hardly survive till morning. At 12 o'clock, however, there was a change in the pulse,—it became regular, the character improved, and it fell to 120. An almost imperceptible, but gradual, change for the better erept over her, and toward morning she slept more. At 10 a.m., April 24, the temperature was 103°, pulse 112 and regular. About this time erysipelas developed in the wound and spread over the eye on the same side, and even-



to jauntations — picking at the bedclothes, moaning, and sleep only in short snatches. Tremor and distinct shudders were frequent.

Dr. Frederick C. Shattuck was called in consultation. He considered the patient very ill, the case grave and all but hopeless. He suggested using antistreptococcus serum as a last resort. At 5 p.m. the temperature had reached 105.2°, pulse 122. Antistreptococcus serum (Milliken's) was injected under the scapula. Owing to a fault in technique, only 3 cc. were injected. At 7 p.m. 10 cc. were injected. About this time the use of oxygen was also begun, as the pulse had grown thready. From 8 p.m. till midnight the

usually attacked the nose and the other cheek and eye. The pus, on examination, was reported loaded with streptococci. The patient's mental condition was weak, with low muttering delirium, although she could be roused from time to time and made to recognize some member of her family.

At 1 p.m. on the 24th a second dose of antistreptococcus serum was injected. In the next 6 hours the temperature rose to 104.6°; the pulse was 170, irregular and very weak, respiration 50, delirium more than ever incoherent. Nausea set in, and from midnight until 8 a.m. all food was refused or vomited. There were involuntary

evacuations from the bowels with complete relaxation of the sphincter ani, which excluded any help from nutrient enemata. During this time it became impossible, such was the resistance of the patient, to administer hypodermic doses of strychnia. All avenues of feeding and stimulation were cut off, oxygen alone could be kept up, and even this had lost its effect. Every effort to save her seemed in vain. Death was impending, and the case more than ever hopeless.

April 25. After 9 A.M. the patient allowed us to resume the injections of strychnia, which we had been giving in doses of $\frac{3}{5}$ gr. every 2 hours, and peptonized milk, with a few drops of bovine were taken and retained to the amount of 1 teaspoonful every hour. The pulse could again be counted, became more regular, and fell to 120 by 11 A.M. The temperature was 103°, and the pulse even as low as 96, varying between that and 116. Once more hope revived, and a third dose of antitoxin, 10 cc.,—this time Pasteur's,—was injected at 11 A.M. After this dose there was, as after the other injections, an unfavorable reaction, but less marked and fulminant than on the 2 previous nights. Just before midnight the temperature rose to 104.6°, pulse 140, respiration 54.

Later there was better sleep and more of it. Temperature at 7.30 A.M. was 102.6°, and pulse 104. Small quantities of liquid food were taken and retained. The mental condition, however, was more discouraging than before, the mind slow and dull, speech incoherent, the face dusky and swollen with erysipelas. Guided by the pulse, however, which rarely rose above 104 from this time on, and by the temperature, which ranged from 101° to 102°, no more antitoxin was given.

Recovery had set in and continued without interruption. On April 27, 6 days after the operation and 4 days after the first injection of antitoxin, the temperature was normal all day and pulse 84 to 90. The brain was still weak, but on the 29th a long interval of consciousness set in and confusion became the exception. The erysipelas gradually faded from the face; appetite, sleep and strength returned. In 3 weeks after the operation the patient was convalescent and was transferred from the hospital to her hotel, and 3 weeks later traveled to her home in Michigan.

Dr. Bryant reports that the wound, aside from the erysipelas complication, which caused some edema of the helix, did well from the beginning. It was dressed daily until the 29th of May. Previous to this date there had been obstinate oozing from a small unhealed point at the lower end of the incision, but after the appearance and extraction of two small, clean splinters of bone, healing was complete. In September, 5 months after the operation, the report comes that Mrs. G. is looking and feeling better than for years, and is taking up her many social duties without fatigue.

Up to this time the statistics of antistreptococcus therapy are too scanty to make any positive conclusions possible. It has been tried in a number of cases with negative results; septic symptoms have persisted in spite of its timely

administration. This experience, however, has convinced me that in some well-chosen cases it may hold the one chance for life, and should be ventured upon fearlessly. The time may yet come when it may not be considered a last resort, but will be administered at the first approach of sepsis with the same freedom with which we now employ antitoxin in diphtheria.

In conclusion let me acknowledge my indebtedness to Dr. Alice G. Bryant for her careful notes of the local condition and operation.

A SYNOPSIS OF A THREE MONTHS' SERVICE IN THE GYNECOLOGICAL DEPARTMENT OF THE BOSTON CITY HOSPITAL.¹

BY CHARLES M. GREEN, M.D., AND FRANK A. HIGGINS, M.D., BOSTON.

SINCE the enlargement and refitting of the accommodations for this department in 1898-1899, the service has been enabled to perform much more satisfactorily the 3 great functions of all public hospitals,—the care of the sick, the advancement of knowledge, and the teaching of medical students.

During the months of October, November and December, 1899, there were 140 patients under our care,—a smaller number than in subsequent quarters, owing to the fact that during this quarter a portion of our beds were needed for medical cases in another service. Of these 140 cases 5 died, namely:

Epidemioid cancer of clitoris, infiltration of inguinal glands, general sepsis.....	1
Fetus neonatorum.....	1
Premature birth.....	1
Ruptured extra-uterine pregnancy (no operation).....	1
Septicemia following abortion.....	1
	5

For convenience of analysis the cases are divided into the following groups:

Pelvic inflammation, treated without operation.....	23
Pelvic inflammation, pelvic tumor, or other conditions, treated by abdominal section.....	25
Abortion or miscarriage.....	22
Miscellaneous cases.....	70
	140

MISCELLANEOUS CASES.

The cases included under this head embrace a wide variety of pathological conditions, and may be said to represent very well the class of cases seen by the general practitioner in his daily work. Although many of these cases were simple, and for the most part called for only minor treatment, they were of great value in the training of the house staff, and in the teaching of students. The cases are classified as follows:

Abscess of vulvovaginal glands.....	2
Contusion of vulva.....	1
Cyst of labium majus.....	1
Hematoma of labium majus.....	1
Epidemioid cancer of clitoris.....	1
Gonorrhea of urethra.....	1
Cancer of vagina, recurrent 6 years after hysterectomy.....	7
Cystocele and rectocele.....	1
Traumatic erosion of vagina.....	1
Rupture of perineum, complete.....	1
Rupture of perineum, incomplete.....	5
	9

¹ Contributed to the twelfth series of Medical and Surgical Reports of the Boston City Hospital.

Cancer of uterus	1
Endometritis	5
Fibroid polypus of uterus	1
Rupture of uterus	1
Anteflexion of uterus, with dysmenorrhea	6
Prolapse of uterus, with cystocele and rectocele	1
Retroversion of uterus	5
Laceration of cervix uteri	1
Infantile uterus	9
Metrorrhagia	1
Pregnancy, with laceration of cervix uteri	— 33
Pregnancy, with intercurrent typhoid fever	1
Pregnancy, extra uterine, after rupture	1
Labor, in a patient with typhoid	1
Labor, spontaneous, at seven months	1
Labor, complicated with placenta previa	1
Puerperium	2
Puerperal septicemia	1
Infancy	— 13
Alcoholism	1
Constipation	1
Intra-abdominal malignant disease, with ascites	1
Mental disease	1
Neurasthenia	3
Pelvic congestion	1
Total	70

On 36 of the above group of miscellaneous cases, 43 operations were performed, namely :

Amputation of cervix uteri	1
Curettage of uterus	12
Dilatation of cervix uteri, with use of glass stem pessary	5
Excision of clitoris and inguinal glands	1
Excision of fibroid polypus of uterus	3
Excision of labial cyst	1
Incision of vulvovaginal abscess	1
Incision of vulvovaginal hematoma	1
Internal podalic version, for placenta previa	1
Low forceps delivery	1
Paracentesis of abdomen	1
Perineorrhaphy (1 for complete, 5 for incomplete, rupture)	6
Trachelorrhaphy	8
Total	43

All of these operations resulted successfully, with the exception of that performed for extirpation of cancer of the clitoris. There was extensive infiltration of the inguinal glands, and they were excised; the patient died of general sepsis. The case of intra-abdominal malignant disease suffered chiefly from embarrassed respiration and from complete prolapse of the uterus and vagina, due to an extreme degree of ascites; after tapping, the patient was discharged, relieved of urgent symptoms.

Of the 34 nonoperative cases in the miscellaneous group, 3 died: 2 infants, 1 of icterus and 1 of prematurity; and a case of ruptured tubal pregnancy. This latter case entered the hospital after the morning visit, and through a series of unfortunate misunderstandings was not seen by either of us until midnight, when the patient was moribund. The case of ruptured uterus was one of marked interest. The patient was delivered with forceps outside the hospital, and was found on admission to have sustained extensive rupture of the lower segment. Fortunately, the peritoneum was not torn through, and there was no prolapse of omentum or of intestine. For local treatment the patient received only irrigation, usually with normal salt solution, and 2 or 3 times with weak antiseptics. She made a complete recovery.

ABORTIONS OR MISCARRIAGES.

It is always a cause of regret to this department that so many of its beds must be taken up

by cases of abortion. While a few of the cases are of innocent or inevitable origin, very many of them come to the hospital from the abortionist, or after successful attempts by their own deeds. Some cases enter already septic; some simply occupy a bed while making a normal convalescence. The hospital is obliged to care for all cases alike, whatever the cause of the abortion, since it is obviously impossible to discriminate between the criminal, the innocent, and the ignorant; moreover, whatever the cause of the abortion, cases often apply for admission with such urgent symptoms that they cannot be refused. Many of the cases have no especial interest to an experienced physician, but they are of value for purposes of teaching.

Of the 22 cases in this group, 1 entered after an attempted abortion, and was discharged after minor treatment without interruption of the pregnancy. One case entered profoundly septic, and died of general infection, in spite of treatment. The other 20 cases all recovered. Curettage of the uterus was performed in 11 cases.

PELVIC INFLAMMATION TREATED WITHOUT OPERATION.

The general principle on which we deal with cases of pelvic inflammation, which enter, as a rule, with pelvic pain and tenderness, more or less febrile action, and various functional disturbances, is to place them under rigid observation, while treatment is directed to the relief of urgent symptoms. Even in very acute cases we have found that with an occasional exception which demands prompt surgical treatment, the acute symptoms ameliorate under rest and palliative measures, the pelvic suppurative process becomes walled off from the general peritoneum by plastic exudate, and subsequent observation and careful study of symptoms can then determine whether operation is necessary, or whether, after symptomatic recovery the patient may safely be discharged with a reasonable prospect of immunity from an exacerbation of the inflammatory process and a recurrence of symptoms.

As is now well known, the nature of the infection, when this can be ascertained, exerts an important influence on the decision in favor of, or against, operation. The pelvic ravages of the gonococcus are rarely recovered from; and the unfortunate victim must generally choose between the extirpation of her uterine appendages and a life of invalidism. With the septic infections attendant on abortion and labor, on the other hand, the case is different. Many of these patients not only recover symptomatically, but function is so far restored that childbearing is again possible. Of course this latter possibility is largely due to the fact that in the septic infections it is often the case that only one of the Fallopian tubes is involved; whereas with the gonorrheal infection the destructive process is more commonly bilateral. In doubtful cases, when the nature of the infection is not evident,—and indeed in all cases, except occasionally the very acute, that do not soon improve under observa-

tion, but show signs of beginning infection of the general peritoneum,—experience has taught us that it is the part of wise conservatism not to resort to surgical measures until time has shown whether health, even if not function, cannot be restored without them.

Of the 23 cases in this group, 1 was under observation only 4 days, and 3 remained after our term to complete their convalescence; 19 were discharged relieved of symptoms, with instructions to return for operation or for further palliative treatment, if symptoms recur.

The therapeutic measures employed in these cases, in addition to indicated general medication, were rest in bed, hot fomentations to the hypogastrium, hot vaginal douches, pelvic depletion with glycerine, and sometimes ichthyol, together with moderate catharsis and attention to the functions of the skin and kidneys. In the very acute cases the use of ice over the hypogastrium has generally proved more efficacious than hot applications. Ice affords relief from pain, appears to diminish pelvic congestion, and apparently aids in checking the inflammatory process. In conjunction with the judicious use of saline cathartics, ice has certainly arrested many cases of threatening peritonitis.

These cases are of great value and interest to a clinic. They call for the wisest judgment and most conscientious care on the part of the attending staff, and they are invaluable in training the student's touch and powers of observation.

PELVIC INFLAMMATION, PELVIC TUMOR, OR OTHER CONDITIONS, TREATED BY ABDOMINAL SECTION.

This group embraces those cases in which, after adequate observation, and after reasonable attempts to relieve symptoms by palliative measures had failed, resort to surgery seemed advisable. Except when urgent symptoms made early operation necessary, time enough was taken for the general preparation of the patient. A rested body, restored function of skin, bowels, kidney and stomach, and a nervous system in stable equilibrium, are important factors of success in abdominal surgery. The conditions demanding operation are shown in the following table of pathological diagnosis:

Retroflexion of uterus.....	2
Fibro-myoma of uterus.....	1
Myoma of uterus, with chronic perisalpingitis and peri- oöphoritis.....	1
Myoma of uterus, with telangiectasis of lymph vessels.....	1
Myoma of uterus, with degeneration.....	1
Myoma of uterus, multiple.....	1
Ovarian cyst, simple.....	5
Ovarian cyst, dermoid.....	1
Ovarian cyst, follicular, with parovarian cyst.....	2
Renal cyst.....	4
Acute purulent salpingitis (gonorrheal) with beginning general peritonitis.....	1
Acute salpingitis, with follicular cysts of ovary and parovarian cyst.....	1
Acute and chronic salpingitis.....	2
Acute and chronic salpingitis, with parovarian cyst.....	1
Chronic salpingitis.....	1
Chronic salpingitis, with follicular cysts of ovary and parovarian cyst.....	1
Chronic salpingitis, with peri-öophoritis.....	1
Chronic perisalpingitis, with follicular cysts of ovary.....	1
Chronic perisalpingitis and peri-öophoritis.....	1

Chronic perisalpingitis and peri-öophoritis, with par- oövarian cyst.....	1
Tubercular salpingitis.....	1
Total.....	26

In the case of renal cyst the abdomen was opened under an erroneous diagnosis of ovarian or parovarian cyst. After intra-abdominal examination the incision was closed, and on recovery the patient was transferred to one of the surgical services, where she was afterwards operated on through a lumbar incision. On the remaining 24 patients operations were performed as follows:

Excision of dermoid cyst of ovary.....	1
Excision of parovarian cyst.....	6
Hysterectomy, complete.....	7
Hysterectomy, supravaginal.....	1
Incision and drainage of tubercular tubal abscess.....	4
Resection of ovary.....	1
Salpingo-öophorectomy, unilateral.....	3
Salpingo-öophorectomy, bilateral.....	19
Salpingectomy bilateral and öophorectomy unilateral.....	1
Ventrosuspension or fixation of uterus.....	23
Total.....	52

There was no death among this group of abdominal cases; and all were discharged well, or relieved of the symptoms for which operation was performed.

Drainage was employed in only 2 cases; once in the case of tubercular salpingitis; once to control venous oozing. In 5 cases catgut was used in the peritoneal cavity; in all other cases, silk. In nearly all cases, and always when possible, raw surfaces were covered with peritoneum by continuous suture. Including the 2 cases wherein the abdomen was opened for the sole purpose of suspending the retroflexed uterus, ventral suspension or fixation was performed 15 times; it was our purpose always to suspend the uterus, when by the removal of appendages the broad ligaments were so far impaired as to deprive the uterus of support. The uterus was never permanently fixed to the abdominal wall when either ovary was left; whenever pregnancy was possible, the suspending sutures included only peritoneum and 1 or 2 muscular fibres, in order that gradually a suspensory ligament might be developed, and the uterus be free to rise into the abdominal cavity. Moreover, in all such cases the suspending sutures were passed just anterior to the fundus. To be sure, the uterus is not thus placed in a perfectly normal axis, but in the event of pregnancy we believe there is less risk of obstetric difficulties than when the uterus is suspended from its posterior surface. In nearly all cases, after cleansing of the abdominal cavity, it was filled with hot normal salt solution before closing the lower angle of the incision. This, not only for the purposes of systemic stimulation, but in the belief that the danger of intestinal adhesions is thereby minimized, and because thirst is less imperative in the first 24 hours of convalescence when the system is thus freely supplied with liquid. In 20 cases the incision was closed with interrupted mass sutures of silkworm gut; in 1 case in layers with silk sutures; and in 4 cases in layers with catgut.

The symptomatology of this group of abdominal cases, the indications for operation, the history of convalescence and results, are given in the following concise extracts from the hospital records:

CASE I. *Dermoid cyst of ovary*.—A. G., 23, single. Five days before entrance, began to have sharp, cutting pains in right groin after lifting a heavy weight. Pain has been quite constant since then, and shoots down right thigh. Temperature 100.0° on entrance. Cervix high in pelvis; fundus not felt. A large, tender mass behind uterus; thought to be inflammatory. Symptomatic improvement under rest and local treatment; but as there was no change in the pelvic mass after 6 weeks of observation, operation was thought advisable.

Operation.—The abdomen was opened in the expectation of finding bilateral, tubo-ovarian, inflammatory masses; but inspection revealed a large, dark colored, cystic tumor behind the uterus and left broad ligament, with recent adhesions; both appendages were adherent to the cyst. In removing the cyst it was found necessary to remove also the appendages. Ventrosuspension of uterus. "Size of cyst, $8 \times 6 \times 4$ cm. Outer surface dark red in color, showing evidences of adhesion. Surface somewhat nodular from the presence of smaller cysts. Cyst wall averages .5 cm. in thickness. Cyst contains soft, reddish material, with hair; bone $6.5 \times 1.5 \times 1$ cm., projecting from which are 4 well-formed teeth resembling molars, and 2 small bony nodules; also about one-half oz. yellowish, fatty material. The hair grows in a tuft from the surface of the wall, just above attachment of jaw. Coverslip shows much fat, small amount of detritus, no cholesterol crystals. At one side of the cyst is the oviduct, 6 cm. long and .8 cm. across. The other oviduct is .8 cm. long, and normal in appearance; the other ovary $3 \times 3 \times 1$ cm., and containing many small serous cysts."

Convalescence.—Normal. Highest temperature 99.8° on evening of third day. Discharged well on the 28th day; uterus in normal condition, no pelvic exudate, abdominal scar firm.

CASE II. *Retroflexion of uterus*.—A. B., 28, married, ii para. For 5 years has suffered with constant backache, dull pain in left groin, and painful defecation. Has been treated in Out-Patient Department for 9 months without permanent benefit, and is advised to enter for operation.

Operation.—Uterus found retroflexed, and held by a few adhesions, which are easily separated; appendages apparently normal. Ventrosuspension with 2 silk sutures. Incision closed in layers with silk.

Convalescence.—Normal. Discharged well, on the 28th day, with the uterus in normal position, and with an apparently normal abdominal cicatrix. [Later a sinus developed, and in May, 1901, re-entered for closure of the same. Probe passed as far as fundus uteri, which was still attached to anterior abdominal wall. Sinus enlarged sufficiently, walls excised, 2 knots of silk removed with curette. Cavity cleansed and packed with iodoform gauze; sinus closed in 2 weeks.]

CASE III. *Retroflexion of uterus*.—H. N., 21, single. Enters from Out-Patient Department for operation on a retroflexed uterus, which has not been relieved by 2 years of minor treatment.

Operation.—Uterus found sharply retroflexed and nonadherent; musculature very flabby. Appendages inspected and found normal. Suspension with 2 silk sutures.

Convalescence.—On 21st day developed a small sinus, which discharged slightly, but was shallow. A week later, up and about the ward, with no subjective symptoms. Sinus gradually closed, and patient discharged well, except for weakness due to attack of tonsillitis in latter days in hospital.

CASE IV. *Fibromyoma uteri*.—M. H., 31, married 10 years, iii para. In hospital earlier in year for dysmenorrhea, metrorrhagia, and abdominal pain, and found to have an interstitial fibroid. After treatment, was discharged relieved of symptoms, in hope that tumor

might become submucous or pedunculate, when it could be removed without sacrificing the uterus. But pain and hemorrhage recurred, and patient returned for operation.

Operation.—Uterus size of 4 months' pregnancy. Tumor involved cervix to such a degree that it was necessary to do complete hysterectomy. Appendages also removed. Vaginal vault closed with fine silk and covered over with peritoneum.

Convalescence.—Uneventful, except for an attack of pleurisy beginning on 18th day. Discharged well on 31st day; abdominal scar satisfactory; vaginal cicatrix smooth and linear, except at left angle, where there is a pea-shaped nodule where edges were turned in.

CASE V. *Myoma uteri, with much degeneration*.—M. O. N., 45, single. Six years ago noticed the presence of an abdominal tumor, and began to have severe pain in back and head. During these years has had persistent constipation and dull abdominal pain. Examination revealed a tumor occupying the hypogastrium and extending nearly to umbilicus—apparently a fibroid uterus.

Operation.—Tumor nonadherent. Supravaginal hysterectomy, with removal of appendages. Cervical stump and broad ligaments covered in with peritoneum.

Convalescence.—Uninterrupted; highest temperature 100° on evening of 3d day. Discharged well on 27th day.

CASE VI. *Myoma uteri, telangiectasis of lymph vessels*.—M. C., 26, single. For past 6 years has suffered more or less pain in small of back and lower abdomen, especially on right. Constant feeling of weight in pelvis when on her feet. Advised to have operation 3 years ago; since then has gradually become incapacitated for work. Tumor nearly reached umbilicus, and well out of pelvis.

Operation.—Left ovary enlarged and cystic; right appendages adherent, and separated with difficulty. Supravaginal hysterectomy, removal of appendages. Cervical stump and broad ligaments closed over with peritoneum. Weight of tumor 1,180 gm., $12 \times 10 \times 10$ cm.

Convalescence.—Disturbed by slight phlebitis and swelling of both legs. Discharged well on 36th day, with a satisfactory abdominal scar. [Seen some months later, patient found to be neurasthenic and mentally depressed, but with no pelvic symptoms.]

CASE VII. *Multiple myoma uteri*.—M. H., 29, single. Has always had dysmenorrhea, and for 3 years menorrhagia. For past 6 months severe backache and feeling of weight in pelvis. Uterus irregular in outline and enlarged; a mass on right anterior surface, another on left, and many smaller masses felt by vagina in lower segment. With moderate pressure tumor could be lifted out of pelvis.

Operation.—Tumor nonadherent. Supravaginal hysterectomy. Fibroid nodule in posterior cervical lip enucleated. Appendages removed with uterus. Cervical stump and broad ligaments covered with peritoneum. Blood loss slight. Weight of tumor 1,040 gm., $11 \times 9 \times 7$ cm. Both ovaries show many small follicular cysts.

Convalescence.—Suffered much with nausea and vomiting after eating; finally relieved by washing out stomach and by rectal feeding. Moderate phlebitis of right femoral. Incision healed by first intention. Discharged well on 48th day.

CASE VIII. *Myoma uteri, chronic perisalpingitis and peri-oophoritis*.—V. J., 31, single. Induced abortion at 3 months, 7 years ago. For 2 years has had dull abdominal pain, backache and bearing down. Two months ago pain became severe in left iliac region. Cervix small and placed just behind the symphysis pubis. A mass filling half the pelvis, studded with smaller masses; probably an enlarged, retroverted uterus with multiple fibroids. Operation advised from history and symptoms.

Operation.—Left ovary cystic; right appendages displaced behind the uterus and adherent to it. Uterus retroverted and studded with fibroid masses, principally on right and posterior surfaces. Myomectomy considered; but hysterectomy seemed advisable in view of

condition of appendages. Supravaginal hysterectomy, bilateral salpingo-oophorectomy; cervical stump and broad ligaments closed over with peritoneum.

Consequence.—Uneventful. Discharged well on 41st day.

CASE IX. *Simple cyst of ovary.*—C. P., 40, married, v para. For 5 years severe backache, pain in lower abdomen, especially on right side, feeling of weight in pelvis. Appendages prolapsed and tender; both ovaries enlarged. After observation and palliative treatment, operation advised.

Operation.—Cyst of left ovary, with several thin-walled cysts attached; tube somewhat thickened, and held by moderate adhesions; left salpingo-oophorectomy, cyst ruptured in removal. Right tube normal; right ovary contained a cyst size of a marble; cyst removed without rupture, and ovary closed in with silk. Ventrosuspension. Troublesome venous oozing on left made gauze pressure drain advisable.

Consequence.—Drain removed on 3d day, and provisional sutures tied; all bleeding had been controlled. Sinus kept patient in hospital 11 weeks. On discharge, uterus held in suspension, sinus closed to within one-quarter inch. Discharged symptomatically well, and seen later, outside hospital, sinus found closed and patient well.

CASE X. *Parovarian cyst, follicular cysts of ovary.*—N. L., 33, single. Had been in hospital 9 months previously suffering from menorrhagia and anemia. After discharge in April had amenorrhea until August, when she flowed several days, then amenorrhea until October. For past 2 weeks considerable flowing, constant bearing down pain, severe backache. Uterus found displaced to right by an apparent cyst of left ovary. In view of history and symptoms, after observation, operation advised.

Operation.—Left ovary found enlarged to size of hen's egg, and involved in a unilocular parovarian cyst; tube healthy. Right ovary cystic and enlarged to twice its normal size. Bilateral salpingo-oophorectomy, ventrofixation.

Consequence.—Incision closed by first intention. Temperature reached 101.2° on evening of 2d day, but was normal by 8th day. On 30th day uterus fixed to anterior abdominal wall, nothing felt in either broad ligament. No symptoms but weakness. Discharged to Convalescent Home.

CASE XI. *Parovarian cyst, follicular cysts of ovary.*—M. A., 30, married 5 years, iv para. For 9 years had had more or less constant backache, dull pain in lower abdomen, in both groins, more especially in the left. Uterus low in pelvis, in first degree of retroversion; tender mass in left broad ligament, of hen's egg size, probably tubo-ovarian. In view of long period of suffering and disability, operation advised.

Operation.—Fimbriae of right tube found adherent, and freed; right ovary normal. On left, follicular cysts of ovary, and a parovarian cyst; left salpingo-oophorectomy with removal of cyst. Ventrosuspension.

Consequence.—Uninterrupted; highest temperature 100°. Discharged well on 27th day.

CASE XII. *Acute gonorrheal salpingitis, beginning general peritonitis.*—S. C., 19, single, table girl. Had a criminal abortion 9 months previously, and for past 5 months metrorrhagia. A month ago began to have pain in lower abdomen, which has gradually grown more severe, and is worse on left side. Pain sharp and cutting at times. Has had chills, fever and vomiting. Enters with temperature 100.8°. Uterus drawn slightly backwards, slight resistance over left broad ligament. No diagnosis made at the time; but within 3 days patient developed a typical case of acute salpingitis with symptoms of beginning general peritonitis. Examination under ether revealed a small mass high in right broad ligament. Pulse reached 120, temperature 102.2°, and there was tenderness, pain and vomiting.

Operation.—On opening abdomen beginning peritonitis was evident; there were recent intestinal adhesions, with exudate on both sides of pelvis; considerable grey, flocculent material on bowels and omentum. Both tubes enlarged, dark purple in color, and adherent to

ovaries and intestines; purulent discharge from fimbriae of both tubes. Both tubes and the right ovary removed; left ovary essentially normal, and allowed to remain. Gonococcus found.

Consequence.—Highest temperature 102.2° on evening of 1st day, gradually dropping to normal on 9th day. Discharged well on 30th day.

CASE XIII. *Acute salpingitis, follicular cysts of ovary, parovarian cyst.*—J. B., 20, single, shop girl. Had a full-term labor 5 years ago, and an induced abortion 4 years later. Fear of cervix and perineum at labor, since then considerable pain in back and abdomen. Profuse vaginal discharge for a year. Uterus prolapsed, retroverted and retroflexed; indefinite mass in left broad ligament. Later, under ether, hen's-egg mass on right—a cystic ovary or a hydrosalpinx. Uterus curetted. After a month of observation and minor treatment, abdominal section advised on account of continued pain.

Operation.—On right, a parovarian cyst, 2 x 4 inches, and a cyst of ovary size of hen's egg. Left tube and ovary prolapsed and adherent; ovary twice its normal size, and containing a blood cyst; tube containing pus. Bilateral salpingo-oophorectomy, removal of parovarian cyst, ventrofixation of uterus.

Consequence.—For several days patient restless, with mental aberration, and required restraint; on 6th day temperature reached 102° during menstruation, gradually reaching normal on 12th day. From this time convalescence progressed satisfactorily, and patient was sitting up in bed, when she developed a pleurisy with effusion, with a probable pneumonic process, which kept her in hospital until 8 weeks after operation. Discharged well. Uterus in good position, broad ligaments clear, no pelvic exudate.

CASE XIV. *Acute and chronic salpingitis.*—J. M., 18, married 2 years, i para. Since childbirth fever a year ago, has had attacks of pain and soreness in both groins; two weeks ago, an acute exacerbation, with nausea, vomiting and fever. Uterus retroverted; behind it, a mass probably resulting from septic puerperal infection a year before. Operation advised.

Operation.—Uterus densely adherent to masses behind it and to the rectum. Tubo-ovarian abscess and a small cyst on left side, extending around to back of uterus. On right a similar, smaller mass. Bilateral salpingo-oophorectomy, ventrofixation with catgut.

Consequence.—There was a small, stitch sinus, which closed by granulation. Discharged on 32d day with a good scar, but with a slight induration and tenderness in Douglas's fossa.

CASE XV. *Acute and chronic salpingitis.*—F. H., 21, single, stenographer. Pelvic inflammation 2 years ago; since then, frequent attacks of pelvic pain and backache; chills the past few days; enters with pulse 90, temperature 100°. Very tender bilateral masses; uterus not movable. Under observation seemed fairly comfortable in daytime, but had considerable pain at night, when temperature reached 102°-103°, and pulse 115-120. With ice and other palliative measures patient improved, and had a normal temperature on 5th day; but after a fortnight's observation operation was decided on.

Operation.—Both tubes enlarged and thickened; right tube prolapsed, adherent to bowel, and to an abscess cavity low in the pelvis; left tube curved around and adherent to anterior surface of broad ligament, whence it twisted back of the uterus to pus cavity above mentioned, which contained 2 oz. pus. Ovaries cystic. Omentum and bowels adherent to the uterus. Bilateral salpingo-oophorectomy.

Consequence.—On 18th day, chill in evening, temperature 102°-103°; slight abdominal pain, and evidently some inflammatory process behind the uterus, which, however, subsided, and patient was discharged on 47th day with no tenderness, no pain, and no pelvic thickening.

CASE XVI. *Acute and chronic salpingitis parovarian cyst.*—M. Y., 30, married 14 years, iv para. For 7 years constant dull pain in small of back and across lower abdomen, especially on left; pain at times very severe.

Menorrhagia, dysmenorrhea. Uterus retroposed, adherent in a mass of exudate. On right, a fluctuant tumor, probably a cyst. Left appendages not differentiated. Operation recommended after 3 weeks of observation and preparation.

Operation.—A large cyst of right broad ligament with small ovary adherent; left tube thickened, and contained old pus. Bilateral salpingo-oöphorectomy, removal of cyst, ventrosuspension.

Course.—Uneventful; discharged well on 27th day. Uterus firmly attached to anterior abdominal wall, no pelvic exudate, incision healed by first intention.

CASE XVII. *Chronic salpingitis.*—L. F. B., 28, married 9 years, vi para. Chronic bilateral salpingitis of probable puerperal origin. Operation advised on account of pain and invalidism.

Operation.—Bilateral salpingo-oöphorectomy, ventrosuspension. A pus cavity deep in the pelvis was accidentally ruptured in removal.

Course.—Stitches removed on 9th day, apparently good union; but 6 days later thick pus, of foul, fecal odor, was found to issue from a sinus at lower angle of incision. This pus was found to contain streptococcus pyogenes and bacillus coli communis. Five days later, however, the pathologist reported "no bacillus coli communis, and no organisms indicating fecal origin." Patient kept in hospital 45 days after operation, when there remained but a very small, shallow sinus, too superficial for a Wick, and she was discharged feeling perfectly well. [Seen in November, 1900, patient was entirely free from symptoms. Uterus remained fixed to anterior abdominal wall. A small sinus at site of uterine fixation, from which escaped occasionally a few drops of pus. In May, 1901, patient re-entered our service for closure of the sinus; it was dissected out and ultimately closed.]

CASE XVIII. *Chronic salpingitis, simple follicular cysts of ovary.*—J. McC., 28, married 9 years, 1 abortion at 3 months in 1890. Ever since abortion has had considerable backache, and abdomino-pelvic pain, of late worse on right side, and of a sharp, cutting character. Menorrhagia for past year. Catamenia regular, but profuse and painful. Uterus of normal size and position, only partially movable. Tubo-ovarian masses, apparently inflammatory on both sides and behind uterus. After nearly 3 weeks of observation and treatment, the acute symptoms subsided; but the pelvic masses were unchanged, and in view of the history and probable etiology, operation was advised.

Operation.—Bilateral tubo-ovarian masses were found, low in the pelvis, adherent to posterior surface of uterus and broad ligaments; both ovaries cystic, tube walls much thickened. Bilateral salpingo-oöphorectomy, ventrosuspension.

Course.—Highest temperature 100.2° on evening of 12th day. On 18th day a shallow stitch sinus was noted at upper end of incision, which kept patient in hospital until the 6th week. On discharge, sinus nearly healed by granulation; uterus forward; no pelvic tenderness; slight thickening in left broad ligament close to the uterus.

CASE XIX. *Chronic salpingitis, follicular cysts of ovary, puerperal cyst.*—C. B., 29, married 12 years, 1 child in 1894. Was in this service in 1897 with a pelvic inflammation; received palliative minor treatment, and was discharged symptomatically well. Remained quite well for a year, when she began to have bearing down sensations in pelvis, with pain in back and in left groin. Pain has been more or less constant, at times sharp, and worse when reclining, uterus tender, cervix lacerated; behind and to left of uterus, a tender mass. Patient improved symptomatically under rest and local treatment; but after 10 days of observation, operation was advised in view of the history and symptoms.

Operation.—Appendages on left prolapsed behind uterus and firmly adherent; marked venous engorgement in left broad ligament; tube enlarged; ovary cystic. On the right, ovary enlarged and cystic; fimbriae merged in a cyst the size of a pigeon's egg. Bilateral salpingo-oöphorectomy; venous oozing from

separation of adhesions from posterior uterine wall controlled with fine silk sutures.

Course.—Highest temperature 100.2° on evening of first day; some faintness and nausea for first 10 days. Discharged well and in good general health in 4 weeks; uterus in good position; no exudate in pelvis; scar satisfactory.

CASE XX. *Chronic salpingitis, peri-oöphoritis.*—M. M., 21, single, table girl. One month before entrance had considerable vaginal discharge, and frequent and painful micturition; soon after "caught cold" during menstruation, and flow ceased. Began to have pain, of sharp and intermittent character, in left inguinal region. Entered with pulse 100, temperature 101.4°. Uterus somewhat enlarged, and pushed to right by a mass behind and to the left. Gonococcus found in urethral smear. Under use of protargol and other local measures, patient improved, and temperature dropped to normal; but since the pelvic mass showed no diminution after 3 weeks, and in view of the apparent infection, operation was advised.

Operation.—Many recent adhesions of omentum and bowels, separated with much difficulty. At one point the gut was so bound to the uterus that a V-shaped piece was excised from the womb. Left appendages prolapsed and densely adherent to rectum; tube considerably thickened, and gave evidence of an interstitial process; on this side patient had had most pain. On the right was a tube-ovarian abscess. Bilateral salpingo-oöphorectomy.

Course.—Highest temperature 99.8° on evening of 2d day, normal after 4th day. Discharged well on 29th day; cervix central, uterus in normal position, slight thickening at base of left broad ligament (old exudate), scar satisfactory.

CASE XXI. *Chronic perisalpingitis, simple follicular cysts of ovary.*—G. E., 29, single. "Womb trouble" for 4 years. Two years ago had curettage for flowing. For several years dull pain in lower abdomen, quite constant, and more severe on left side. Pain worse during catamenia. Constant backache, headache, anemia. Uterus low and not freely movable; cystic masses in both broad ligaments; pulse and temperature normal. With rest in bed and general care for 3 weeks, symptomatic improvement; but in view of the long continued pelvic pain and disability, and at patient's urgent desire, operation was decided on.

Operation.—Left tube and ovary prolapsed, and bound to intestines with adhesions so dense that they had to be cut; ovary enlarged; tube distended fimbriae adherent to ovary. Right ovary cystic, larger than the left, and bound to posterior wall of uterus with adhesions dense enough for the use of scissors to separate them; tube enlarged, fimbriae obliterated by firm adhesions to ovary. Bilateral salpingo-oöphorectomy, ventrosuspension.

Course.—Normal; febrile only at time of catamenia, when temperature rose to 100.4°. Discharged well after 4 weeks. Uterus in normal position, no exudate in pelvis, no bulging of abdominal scar.

CASE XXII. *Chronic perisalpingitis, peri-oöphoritis.*—F. P., 30, married 11 years, vi para. Had had right salpingo-oöphorectomy, performed by another member of the staff, 7 months previously. Re-entered with symptoms pointing to salpingo-oöphoritis on the left side; operation seemed advisable.

Operation.—At the previous operation the uterus was found suspended; and on opening the abdomen the uterus was found held in position by a ligament one-fourth inch thick and three-fourths inch long. On the right, whence the appendages had been removed, was a good cicatrix along the broad ligament; but a coil of intestine was adherent to the posterior surface near the uterus. On the left was a tubo-ovarian mass, which was removed.

Course.—Retarded by 2 stitch sinuses, which, however, ultimately closed. Highest temperature 100° on evening of 2d day; and it was normal after 6th day. On discharge patient was well as far as pelvic conditions were concerned, her only symptom being weakness.

CASE XXIII. *Chronic perisalpingitis and periophoritis, parovarian cyst.*—E. L., 32, married 7 years. One abortion at 3 months 6 years ago, followed by pelvic inflammation. Since then, recurring exacerbations with fever and pain. Mass on the right that seemed like a cyst, pushing uterus to the left; appendages not differentiated. Operation advised from the long-standing symptoms.

Operation.—Large parovarian cyst filling right side of pelvis; tubo-ovarian mass on left, evidently the seat of an old tubal abscess. Bilateral salpingo-oophorectomy and excision of parovarian cyst. Operation difficult from extensive adhesions, distortion of parts, and varicose veins running over the large cyst wall. Ventrosuspension.

Convalescence.—Complicated with pleurisy and pneumonia 2 weeks after operation. Discharged well on the 40th day, with uterus in good position, and nothing abnormal felt in pelvis.

CASE XXIV.—*Tubercular salpingitis.*—E. R., 19, single. For 3 weeks has had sharp, cutting pain in lower abdomen, radiating around to back; chilly and feverish of late. For a month profuse vaginal discharge and painful micturition. Uterus fixed, with hard, boardy resistance behind; both appendages probably involved in the mass. After a month of observation and treatment, operation was advised.

Operation.—Extensive adhesions. Peritoneum thickened, and adherent to mesentery and an adventitious mass. In an effort to separate adhesions the finger entered a pus cavity, which after being drained proved to be the size of a hen's egg. Broad ligaments partially explored, and no other pus cavity found. Uterus apparently below the pus cavity. Owing to the extremely dense adhesions, it seemed best not to try to remove the abscess sac. The pus had a strong, fecal odor; but no communication with intestine was found. Pus cavity cleansed, and abdomen closed with gauze drainage.

Convalescence.—Patient much relieved by operation, and had little or no pain thereafter. Pus cavity gradually shrank under irrigation and drainage; and after 82 days patient was discharged in good general health and free from symptoms, but with a small sinus. The uterus fixed in normal axis, and there was a general induration behind it.

[After discharge in March, 1900, patient remained in good general health, and in February, 1901, she married. The sinus continued to discharge pus, at times tinged with blood. In May, 1901, she re-entered our service in the hope of having the sinus closed. Sinus found to be 1 1/2 inches deep, and more or less obstructed by granulation tissue. Under ether sinus sufficiently dilated and curetted, cleansed and packed with iodoform gauze. Packing renewed daily, and after 8 days there was no purulent discharge; 10 days later sinus was small and only three-fourths inch deep. Four weeks from entrance sinus was so nearly closed that patient was discharged in excellent general health, for continued observation in the Out-Patient Department.]

THE TREATMENT OF TUMORS OF THE BREAST.¹

BY JOHN H. GLEASON, M.D., MANCHESTER, S. H.,
Attending Surgeon to the Elliot Hospital.

SURGERY of the breast and axilla, as practised today, is a creditable demonstration of surgical ingenuity and application of methods, endeavoring to combat the extension of malignant growths. However, far-reaching as the operative procedures may be, there still remains a percentage of recurrences, even in selected cases. Most physicians will admit that there is yet much to be desired in the general results, and will recall cases in which

their best services have been but poor efforts to relieve suffering.

I shall try, gentlemen, to limit my remarks to an outline of treatment, modified by a consideration of the diagnosis, general etiology, and conditions such as would have a bearing on the treatment of cancer, (unless other neoplasms are specified) of the female breast. The term cancer will be used in its clinical significance, as equivalent to malignancy, without reference to its variety. I have taken it as a type of tumor for the reason that 92% of all breast growths are cancers.

First, as to the increase of cancer and its cause. Most medical men are of the opinion that the number of persons who die from cancer in proportion to the number of the population has been steadily increasing. Dr. Roswell Park states that in England and Wales the cancer death-rate has risen from 1 out of 5,646 in 1840, to 1 out of 1,306 in 1890, and he makes the following announcement: "A careful study of all these tables permits me to make the following startling prophecy: If for the next 10 years the relative death-rates are maintained, we shall find that in 10 years from now there will be more deaths in New York State from cancer than from consumption, smallpox and typhoid fever combined." Now as to the cause of the increased death-rate: An extensive study of the local distribution of the disease has been made by such good observers as Mr. Haviland and Mr. Roger Williams, who, while endeavoring to ascribe areas of increased cancer mortality to topographical and geological conditions, were forced to think that cancer areas are the localities where the people are best nourished. It seems certain that most victims of the disease are primarily well-nourished persons, often with a fine, healthy color in their cheeks. Billings of Washington has shown that among the whites there were 2 cases to 1 among the blacks. From what can be learned of Africa and the Asiatic countries, that vast territory enjoys a remarkable immunity from the disease. Statistics have further shown that the highest mortality prevails among a class of people who are likely to eat and drink abundantly, and who do not take too much exercise.

As to the bearing of heredity on the increase of cancerous disease, Dr. Roswell Park writes to the *Practitioner* as follows: "First of all it is possible to sweep aside, with one or two possible exceptions, everything that has been brought forward as an explanation of this disease. The old theories of irritation, of perverted nerve centres, of heredity, etc., cannot for a moment stand, in view of the searching scientific methods of today. We have gotten as far as this at present, that we know that cells act as they do in producing the disease, either as the result of some external or some internal stimulus. The exact character of the stimulus is not yet certainly demonstrated, though things point more and more towards its parasitic, that is, its potent living influence." Whether or not constitution and heredity have so little to do with the cause of cancer, seems to

¹ Read before the New Hampshire State Medical Society, May, 1901.

me, is a matter that should not be so lightly thrown aside. All undoubtedly have seen malignant growths in patients who have given a history of cancer in their family for one or more generations. It is true that such visitations are erratic, the disease often jumping from grandparent to grandchild. However, one cannot help but feel that individuals having cancerous progenitors, while free from the disease themselves, yet have a tendency, an inborn receptive soil for the development of malignancy.

Several English and continental observers have latterly been working on the "parasitic organism" of cancer. The results have been ably summed up by Sir William Banks as follows: (1) "There is plainly a structure of a definite nature which is found in man at the marginal or growing edges of carcinomata. It is not found in any healthy tissue, nor in any other neoplasm except sarcoma. It used to be regarded as a protozoon or coccidium, but most investigators seem now to regard it as a blastomyces which is a form of saecharomyces, reckoned to be a development stage of certain fungi. Most parasites are inside the epithelial cancer cells; some are outside. There is a strong probability that they spread by sporing, although much more knowledge on this point is wanted. How they get into or originate in the human body is not known, and what action, if any, they have upon the epithelial cells has not yet been demonstrated. But admitting an action, it is doubtless that of an irritant to them, which causes them to proliferate.

(2) "There is no doubt that from these parasites cultivations in certain media can be made, and that, when such are injected into animals, growths are produced in them, mostly of a fatal character, which contain these parasites."

An announcement has also just been made by Dr. Harvey R. Gaylord in the *American Journal of the Medical Sciences* for the present month, that he has succeeded in isolating and culturing the parasite of cancer. He reports that he has produced the disease in animals by inoculation, and that he has proven the parasite to be a protozoon. Dr. Gaylord is the director of the New York State Pathological Laboratory at Buffalo, and has concentrated his entire attention for three years on an investigation into the nature and causes of cancer. On the basis of the observations made, he says he is prepared to state that all the organs, including the blood taken from all regions of all patients dying of cancer, including sarcoma and epithelioma, contain large numbers of the organisms.

Another predisposing factor of cancer, which has a bearing on the treatment of the condition, is *traumatism*. Our forefathers were trained to believe that cancer of the breast was nearly always due to some injury, such as a blow, a scar, or the cicatrix of an old abscess. We, ourselves, have latterly been taught that such mechanical causes have little relation to the overgrowth of epithelial or connective tissue. Now, that acute traumatic malignancy is a well-recognized disease,

we find ourselves reconsidering these statements and giving view to the fact that in some instances traumatism may be of importance etiologically.

A successful treatment of cancer of the breast depends altogether on an early diagnosis. The importance of this is recognized when we realize that we have nothing but removal to depend upon; the smaller the amount of disease, then the greater the chance of cure. A small lump in the breast should never be lightly passed over as harmless, but should receive the utmost attention. It is true that in the very early stages a positive diagnosis cannot be made even by the most skilled. These are the cases that should be carefully told of their danger, impressing on them the importance of reporting for examination from week to week. Even if this method should frighten the patient, it is much better that she should get a needless fright than to be ultimately terrified by the fact that her doom is sealed, and that a brief period of agony is all that is left to her. A better percentage of results may be expected only when the general practitioner as a class learns to methodically watch mammary enlargements, and to refer them early to the surgeon. "Cancer is primarily a local disease, extending by infiltration, by extension along the lymphatics, and by metastasis" (Bell). Of all these methods of extension, that by the lymphatic vessels is the most important. It has been shown (Watson Chayne) that the lymphatic vessels from the mammary gland converge towards the areola, and that cancer extends along them, and is carried thence by the cutaneous lymphatics to the axilla. Heidenhain has also shown that cancer extends from the deeper portions of the gland, along the lymphatics lying upon the pectoral fascia, to the glands in the axilla. It is an undoubted fact that operators rarely fail to find cancerous glands in the axilla, even when the most careful examination before operation fails to show any evidence of such invasion. In order to remove the disease thoroughly, the minimum requirements are, wide and deep removal of the tissues surrounding the mammary gland, the underlying fascia, the superficial layer at least of the pectoralis major muscle, and the whole of the axillary lymphatic and cellular tissue. In cases where there is involvement of the axilla, one or both pectoral muscles should be included. It is necessary, also, where the axilla is infected, to include in the excision all the lymphatic glands in the posterior triangle of the neck, and along the subclavian vessels. Portions of the bony wall of the chest have been removed, but such procedures are limited.

I would divide tumors of the breast into three main divisions for treatment: (1) Those coming early in the disease for operation; (2) well advanced cases; (3) inoperable cases.

(1) Many people go to their physicians with a small growth in the breast, which may be either a cyst, an abscess, fibro-adenoma, an enlargement of inflammatory origin, or a malignant neoplasm. If the enlargement has none of the characteristics

of cancer, an exploratory operation should be done, and the growth removed through a small incision, for examination microscopically. Even if a negative report is obtained, the patient should be kept under observation for one year at least, to guard against a mistaken diagnosis. Should the report, however, be of a positive nature, or should the growth present typical signs of malignancy at the beginning, a radical operation should be at once advised. I have for some time practised a procedure for these early cases that, while not strictly a Halsted or a Banks operation, might reasonably be called a Banks-Halsted method. The points of difference from the regular Halsted operation are the deep undercutting of the skin, and the retention of the pectoral muscles and the glands of the posterior triangle, unless the nodes of the axilla are infected.

Operation.—A circular ring with a knife is drawn outside the apparent limits of the mamma, if the tumor is central, and if it is lateral, the incision should bulge beneath the tumor. From the upper surface of the ring an incision is drawn in a wide curve, well up under the clavicle, outwards and down to the middle of the arm. The triangular flap of skin at the upper surface of the ring-like incision is freed from all fat, and dissected down to the lower border of the pectoralis major muscle. The blade of the knife on the flat is then slipped beneath the skin surrounding the mamma and undercut all around to the depth of two inches. The skin is then retracted, and where the undercutting stops the removal begins. One is thus enabled to excise tissue safely outside the limits of the mamma proper. The tumor is first cut away from its sternal border and reflected clean from the pectoralis major. It is retracted and everted over on to the patient's side, to be detached later with the fascia and contents of the axilla. The fascia covering the pectoralis major, together with a superficial layer of that muscle, is dissected off and reflected with the tumor mass. The pectoralis muscle is then divided in its middle and turned back on its costal and humeral attachments. The axillary vessels and nerve structures are exposed, and, beginning at the apex, every particle of lymphoid tissue, fat and fascia is to be removed from above downwards. I use a great deal of hot water during the operation to control oozing, and take up all vessels rapidly, oftentimes cutting between ligatures. Care should be taken not to cut into cancerous tissue, but rather around it, although observers do not all agree as to the danger of inoculation. The digitations of the serratus magnus and under surface of the pectoral muscles are next cleaned up, and the whole mass of reflected axillary contents, fascia and tumor are cut away from within outwards. The cut edges of the pectoralis major are united with a row of mattress sutures of chromicized cutgut. A drain-hole is made just above the edge of the latissimus dorsi, and an opening is retained at the top of the curved incision. These are packed with a few strands of sterilized gauze, and usually removed

on the second day. The edges of the skin are then trimmed up, being careful to approximate the surfaces with the patient's arm extended at right angles to the body, in order to retain enough skin to line the axilla. This part of the incision should be closed with a continuous silk suture, and the rest of the wound with well selected and strong pieces of silkworm gut. The wound is usually closed in this manner with little trouble. If, however, too great an amount of tissue has been removed to allow the edges of the skin to be brought together, when granulation sets in, the denuded area can be quickly covered by Thiersch's method of skin grafting. I dress the wound with abundant sterilized gauze and absorbent cotton and bind the arm securely to the affected side. Convalescence is usually easy, the patient getting up and about in a few days.

(2) We will consider the treatment of well advanced cases, cases in which, at least, the axillary nodes are affected and palpable. The operative treatment of this class of patients differs only from the preceding method in a more extensive resection. Instead of removing the fascia and dividing the great pectoral muscle, as before, the muscle is severed from its costal and humeral attachments and reflected with the breast mass. The pectoralis minor muscle is divided in its middle, and an incision is made from the superior border of the *curve* just described, up over the clavicle to the middle of the sterno-clavido-mastoid. All loose tissue and fat is to be cleaned up from the apex of the axilla and from the subclavian vessels. The internal jugular is exposed through the incision in the posterior triangle, and all the fat and lymphatics are removed from within outwards and down to the clavicle. The wound is to be sutured, drained and dressed as before. There is very little impairment of movement in the arm, although the deformity is considerable. If the glands of the axilla are not palpable before operation, but are found enlarged on exploration, the operation may be completed by excising the reflected ends of the pectoralis major and proceeding in the manner already stated. In spite of all care there will always remain a number of women who do not present themselves for operation until the disease is far advanced, so far indeed as distinct growths in the axilla. In these cases one feels, when the operation is completed, that although all recognized diseased tissues have been removed, one has undoubtedly dissected masses of cancerous growths from a close relation with the walls of the axillary vessels and the divisions of the brachial plexus. It is in these patients that secondary growths are almost sure to appear in the axilla. To meet these conditions Berger devised an operation which would remove all the axillary structures, including the blood vessels and the brachial plexus, from the level of the first rib outwards, together with the arm and scapula, in short, an interseapulo-thoracic amputation. The operation itself is scarcely more serious than the extensive resection of the breast and muscles just described. It is an operation, however, that will

not be favored by the laity on account of the dread of mutilation. Several continental and English surgeons have adopted this principle where feasible, but it has not found general acceptance on account of the tendency of most men to place too much reliance upon a close dissection of the axilla.

(3) *The treatment of inoperable cases.*—Osler has lately published in *American Medicine*, Vol. I, a note on the spontaneous disappearance of secondary growths. This condition is not unusual, as there exists in medical literature the history of a good many cases. One of these I will quote from Dr. Osler's paper, as reported by Mr. Pearce Gould: "A woman had noticed a tumor in 1888. Dr. Collins removed a scirrhus in 1890. The tumor was examined microscopically. In 1892 the glands in the axilla were removed. In 1894 there was recurrence in the scar and a third operation. In the same year recurrent nodules about the scar, and she had dyspnea. In 1895, when aged 43, she was admitted to the cancer ward of the Middlesex Hospital. She then had enlarged glands above the clavicle, dyspnea, paroxysmal cough and hemoptysis. There was a large tumor in the left femur, supposed to be secondary cancer. She gradually improved, her dyspnea subsided, and the tumor in the femur reduced in size, and she slowly recovered, and Dr. Nunn, who also mentions the case, states that she was shown at the clinical society in the spring of 1899." This is to illustrate the uncertainty of cancer, and it should warn one to exercise great care in making a prognosis, even if the case is inoperable and seemingly hopeless. Inoperable cases, proper, are those in which breaking down and ulceration have occurred, and in which cachexia has developed. The three troublesome symptoms are hemorrhage, foul discharge and pain. Bleeding is easily controlled by fluid extract of ergot internally, and by ergotin hypodermatically. The disgusting, foul-smelling ulcer is deodorized and cleansed by bathing and applying wet dressings of some antiseptic. Carbolic acid 1-40, creolin or lysol 2% may be used. Pain in the early stages will decrease or vanish with chloral hydrate and morphine, but these soon lose their influence. Opium, in the form of the tincture, is by far the most serviceable, and may be administered by rectum or mouth. In increasing doses it will give the patient hours of refreshing sleep and relief. When the dose gets to be ounces by the day, tincture of belladonna is a valuable adjuvant. Even if the dose becomes enormous, it plainly becomes one's duty in these extreme cases to relieve the inevitable pain.

In conclusion, if I were to enter a plea, I would again draw your attention to the importance of a prompt diagnosis; for the practical fact remains, that if we are to save our cases, we must get at them early in the disease. I would also hope for the early success of those men who are working on the specific organism of cancer. That they may soon produce a serum, — an antitoxin, — which, when developed through careful laboratory

experiment and clinical investigation, may stand the test of time. Then we may be able to combat with the knife primary growths and broken down tissue; and to fight successfully, hypodermatically, that great enemy of good results — metastasis.

MASSAGE AND MOVEMENTS IN HEMIPLEGIA.

BY DOUGLAS GRAHAM, M.D., BOSTON.

Of all the discouraging cases that come to us for relief, there are few more hopeless than the hemiplegies, and yet when we are so fortunate as to see one recover under our care, we hope that we have had at least something to do in producing such a favorable result, for the patient is apt to give us all the credit, though we may be modestly and silently loth to accept much of it.

The benefits that may result from massage, or any other remedial measure, in disturbances arising from morbid changes in the central nervous system, or in any part of the body, will depend more on the nature of these changes than on the merits of the treatment, however appropriately and skilfully it may be employed. So many variations are seen in the course of paralysis of so-called organic origin, that the influence of massage in modifying these is difficult to determine, even if it were judicious to make use of this treatment from the commencement. When paralysis of central origin has come on suddenly, I prefer to abstain from the use of massage until the perturbation in general has subsided, and the patient has become somewhat accustomed to his unnatural condition. But in the meantime, while thus waiting to spare the nerve centres any supposed extra commotion, the peripheral pathological changes are gaining ground which later may only be imperfectly overcome. These are: interference with the supply, and return of the circulation, owing to the accelerating influence of muscular contraction and relaxation being absent or diminished; and, as a result of this, variation of temperature, usually lowering, and passive hyperemia or ischemia; hypertrophy of interstitial connective tissue with, in time, subsequent cicatricial retraction, giving rise to contractures and atrophy of the muscular fibres; formation of adipose tissue or fatty degeneration; in a word, vasomotor and trophic disturbances. These are all rational indications for the use of massage, either as a preventive of such changes or as a palliative of them, when they have taken place. But if the nerve centres are impaired beyond recovery, or secondary pathological changes have occurred, the prospect of benefit cannot be encouraging.

My own experience of massage in a number of cases of paralysis may be briefly stated by saying that, in the absence of severe pain, obstinate contraction or tonic spasms, this agent has proved useful in improving the circulation, temperature

* Read before the Brookline Medical Club, May 8, 1901.

and comfort of the parts affected. When, in paralysis of spinal or cerebral origin, recovery has followed under manipulation, we had previously supposed that the central disturbance had entirely passed away, and that the force of habit was the main factor that continued the external manifestations of inaction; and thus massage would have served a useful purpose for diagnosis as well as treatment. But the more recent experiences and opinions of Professor Zabłudowski, and others well qualified to judge, teach us that it is possible by means of massage and gymnastics to educate other parts of the brain to take the place of the injured ones by arousing psychomotor impulses in the formation of new associations and combinations; so that we need no longer regard paralysis, of either central or peripheral origin, from the hopeless view that we formerly did.

However that may be, when the causative conditions have ceased, paralyzed muscles will not at once resume their former natural condition. Massage, passive and resistive movements, restore them to a sense of existence, enable them to recognize the power they still possess, and educate this to a higher degree; and, at the same time, such treatment affords the *only* means of judging of the capabilities of the patient, and of telling him how to use them. Sometimes the patient will make better motion against resistance than without it. This seems to give a sense of support and consciousness of power. Interlocking the fingers of one hand with the other, so that the well arm can raise the paralyzed one, is a most excellent device, encourages the patient, and educates the unimpaired centres to supplement the deficiency of the injured ones. This should be repeated regularly,—6 to 12 times, 3 times a day. Massage, if used early in these cases, would diminish the evils of inactivity upon the circulation and nutrition, and keep the muscles in a state of readiness for voluntary contraction. It is when there is only partial impairment of motion that massage will be likely to lead to recovery. And when improvement or recovery does follow, it will be difficult to determine whether the exciting cause of the trouble has passed away, or whether we have trained other parts of the brain to do the work of the injured ones. In either event our best neurologists are beginning to think that the patient ought to have the benefit of the doubt by a vigorous persistence and long continuance of the treatment by massage and gymnastics.

Mr. L., 58 years of age, had been a vigorous, healthy man. He had been much worried with reverses in business. While at breakfast one morning he had an uncomfortable sensation in his head, with slight loss of motion in the left arm, leg and side, which gradually increased for 2 or 3 days. He kept in bed for 4 weeks, and for 6 weeks afterwards the affected parts were quite helpless, and his face was drawn to one side,—the left. Improvement was gradual, and at the end of a year, when he came to me, there was a lack of control over the arm and leg, with

stiffness and awkwardness in using them; but if he slipped on the sidewalk, he could use either with alacrity to regain his balance. This patient had massage 9 times in 3 weeks, and the result was: That he got rid of uneasy feelings in his head; his power of endurance and freedom of motion greatly increased; his digestion, which was previously feeble, became strong; and he looked more robust, bowels became regular, and urgent desire to urinate disappeared. The arm and leg could be used almost naturally. At first he felt remarkably well after the massage, as if moderately stimulated. Later he experienced an agreeable languor from manipulation, and he thought he was being too much "mesmerized."

Three months ago there came to my office a patient, 36 years of age, and weighing 150 pounds. With the aid of a cane she walked rather awkwardly in a manner characteristic of hemiplegia. Seven months before this I met her out walking, the picture of health, and 2 days later she was attacked with hemiplegia. It was about 4 o'clock in the afternoon, when she was sitting, and she tried to get up for something that she wanted, and found that she could not stand. She was not unconscious, but somewhat dazed. She was put to bed, and later she discovered that the left leg was numb, and she had difficulty in moving it and the arm and side. The attack was preceded by severe headache for a day or two, with boring and buzzing and feelings of pressure in the head, which lasted for four hours after the shock, and then disappeared. She got up the following morning, but soon went back to bed again and staid there for 3 months. A week after the attack speech and deglutition became impaired for several days. Speech returned suddenly, but she stammered for several weeks. She did not lose control over the bowels and bladder, but the bowels had to be moved by injection, and she passed but little urine. For 3 days she was fed on liquid diet.

Before this attack she used to walk often in her sleep. Two years before it she walked quite a long distance from home one night, and went out on the rocks at the seashore. A dog barked and woke her up, and then the rocks hurt her feet, so that she had difficulty in walking back upon them. One night during the 3 months that she was confined to her bed she read a long article aloud in the dark, and made uncomplimentary but thoughtful remarks upon it. Her husband and the nurse who heard her thought it was something that she had committed to memory and was reciting.

When she came to me she had headache nearly all the time on the left side in the parietal region, and a numb feeling on the right. She was also subject to nervous spells, which occurred from once a day to once in two weeks. In these the right leg would tremble so severely that she thought it would dislocate itself at the hip-joint. If she did not succeed in getting asleep soon in one of these spells, her headache would increase, and she could read and write in the dark, though she had no recollection of what she had done.

In 2 months there was almost complete loss of motion and sensation in the left leg.

She had been treated for some time by iodide of potash and strychnia, and had improved much. The strength and motion of hand and arm were little less than normal; of the thigh, for flexion and extension, abduction and adduction, only about one-fourth of normal; of leg below the knee, for flexion and extension of foot, strong and natural, which was in marked contrast to the behavior of the motion of the thigh. Sensation perfect everywhere except a little dull on outside of the thigh. Patellar reflex exaggerated. Pupils normal to light and distance. Pulse 72, and heart seemed normal, though she reminded me that I found something the matter with her heart a year before, which disappeared while she was a subject for the class in massage; and with that disappeared also shortness of breath and difficulty of going up stairs. She could go up stairs and down one step at a time, not step about in the natural way, when she came to me.

The treatment I gave her was massage and resistive movements, and after two visits for this purpose she could push with the leg much more vigorously. After 6 visits in 2 weeks she pushed and pulled the leg and thigh with vigor that seemed equal to normal, but there was a slight lack of endurance to the upward pull of the thigh, done by the psoas magnus and iliacus internus. Inversion and eversion of the thigh against resistance had also vastly improved. She walked naturally, and no longer carried a cane for support. She visited me twice the following week, and at the end of the second visit this week she dressed herself in three minutes, and in twelve minutes more she got her train at the North Union Station, a feat that any one of us might envy, for it meant crossing two streets, descending a flight of stairs, and a ride of a mile in the subway car. Two visits more the following week seemed sufficient to confirm the improvement gained in motion, for she could then go up stairs two steps at a time, and run on a level. But as her head and neck were not yet comfortable, she came to me once a week for three weeks longer for special massage of these regions, which were tense and indurated. The tissues here became of natural suppleness and elasticity, and the headaches entirely disappeared. Her whole period of treatment with me was seven weeks, and at the end of that time, and now also, she is so well I trust she will never get over it.

This is a case that would doubtless delight the heart and mind of the modern neurologist, for he would probably find in it ample scope for the imagination to study and speculate upon somnambulism, hysteria and paralysis; the causation and disappearance of these through the peculiar behavior of the naughty neurons in forming illicit connections and disconnections without the knowledge or consent of their owner. Possibly this patient might have been cured by suggestion alone; but suggestion is much more effectual when accompanied by something tangible

and sensible, whether it be massage and exercises for impaired motion, or a good spanking for a naughty child, or feeding the starving heathen before Christianizing them.

The theory by which one part of the brain can take the place of another when diseased has been formulated by Broadbent somewhat as follows: Movements are represented in the opposite hemisphere in proportion as they are unilateral, in both hemispheres in proportion as they are bilateral in execution. Either hemisphere can excite the bilateral movements, but only the opposite can excite the unilateral ones. Movements rather than muscles are represented in the hemispheres and are lost in disease. Lateral movements by muscles of both sides are represented in both hemispheres, but in a normal state they are chiefly affected by the opposite hemisphere. When this is diseased, they are impaired until the hemisphere on the same side has acquired functional power over them, through mechanisms before existing, but unused.

We want more light on the manner and ways by which functional power may be acquired by means of mechanisms previously existing, but unused, in the brain. We know that a man can get along very well with one eye, one ear, or one testicle, and it would be rather remarkable if one side of such a vastly more important organ as the brain should not be capable of supplementing injury to the other, or doing the work of both. It would seem to be constructed with such an object in view, with its transverse, its association and longitudinal commissural fibres. It was a very wise man who said that we do not know how far one part of the brain may supplement another.

The most striking example of injury to the brain with recovery has never to my knowledge been thoroughly studied and analyzed. It was that of the well-known case of the passage of a crowbar through the head, reported by Dr. Henry J. Bigelow in the *American Journal of the Medical Sciences* for Sept. 13, 1848. While tamping a charge of powder, a spark caused an explosion and drove a crowbar, weighing 13½ pounds, 3 feet 7 inches long, and 1½ inches in diameter, through the skull of the patient. It traversed the cranium in a straight line, from the left angle of the lower jaw below to the centre of the frontal bone above, near the sagittal suture, where it emerged. The patient quite recovered his faculties of body and mind, with only the loss of the sight of the left eye. A sort of an anterior fontanelle, or circular opening, of 3½ inches in diameter, was left behind by the removal of portions of the anterior superior angle of each parietal bone and of the frontal bone.

AN INTERNATIONAL FEDERATION OF NURSES.—At a dinner given recently in London to the returned delegates to the Nurses' Congress held in the autumn in Buffalo, a proposal was made for the foundation of a confederation of British and American nurses.—*Medical Record*.

Medical Progress.

REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D., AND JOHN LOVETT MORSE, M.D.,
BOSTON.

THE TREATMENT OF HEMORRHAGIC DISEASE OF THE NEWBORN.

GUTTMANN¹ gave gelatin in solution by both mouth and rectum in an infant, aged 36 hours, which had profuse hemorrhages from the rectum. The effect of the gelatin was almost immediate. There was only one more bloody movement. The next day the movements were normal. Recovery rapid.

Brown² reports 2 cases in which gelatin was used. In both cases it was given by the mouth only. In the first case there was blood in the stools and ecchymoses on the abdomen. In the second there was profuse vomiting of dark blood and hemorrhages from the bowels. The improvement was very marked in both cases and was soon manifest. Both cases recovered.

EXPERIMENTAL INHERITED TUBERCULOSIS.

Friedman³ injected 1 or 2 drops of a diluted culture of tubercle bacilli into the vagina of rabbits immediately after copulation. The animals were killed during the first 8 days of pregnancy. The best results were obtained in those killed on the sixth day. Numerous sections were made through the whole embryo and examined microscopically. In every case it was found that one or more bacilli had penetrated into the fertilized ovum with the spermatozoa. The number of bacilli in the individual embryos of the same mother varied a great deal; for example, in 1 embryo there were only 2 tubercle bacilli, while in another tubercle bacilli were seen in 26 places. The animals were killed too early, of course, for the development of genital tuberculosis. Microscopical examination of the mucous membrane of the uterus and vagina, however, never showed tubercle bacilli. Twice a single bacillus was found in the lumen of the uterus. Over 500 sections were made, and the impression was obtained that all the bacilli injected into the uterus with the sperm, which did not penetrate the ovum, were eliminated from the genital canal. The manner in which the bacilli entered the ovum was not determined. No tubercle bacilli were found in leucocytes in the embryo. No leucocytes, however, were seen in the embryos.

He concluded that his investigations prove that tubercle bacilli which enter the vagina with the sperm may pass into the embryo independently of the mother.

IRON IN HUMAN MILK AND ITS SIGNIFICANCE FOR THE INFANT.

Friedjung⁴ made repeated examinations of human breast milk for the amount of iron which it

contained under both normal and abnormal conditions. He also examined several artificial foods, among them Backhaus's Milk and Gärtner's "Fat Milk." He arrived at the following conclusions:

(1) The milk of healthy women contains a small, but constant, amount of iron which can never be neglected in the nourishment of the infant.

(2) A normal, gradual, diminution of the amount of iron during the nursing period could not be determined.

(3) Improper external surroundings, advanced age of the nurse, and chronic diseases, cause as a rule a decided diminution in the amount of iron in the milk.

(4) The milk of women apparently healthy, whose children, although breast-fed, show decided disturbances in nutrition, seems to be specially poor in iron.

(5) The usual methods of artificial feeding may, among others, have also the defect that the amount of iron furnished the child is much less than that received by the nursing infant.

A DIFFERENTIATING SIGN IN INFANTILE PNEUMONIA.

Weill⁵ claims that pneumonia in young children can be diagnosticated from other diseases by the following sign, which he considers pathognomonic: This sign is the lack of expansion in the subclavicular region, independent of the site of the pneumonic lesion. With the child on its back, the chest exposed, and respiration regular, it is easy to note the difference in the expansion between the two sides. On placing the fingers on the subclavicular region on either side, they are lifted as by a wave on the sound side, while on the other the lack of expansion is evident, even in the very first days of the disease. In pleurisy or pneumothorax, the lack of expansion corresponds to the seat of the lesion, but in pneumonia it is invariably subclavicular.

THE DIAGNOSTIC AND PROGNOSTIC VALUE OF LEUCOCYTOSIS IN MEASLES.

A. Renaud⁶ affirms that during the stage of incubation there is a hyperleucocytosis which commences at the beginning of the period, increases rapidly, and reaches its maximum about the sixth day before the appearance of the eruption. From this time it diminishes. There is both a relative and an absolute increase in the number of the polynuclear cells, with an absolute increase but, relative diminution, in the number of lymphocytes.

During the period of the enanthem there is in normal measles a diminution in the proportion of the polynuclear cells, while in measles which are, or will be, complicated with other diseases, this diminution does not exist.

In the eruptive period there is a characteristic hypoleucocytosis, due to the diminution, both

¹ Ann. de méd. et Chir. Infantiles, 1900, iv, 34.

² Pediatrics, 1901, xii, 130.

³ Zeitschr. f. klin. Med., 1901, xliii, 11.

⁴ Arch. f. Kinderheilk., 1901, xxxii, 88.

⁵ Semaine méd., Paris, May 29, 1901.

⁶ Thèse de Lausanne, Paris, 1900; and Rev. mens des mal. de l'enfance, 1901, xix, 229.

absolute and relative, of the polynuclear cells. There is a relative, but not absolute, increase of the lymphocytes. This hypoleucocytosis generally reaches its maximum on the second day, about 24 hours after the appearance of the eruption. The number of the leucocytes is then reduced to about half, and this diminution is almost entirely in the polynuclear cells. From this time on the leucocytosis rises again to the normal, which is ordinarily reached from 1 to 5 days after the appearance of the eruption, provided there are no complications. If there are complications, however, the total number of leucocytes immediately increases again, the polynuclear also increasing, absolutely and relatively.

During the post-eruptive period, if there are complications, there is a hyperleucocytosis which is due to the increase in the number of polynuclear cells.

In normal measles there are no alterations in the erythrocytes.

These modifications in the blood are of considerable importance, both in the diagnosis and prognosis of measles. As is well known, when the so-called prodromal signs of measles are developed, it is too late to avoid contagion. The most important point as regards diagnosis, and the earliest, is the hyperleucocytosis of the stage of incubation. As already noted, this hyperleucocytosis begins with infection, increases rapidly, and reaches its maximum 8 or 9 days before the eruption; that is, 4 or 5 days before the contagious period. This phenomenon, therefore, is of great importance in prophylaxis, especially when a case of measles breaks out in a family, a school, or a hospital, and it is desirable to send away the other children. Examination of the blood will show whether the children are or are not in the incubation stage. If the leucocytosis is normal, they have not contracted the disease. If the number of leucocytes is increased without any apparent cause, they have contracted it. This hyperleucocytosis of the incubation stage of measles should not be confounded with that of the catarrhal stage of whooping cough, because in that the increase in the number of leucocytes is in the lymphocytes.

The diagnosis of measles in the catarrhal or eruptive stages is usually easy. Even here, however, the examination of the blood will be of use in the differential diagnosis. Drug eruptions are never accompanied by hypoleucocytosis, but sometimes by an increase in the number of white corpuscles. Antitoxin rashes are accompanied by hyperleucocytosis. Urticarias and syphilitic rashes are not accompanied by hypoleucocytosis. In scarlet fever there is a hyperleucocytosis, with an increase in the number of eosinophiles, the opposite condition from that found in the eruptive stage of measles.

Examination of the blood also gives valuable information as regards prognosis in measles. In the hypoleucocytosis of the period of eruption the diminution of the number of leucocytes is about one-half; in measles which are, or will be, abnor-

mal, this diminution may be greater or less. The hypoleucocytosis, which is too large and lasts too long, is of bad prognostic import. The hypoleucocytosis, which is slight, and which changes rapidly to a hyperleucocytosis, indicates a present or approaching complication. This reaction is, however, even too delicate, as a conjunctivitis or a simple bronchitis may show an increase in the number of leucocytes.

A CONTRIBUTION TO THE ANEMIAS OF YOUNG CHILDREN.

Geissler and Japha⁷ speak of the normal characteristics of the blood in infancy and then take up the modifications in anemia. They give detailed reports of the blood examinations in 26 cases. They arrive at the following conclusions:

(1) Alterations in the red corpuscles, especially the occurrence of nucleated cells, are, even in children, pathological. On the other hand, in young children, the total number of leucocytes, as well as the percentage of lymphocytes, is increased.

(2) The division of the infantile anemias, according to the number of the leucocytes, is unjustifiable, because polynuclear leucocytosis at least may be only temporary. It is necessary, therefore, to determine the proportions of the various leucocytes.

(3) Splenic tumor cannot be employed as a means of differential diagnosis in anemia. It occurs in light, as in severe, anemias, and may be present even when there is no anemia.

(4) There occurs in young, rachitic children a condition of the blood which shows all stages, from a slight diminution of the hemoglobin and of the red corpuscles to the occurrence of megaloblasts.

The severest forms are regularly accompanied with the splenic tumor; therefore, they may be called anemia splenica. There is no ground, however, for considering this as a specific or primary disease. Its prognosis is not unfavorable.

(5) Under the term anemia pseudoleucemia various different conditions have been grouped; a part certainly belong to the simple, severe, chronic anemias of childhood (anemia splenica), a part, perhaps, to leucemia. Whether, as individual descriptions seem to show, there is a disease in which a peculiar leucemic picture can finally go on to complete cure, further observations must show.

THE TUBERCULIN TEST IN INFANTS.

Metteta⁸ tried the tuberculin test on 74 infants between 2 and 20 months old. He divides them into 3 groups. The first contains the record of 18 with autopsies. The test had been positive in 12, and tubercular lesions were found in every one. The test had been negative in 6, and in these no tubercular lesions were discovered.

The second group contains 32 cases. The test was negative in all, and no clinical evidence of tuberculous disease was discovered in any case.

⁷ *Jahrb. f. Kinderheilk.*, 1901, III, 627.

⁸ *Arch. de med. des enfants*, 1901, III, 10.

The third group contains 24 cases with antopias. All these cases reacted to tuberculin. In a certain number tuberculosis was evident clinically. In the rest no symptoms of tuberculosis could be made out. They suffered from various diseases, such as whooping cough, pneumonia, rhachitis, gastro-enteritis and syphilis. This last series shows either that tuberculosis exists in a latent form, or else that certain other affections may give a reaction to tuberculin.

BIOLOGICAL DIFFERENTIATION OF THE ALBUMINOID SUBSTANCES OF DIFFERENT MILKS.

Schütze⁹ carried out a series of experiments for the purpose of determining if the precipitation of the albuminoid substances of milk by the serum of an inoculated animal is specific or not. His experiments consisted in injecting into the peritoneal cavity of rabbits human milk, cows' milk or goats' milk. At the end of 3 weeks, when each animal had received about 100 gm. of milk, their serum was examined as to its action on the various milks.

He found that the serum of rabbits injected with human milk precipitated the albuminoid substances of human milk, but had no action on the milk of the cow or of the goat. In the same way the serum of the rabbits inoculated with cows' milk acted only on cows' milk, but did not precipitate the albuminoid substances of human or goats' milk. Finally, the serum of the rabbit inoculated with the goats' milk acted only on the goats' milk. The "lactoserum" was therefore a specific serum, and showed that the molecular composition of the albuminoid substances was not the same in all the milks. The author asks if this different composition of the albuminoid substances does not explain to a certain extent the intolerance of individuals for different milks.

Another very curious fact which the writer determined is the following: If a given milk is heated at a high temperature for one-half hour, these albuminoid substances lose the property of being precipitated by the specific "lactoserum." It seems, therefore, that under the influence of sterilization the composition of these substances undergoes some modification. It would be important, therefore, to determine to what temperature milk can be heated without causing these modifications in the composition of the albuminoid substances.

These experiments show, in any case, that each species of animal possesses a milk which has a special, if not specific, composition. It is evident, therefore, that all attempts to give cows' milk a composition analogous to that of human milk are destined to fail.

A CASE OF NOMA OF THE AURICLES DUE TO THE STREPTOCOCCUS PYOGENES, AND ITS BEARING ON THE ETIOLOGY OF NOMA IN GENERAL.

Verhoeff¹⁰ reports a case of noma of both auricles occurring in the course of a double otitis me-

dia. He gives careful microscopical examinations of the tissues as well as bacteriological examinations. The streptococcus was the only organism found in the gangrenous tissue, and it was evidently the cause of the changes present. He reviews the literature on noma, and also reports five cases from the Boston City Hospital. In only one case were streptococci absent.

He concludes that while the evidence is not perhaps sufficiently strong to prove that noma is invariably due to the streptococcus pyogenes, nevertheless it seems to point more strongly towards this organism as the chief etiological factor than to any other organism yet described.

Recent Literature.

Materia Medica, Pharmacy, Pharmacology and Therapeutics. By W. HALE WHITE, M.D., F.R.C.P., Physician to and Lecturer on Medicine at Guy's Hospital, London; author of a Textbook of General Therapeutics. Edited by REYNOLD W. WILCOX, M.A., M.D., LL.D., Professor of Medicine and Therapeutics at the New York Post-Graduate Medical School, and Attending Physician to the Hospital, etc., etc. Fifth American edition, thoroughly revised. Philadelphia: P. Blakiston's Son & Co. 1901.

In this book an attempt is made to describe the various drugs used in medicine. The writer tries to describe the pharmacological action of these, and to make a classification according to the action which he attributes to these drugs.

The classification of the author is unique in its faultiness. An idea of the inaccuracy in the author's description of the pharmacological action of drugs may be given by the few following examples, taken at random from a large number of such errors noted throughout the book. Among the drugs which the author claims increase the force of the heart's contraction are mentioned the salts of the alkali metals, including potassium, also baryum and chloroform. These are the drugs which are usually taken as examples of cardiac depressants. Muscarin is mentioned as an "antihydrotic," whereas every one knows that this drug decreases the secretion of the sweat gland. The author says that morphine is excreted by the kidneys. It is a generally accepted fact that this is not so. He makes, however, no mention of the true channel of excretion—the stomach and intestines. The pharmacology of water gives a very indefinite idea of the action of this simple agent. In this chapter the author says that water is rapidly absorbed by the stomach. It has been shown experimentally that water is not absorbed at all by the stomach. In describing the action of arsenic, no mention is made of the chief action of arsenic, upon which the symptoms of acute poisoning depend; that is, the depressant effect upon the vessels of the splanchnic area.

Obviously this volume is not only useless, but dangerous, to medical students and practitioners,

⁹ Zeitschr. f. Hyg., 1901, xxxvi, 5.

¹⁰ Journal of Boston Society of Medical Sciences, 1901, v, 465.

because it is so untrustworthy. It is surprising that a gentleman with such a widespread reputation as Dr. Reynold Wilcox should have endorsed such a bad book by editing it in America.

The binding, paper and print are, however, to be complimented.

A Manual of Surgical Treatment. By W. WATSON CHEVNE, C.B., M.B., F.R.C.S., F.R.S., Professor of Surgery in King's College (Lond.), Surgeon to King's College Hospital and the Children's Hospital, Paddington Green, etc.; and F. F. BURGHARD, M.D. and M.S. (Lond.), F.R.C.S., Teacher of Practical Surgery in King's College (Lond.), Surgeon to King's College Hospital and the Children's Hospital, Paddington Green, etc. In seven volumes. Vol. V: The Treatment of the Surgical Affections of the Head, Face, Jaws, Lips, Larynx and Trachea; and the Intrinsic Diseases of the Nose, Ear and Larynx. By H. LAMBERT LACK, M.D. (Lond.), F.R.C.S., Surgeon to the Hospital for Diseases of the Throat, Golden Square, and to the Throat and Ear Department, the Children's Hospital, Paddington Green. Philadelphia and New York: Lea Brothers & Co. 1901.

This volume takes up the surgical affections of the head, face, jaws, lips, larynx and trachea, and is the best of the five volumes. The authors have gone into the details of treatment in a very satisfactory manner, and although many of the illustrations are very diagrammatic, yet they tell the story that the authors wish.

The five volumes together form an elaborate presentation of surgical therapeutics, while surgical diagnosis and pathology are not as satisfactorily presented.

There will be two more volumes before the work is complete. Dr. H. Lambert Lack, a specialist in diseases of the throat, has been asked and has contributed nearly half the volume.

The writers are to be commended for this volume, which is modern, scientific surgery written in a clear, succinct manner which is very pleasing.

In these volumes on surgical treatment we have often wished that the authors would give more definite references to monographs.

The surgery of the respiratory organs is especially well dealt with, and the various plastic operations are admirably presented.

The Medical Record Visiting List, or Physician's Diary for 1902. New, revised edition. New York: William Wood & Co. 1901.

Another edition of this now familiar and always useful pocket visiting list has appeared. It contains, in addition to the usual number of blank pages, considerable information regarding dosage, poisons, artificial respiration, and other matters useful to the physician. It is compact, and easily carried in the pocket; the binding is good, and should easily last the time intended; namely, one year.

The Diagnosis and Treatment of Diseases of the Rectum. Being a Practical Treatise on Fistula, Piles, Fissure and Painful Ulcer, Proctoidia, Polypus, Stricture, Cancer, etc. By WILLIAM ALLINGHAM, F.R.C.S. (Eng.), ex-member of Council of the Royal College of Surgeons of England, late Senior Surgeon to St. Mark's Hospital for Diseases of the Rectum, etc.; and HERBERT W. ALLINGHAM, F.R.C.S. (Eng.), Surgeon to the Household of His Majesty the King, Surgeon to the Great Northern Hospital, Senior Assistant Surgeon and Lecturer on Operative Surgery to St. George's Hospital, late Assistant Surgeon to St. Mark's Hospital for Diseases of the Rectum. Seventh edition. New York: William Wood & Co. 1901.

This book has reached its seventh edition, and today it is a thoroughly practical exposition of modern rectal surgery. The authors have withdrawn from this edition the table which showed the relative proportion of 1,000 cases seen at St. Mark's Hospital on account of the difference which exists between private and hospital practice, hemorrhoids being found more often in private practice than fistulae.

The book is clearly and interestingly written, and the authors have succeeded in giving a sense of proportion to the work as to the importance of subjects. The marginal summaries are very useful, and the cuts are crude but graphic. Special changes have been made on the subjects of the excision of the rectum and inguinal colotomy. The book is one that any surgeon may read with benefit. As a practical everyday book for reference, it is of more than ordinary value.

Textbook of Nervous Diseases. By CHARLES L. DANA, A.M., M.D. Fifth edition. Pp. xiii, 633, with 244 illustrations; 8vo. New York: William Wood & Co. 1901.

The present edition of Dr. Dana's well-known book has undergone considerable revision, especially in the chapters on myelitis and the histology of the nervous system; various new illustrations have been added, and the plates of others have been renewed; and chapters have been added on general paralysis and the recognition of lesions of the cauda equina. It is to be regretted that in the revision the author did not substitute clearer and more elaborate diagrams of the various nerve plexuses, and a table of the sensory distribution of the spinal roots. With the various changes and additions, the size of the book has not been materially increased. When the work was first published nine years ago, we spoke of it as the "fullest, most concise and altogether the best manual" on the subject that had appeared up to that time. The appearance of each successive edition has served to strengthen the original impression.

DR. SMITH ELY JELIFFE has been appointed visiting neurologist to the City Hospital, New York, in place of Dr. Frederick Peterson, resigned.

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PHOTOTHERAPY.

ONE of the most promising signs in the progress of medicine is the growing tendency to take advantage of what may be called natural methods of treatment. We have finally, after too many years of waiting, come to appreciate at their true worth such commonplace agents as air and water and heat. Now, in addition to these, light is apparently coming in for its share of recognition, not merely as a desirable adjunct in the treatment of various affections, but as a scientifically applied means of alleviation of certain conditions.

The attention which has of late been given the general subject of treatment by light, or phototherapy, has been due largely to the work of Prof. Niels R. Finsen of Copenhagen, whose recent papers have been lately translated into English. In Denmark researches on the influence of light have been prosecuted for years, by the aid of a public institution supported by the State. This institute was founded in 1896, with the object of encouraging scientific research on the action of light on living organisms, and especially of applying the results to the purposes of practical medicine. The building contains laboratories and a clinic for phototherapy, with reference particularly to the treatment of lupus and other diseases of the skin by concentrated chemical light. The work undertaken by Finsen has an added interest for us at the present time, because of the reputed successful treatment of certain stages of smallpox by light. As long ago as 1893, Finsen recommended placing smallpox patients in rooms from which the chemical rays, ultraviolet and violet, were excluded by the interposition of red glass or red cloth. The result of this simple treatment was, that the vesicles as a rule did not suppurate, and that the patients recovered without scars, or

at most with extremely slight scarring. Finsen has met with uniform success in his treatment of smallpox, basing his theory on the principle that the erythemas in general are diminished in intensity, when the chemical rays of the spectrum, especially those of the ultraviolet, are excluded. He claims that the effect of the treatment is to prevent the suppuration of the vesicles, which gives rise to the most dangerous element in the disease and also to the later pitting of the skin.

The conditions to which attention should be given to attain favorable results are as follows:

(1) Exclusion of chemical rays must be absolute. The thickness of the red material used to filter the light depends upon its nature; if paper or thin cotton material be employed, four or five layers will be sufficient; if rather thick flannel be used, two or three layers will suffice. It is more convenient to use red glass, but in that case the glass must be very dark. For artificial illumination electric or other bright light should not be employed. (2) The treatment should be continued without the slightest interruption, until the vesicles have dried up; even a short exposure to daylight may lead to suppuration with its sequels. (3) The treatment must be begun as soon as possible after the appearance of the rash; the nearer a patient is to the suppurative period, the less chance there is of good result. The success which has from time to time been attributed to the use of various applications to the eruption, Finsen claims, is due not to any specific action of the drug employed, but simply to the more or less complete exclusion of the light.

The treatment of lupus vulgaris by concentrated chemical rays is based upon the fact that light produces a powerful bactericidal influence, a quality which depends upon the most refrangible rays of the spectrum — the ultraviolet, violet and blue. Hence it is well to accentuate these by means of lenses and mirrors, and so far as possible to exclude the heat rays — the ultrared, red and yellow. The sun is naturally the best source of light, but not being always available, it is frequently necessary to use electric light. It has been shown that the presence of blood in the tissues prevents the penetration of the chemical rays to a remarkable degree. It is therefore well to exclude the blood, as far as possible, from the region to be submitted to the action of the light. In the treatment of lupus, care should always be taken to begin at the margin of a patch of the disease. After the light treatment is once begun, it is said to be rare that the eruption increases. The greatest drawback to the procedure is its necessary slowness. Whatever future developments research in this line may have in store for us, it is evident that work already done is of suf-

ficient importance to excite our warmest interest. Its rationality appeals to us, and it remains only for a much more general test of its usefulness to be made than has hitherto been done.

FOOD IN THE TREATMENT OF EPILEPSY.

EPILEPSY is notoriously an intractable disease, and one which frequently eludes the most painstaking treatment. From time to time special attention has been paid to the diet of epileptics, and the deleterious effect of this or that variety of food has been vigorously maintained. Unfortunately there is no unanimity of opinion, and we are still in need of carefully conducted researches to the end of determining the exact effect of various forms of diet in relation to the epileptic attacks. Schlöss, writing in a recent number of the *Wiener Klinische Wochenschrift*, gives the result of certain experiments in the diet of epileptic patients, which are of more than passing interest.

It is a common impression that meat is distinctly harmful, and should be restricted in the treatment of the disease. In order to ascertain the effects of a strict meat diet and of a milk diet, Schlöss divided sixteen patients into four groups. Two groups he fed on an exclusively meat diet for six weeks, and on a milk and vegetable diet for the succeeding six weeks. The third and fourth groups had the milk diet first and the meat diet later. He found that neither diet had any effect upon the number of attacks, nor upon the general condition of the patients. Following out the recent theories regarding the effect of the ingestion of sodium chloride upon the attacks, he found that the withdrawal of salt had a definite effect upon them, but also led to a loss of weight and strength difficult to counteract. In two of the cases experimented upon the attacks entirely ceased, and in three others they became very infrequent. An investigation as to the effect of fat and acid foods was negative. It could not be shown that either had any influence on the attacks. The moderate use of alcohol he also found harmless.

The experiments we have alluded to, although insufficient in number to establish any facts conclusively, are extremely suggestive. If meat is harmless in a majority of cases we are doing our patients a certain injustice in depriving them of it. It is highly desirable that a definite conclusion be reached in this supposedly important matter of the diet of the epileptic, and it would appear, with all the opportunities for study now at hand in institutions, that data of permanent value should soon be forthcoming. Investigations of this sort conducted in Out-Patient Departments are naturally beset with many difficulties.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Dec. 11, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 55, scarlatina 32, measles 158, typhoid fever 8, smallpox 48.

DIPHTHERIA IN BROOKLINE, MASS.—A number of cases of diphtheria have appeared in Brookline, Mass., not confined to a single house or neighborhood.

MEDICAL AND DENTAL DEPARTMENT TUFTS COLLEGE.—The registration in the Medical and Dental Department of Tufts College for 1901 and 1902 is as follows: Medical School: Senior class, 41; third year, 63; second year, 78; first year, 116; special students, 14. Total, 312. Dental School: Freshman, 103; juniors, 73; seniors, 52. Total, 228.

CASE OF SMALLPOX AT TEWKSBURY, MASS., ALMSHOUSE.—One case of smallpox has been reported from the Tewksbury Almshouse. It appeared in a man a short time after his entrance into the institution, who had come from Boston. Vaccination has been general at the institution, and no apprehension of an epidemic is felt.

NEW YORK.

VERDICTS FOR DEATHS OF CHILDREN.—Justice O'Gorman, in the Supreme Court, recently set aside upon his own motion a verdict of \$300 in favor of Julius Willsen, who sued the Metropolitan Street Railway Company for \$15,000 damages for the death of his five-year-old son. The action of the court in advising the counsel for the plaintiff to move to set aside the verdict, is said to be without precedent in New York courts. In his decision the justice said: "The verdict is for \$300, but the funeral expenses and other special damages, not contested and conclusively proved, amount to \$181, thus leaving a trifle over \$100 as the figure placed by the jury as the value of a human life. The verdict is perverse, and the damages are arbitrarily and capriciously fixed at such a low figure as to shock the moral sense." A few days after this (on Nov. 21) Charles McDonald obtained in the Supreme Court a verdict of \$12,000 against the Metropolitan Company for the death of his son, 12 years old. This is the third trial of the case in the same court. The first, which was in 1897, resulted in a disagreement. At the second, which was before Justice Scott, a verdict for \$5,000 damages was brought in, but as the jury had failed to report on certain questions submitted to it by the court, the justice set aside the verdict. Counsel for the plaintiff then appealed to the Ap-

pellate Division of the Supreme Court, and that court, unanimously affirming the judgment of the lower court, refused to grant an appeal. Finally, the plaintiff's counsel applied to the chief judge of the Court of Appeals, and secured a certificate for a new trial. The granting of such a certificate was almost without precedent in accident cases and unusual in any case where the Appellate Division had refused an appeal. In New Jersey the value of human life seems to be decidedly less than in New York. Some time ago, it will no doubt be remembered, a decision of Justice Gummere permitted a verdict of one dollar for a child's life to stand against the Newark Traction Company, and within the past fortnight, in the somewhat celebrated Graham damage suit, which has been tried four times, the Supreme Court of the State, in session at Trenton, rendered a decision to the effect that they would not grant a new trial unless the child's father would accept a verdict of \$1,000. The last verdict was for \$1,800, and in previous trials the amount of damages was placed as \$5,000, but in each instance the verdict was set aside on the ground that a child's life did not have that pecuniary value to its parents.

A MYSTERIOUS DISAPPEARANCE EXPLAINED.—One of those mysterious disappearances which are so often noted in the papers, and so many of which remain unsolved, has been explained in the case of Robert B. F. Walsh, an armor-plate expert, who, on July 14 last, left his home in Brooklyn to go to West Point, where he was engaged in some armor-plate tests, and was not heard of afterwards. Ever since then the family of the missing man have been searching for some trace of him, and on Dec. 5 one of his sons discovered on the morgue record the name of Robert L. B. Morse, with the date July 21, 1901. Continuing his search he recognized his father's effects at the office of the commissioner of charities, where they had been sent from the morgue, and finally traced his remains to the dissecting-room of the Columbia University Medical School. It now appears that on July 14 Mr. Walsh was found in the ferry house of the West Shore Railroad, at the foot of West 42d Street, in an unconscious condition. He was first taken to Roosevelt Hospital, and afterwards transferred to Bellevue Hospital, where he died from pneumonia on July 21. No response was received to the notice sent by the hospital authorities to the address in Brooklyn given by him, and the body, after remaining in the morgue for the allotted time in such cases, was delivered to the medical college for dissection.

ANNIVERSARY MEETING OF NEW YORK ACADEMY OF MEDICINE.—At the anniversary meeting of the New York Academy of Medicine, held

Dec. 5, the address was delivered by Dr. Reginald H. Fitz of Boston, who took for his subject "Some Surgical Tendencies from a Medical Point of View." On this occasion a portrait in oil of Dr. Edward G. Janeway, ex-president of the academy, presented by Dr. Janeway, was unveiled. The presentation speech was made by Dr. Joseph E. Janvrin, who stated that this portrait was the fulfillment of a promise made by Dr. Janeway somewhat over a year ago. The condition necessary for its fulfillment was the purchase of a portrait of the late Dr. Austin Flint, Sr., and this was unveiled at the last anniversary meeting.

NEW TENEMENT-HOUSE LAW.—The Appellate Division of the Supreme Court has confirmed the decision of the Court of Special Sessions whereby Max Lichtman was convicted and fined \$25 for violating Section 494, Laws of 1900, Penal Code, which forbids the manufacture of articles from combustibles, liquid air and compressed gases in tenements and dwellings. This amendment to the code, which was made with a view of protecting the lives and safety of persons who might unknowingly be exposed to concealed danger in tenement houses, is an improvement along the line of progress and reform of tenement abuses, and Lichtman was prosecuted for making carbonated waters from compressed gas in a cellar.

SMALLPOX.—One death from smallpox and four cases of the disease were discovered in a three-story tenement house in Brooklyn on Dec. 7. It is stated that the presence of the disease was not reported to the health department, and an investigation of the circumstances is being made. The patient, who died, was a woman, 41 years old, and when a permit for burial was asked of the coroner it was refused, as the death was held to be a suspicious one. This led to the discovery of smallpox in the house, and four children suffering from the disease were removed to North Brother Island.

OPENING OF ANNEX TO GERMAN HOSPITAL.—A new annex to the German Hospital, five stories in height, and fronting 80 feet on 77th Street and 45 feet on Lexington Avenue, together with a one-story addition to the old hospital building, were formally opened on Dec. 7. Addresses were made by Mr. Guggenheimer, president of the Municipal Council, representing the city, and the Hon. Carl Schurz, representing the trustees, while Drs. Abraham Jacobi and Otto Kiliani spoke on behalf of the medical board of the hospital.

APPOINTMENTS AT COLUMBIA UNIVERSITY.—At the monthly meeting of the Board of Trustees of Columbia University, held Dec. 2, Dr. Pearce Bailey was appointed instructor in neurology and

Victor C. Chambers, Ph.D., lecturer in chemistry. Dr. Edward L. Trudeau of Saranac Lake, N. Y., who was graduated from the College of Physicians and Surgeons in 1871, was appointed a member of the Board of Trustees to fill the vacancy made by the death of Dr. William H. Draper.

SUMMER CHARITIES OF CHILDREN'S AID SOCIETY.—The 49th annual meeting of the Children's Aid Society was held on Nov. 26. In regard to the summer charities of the society the report of the secretary showed that at the Huxture Cottage at Bath Beach 285 crippled children were cared for during the past season, for two weeks each. The Health Home at Coney Island was taxed to its full capacity by 3,318 sick children sent from dispensaries, each staying one week.

APPOINTMENT OF ROBERT W. DE FOREST.—Mayor-elect Seth Low has announced the appointment of Robert W. De Forest as commissioner of the New Tenement-House Department, and a more admirable selection could scarcely have been made. Mr. De Forest, a lawyer by profession, has always taken an active interest in charitable work, and for ten years has been the president of the Charities Organization Society, of which he was also one of the founders.

NEGRO NURSES.—Six young colored women, three of them from southern states, received diplomas on Dec. 6, from the Training-School for Nurses connected with the Colored Home and Hospital on the Southern Boulevard, in the Borough of the Bronx. The exercises were held at the New York Academy of Medicine, and the address to the graduates was delivered by Dr. T. Gaillard Thomas.

PHYSICIANS IN STATE ASSEMBLY.—On the roll of the new State Assembly, consisting of 150 members, which is to organize in January, the clerk reports that there are 4 physicians, 2 druggists, 1 dentist, 1 veterinarian, and 2 undertakers.

NEW YORK STATE CONFERENCE OF CHARITIES.

The Second New York State Conference of Charities and Correction was held in New York on Nov. 19, 20, 21 and 22. At the opening session addresses were made by the president, Robert W. DeForest, and by Governor Odell, Archbishop Corrigan and others. One of the topics discussed during the conference was sanatoria for consumptives.

Dr. J. H. Pryor of Buffalo, chairman of the committee on this subject, advocated the establishment of State sanatoria. In the course of his remarks he said: "To say that the efforts to

eradicate tuberculosis have fulfilled expectations, and will win in time, is to approach dangerously near exaggeration and a careless promise. Protection is at best partial, or very inadequate; but the establishment of sanatoria for those suffering from incipient pulmonary tuberculosis would prove of incalculable benefit. Once more let me reiterate the sentence which I have used for five years at Albany: 'Take care of the consumptive at the right time, at the right place, in the right way, until well—not at the wrong time, at the wrong place, in the wrong way, until he is dead.'"

Dr. Alfred Meyer, who in a short time has achieved admirable results at the country branch for consumptives of the Montefiore Hospital for Chronic Invalids, advocated municipal sanatoria, and thought that the Board of Estimate and Apportionment should be asked to appropriate \$300,000 for such an institution for incipient cases.

Dr. S. A. Knopf protested against the use of the word "incipients" in connection with the proposed sanatoria. He said that if a consumptive were refused admittance he would know that he was incurable, while if permitted to spend his last days in a sanatorium he would feel that he still had some chance. "I would suggest," he continued, "that the gentleman who expressed a desire not to die rich should give some of his millions to some very deserving charitable homes for consumptives (mentioning several)—all poorly supplied with funds. If I could but take some Carnegie or Rockefeller into some of our tenement houses, where poor people are dying of consumption without the barest necessities of life, much less any comforts, I believe we would have millions for sanatoria. The trouble is that the rich philanthropists are ignorant of the need for such institutions."

The afternoon session on Nov. 22, when the topic under discussion was "The Mentally Defective," was held at the Manhattan State Hospital for the Insane on Ward's Island. Dr. Frederick Peterson, President of the State Commission on Lunacy, read a paper on "Twentieth Century Methods of Provision for the Insane," in which he said that at the present time Germany approaches nearest an ideal standard in this regard. That standard might be expressed in the following formula: Small hospitals for the acutely insane in cities, and colonies for the chronic insane in the adjacent country. Large cities have an imperative need for reception hospitals for the insane. In New York there should be at least two of these, one in Manhattan, to accommodate from 100 to 200 patients, and one in Brooklyn, for from 50 to 100 patients.

Dr. Carlos F. Macdonald urged the members of the conference to vigorously oppose certain proposed reforms relating to the expense of maintaining the State hospitals. "These hospitals," he said, "are established for the purpose of curing, if possible, caring for, and making comfortable, the unfortunate insane. The great mass of the inmates, prior to their misfortune, were not pau-

pers, but were self-respecting and self-sustaining citizens. They are therefore entitled by right to proper care and comfort, and I believe the taxpayers of the State are perfectly willing to pay the small sum that goes toward the maintenance of these institutions. If the reforms suggested are carried out, we will relapse into the evils of the county care system. Therefore, I hope all of you will oppose any separation of the executive and medical administration of the hospitals."

At the final session the topic was "Improved Housing." Edward T. Devine, secretary of the Charity Organization Society, presenting the report of the committee on this subject, stated there were 3 ways of improving the environment of tenement dwellers: (1) Restrictive legislation, (2) sanitary inspection, and (3) educational propaganda. In speaking of the housing conditions of the cities of the second class, he stated that these were decidedly more unfavorable in Troy and Rochester than in Albany and Syracuse, and this he attributed to the overemployment of women, in the one place in the collar factories and in the other in the clothing industry. Such overemployment lowers the social standard of a community in two ways: It undermines the health of the women themselves, and it attracts to the community families in which the male head is shiftless and inefficient. There should, he said, be either a State law applying to cities of the second class, or local city ordinances covering the rules most likely to occur. We may emphasize also the need for early restrictive legislation, to make impossible the reckless exploitation of life and physical vigor. Miss Butler of Yonkers read a paper on sanitary inspection of tenements, in which she said that to make this fulfill its highest possibilities it should: (1) Be sustained and strengthened by an enlightened public opinion; (2) be directed by non-political health officers and carried on by properly trained inspectors, the stability of whose positions should not depend on the result of elections; (3) be the channel for distinctly educational and preventive work; (4) consider its staff incomplete without women.

The conference next year will be held in Albany.

Obituary.

SIR WILLIAM MACCORMAC.

THE death of Sir William MacCormac, Bart., president of the Royal College of Surgeons, occurred at Bath, England, Dec. 4. His condition had caused anxiety for some time past. He was born in Belfast, Jan. 17, 1836, and was the son of Henry MacCormac, M.D., of the University of Edinburgh. He was president of the Royal College of Surgeons of England, consulting surgeon and emeritus lecturer on clinical surgery at St. Thomas's Hospital, and a surgeon in ordinary to H. R. H. the Prince of Wales. He was principal medical officer of Order of St. John of Jerusalem in England, Dec. 7, 1881; and K. C. V. O. in 1898. He was at the head of an Anglo-American ambulance which did admirable service during the Franco-Russian War. He was also one of the distinguished surgeons who served

in the Boer War during the earlier period of hostilities, and was one of the most widely known English surgeons of the time in which he lived.

JOHN BLAKELY NORTON, M.D.

DR. JOHN BLAKELY NORTON died at the Boston City Hospital, South Department, Dec. 8, 1901, after an illness of six days, of septicæmia and pneumonia. He was born in Timmouth, Vt., Feb. 4, 1808, graduated from the St. Johnsbury Academy in 1830 and from Dartmouth College in 1837, and from the Dartmouth Medical College in 1900. After receiving his medical degree he spent a year and a half as interne at the Channing Sanatorium in Brookline, and in October of the present year was appointed house officer in the South Department of the Boston City Hospital, in which capacity he served until his death.

Dr. Norton was a young man of good ability and of unusual perseverance and fidelity in his work. His life was marked by simplicity, but genuineness of character. He was earnest and trustworthy in all matters and at all times. He had a strikingly attractive and winning manner, and it certainly is not too much to say that all who knew him were his friends.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOV. 30, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria and croup.	
New York . . .	3,487,202	1,227	347	25.02	13.69	1.47	2.77	3.75	
Chicago . . .	1,038,375	—	—	—	—	—	—	—	
Philadelphia . .	1,233,697	410	35	20.25	15.62	.98	.73	1.61	
St. Louis . . .	375,735	—	—	—	—	—	—	—	
Baltimore . . .	608,957	167	42	25.50	12.00	1.80	1.80	3.60	
Cleveland . . .	381,768	—	—	—	—	—	—	—	
Buffalo . . .	352,387	—	—	—	—	—	—	—	
Cincinnati . . .	325,001	—	—	—	—	—	—	—	
Pittsburg . . .	321,616	—	—	—	—	—	—	—	
Washington . . .	278,718	—	—	—	—	—	—	—	
Milwaukee . . .	285,215	—	—	—	—	—	—	—	
Providence . . .	175,507	49	11	26.69	—	2.64	4.68	4.08	
Boston . . .	560,892	211	60	18.06	22.28	—	—	3.79	
Worcester . . .	118,421	24	6	16.46	16.66	—	—	—	
Fall River . . .	104,863	22	9	27.27	9.09	4.54	13.63	—	
Lowell . . .	94,980	45	16	37.77	24.44	4.45	2.22	—	
Cambridge . . .	91,886	28	6	14.28	11.71	—	—	15.55	
Lynn . . .	68,513	20	—	20.00	5.00	—	—	—	
Lawrence . . .	62,659	16	7	22.55	18.75	—	—	6.25	
New Bedford . .	62,442	18	7	22.22	5.55	—	—	5.55	
Springfield . . .	62,669	19	5	16.53	15.79	—	—	—	
Somerville . . .	61,643	—	—	—	—	—	—	—	
Holyoke . . .	45,712	16	8	22.55	18.75	—	—	—	
Brookton . . .	40,083	12	7	22.22	5.55	—	—	8.33	
Haverhill . . .	37,175	15	3	13.33	—	—	—	—	
Salem . . .	35,956	15	5	—	—	—	—	—	
Chelsea . . .	34,972	11	1	11.11	—	—	—	—	
Malden . . .	33,654	7	1	14.29	—	—	—	—	
Newton . . .	33,587	10	—	20.00	20.00	10.00	—	—	
Fitchburg . . .	31,531	9	4	—	—	—	—	—	
Taunton . . .	31,695	5	—	—	—	—	—	—	
Gloucester . . .	26,121	5	1	20.00	—	—	—	—	
Everett . . .	24,336	6	—	16.67	16.67	—	—	—	
North Adams . .	24,200	13	4	7.70	30.80	—	—	—	
Quincy . . .	23,899	5	3	—	—	—	—	—	
Waltham . . .	22,481	1	1	20.00	20.00	—	—	20.00	
Pittsfield . . .	21,766	3	1	33.33	—	—	—	—	
Brookline . . .	19,335	—	—	—	—	—	—	—	
Chicopee . . .	19,167	6	3	—	—	—	—	—	
Melrose . . .	18,244	7	1	—	42.90	—	—	—	
Newburyport . .	14,478	5	1	—	—	—	—	—	
Melrose . . .	12,962	2	—	50.00	50.00	50.00	—	—	

Deaths reported 2,566; under five years of age, 696; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumptions) 577, acute lung diseases 372, consumption 301, scarlet fever 23, erysipelas 1, typhoid fever 38, whooping cough 17, cerebrospinal meningitis 7, smallpox 26, measles 15, diarrheal diseases 48, diphtheria and croup 88.

From whooping cough, New York 11, Philadelphia 3, Baltimore 4, Pittsburgh 1, Boston 1. From cerebrosplinal meningitis, New York 3, Baltimore 1, Boston 2, Lynn 1. From scarlet fever, New York 20, Philadelphia 3, Baltimore 2, Pittsburgh 3, Holyoke 1. From typhoid fever, New York 18, Philadelphia 4, Baltimore 3, Pittsburgh 6, Providence 1, Lowell 2, Fall River, Newton, Melrose and Lynn 1 each. From erysipelas, New York 1. From smallpox, New York 2, Philadelphia 14, Boston 8, Cambridge and Newton 1 each. From measles, New York 12, Philadelphia 1, Pittsburgh 1, Boston 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Nov. 16, the death-rate was 19.4. Deaths reported 4,264; acute diseases of the respiratory organs (London) 477; whooping cough 46, diphtheria 81, measles 138, smallpox 14, scarlet fever 38.

The death-rate ranged from 11.2 in Croydon to 28.4 in Norwich; Birkenhead 15.5, Birmingham 21.6, Blackburn 21.2, Bolton 19.8, Bradford 16.9, Bristol 16.6, Burnley 16.6, Cardiff 16.9, Derby 16.7, Gateshead 17.5, Halifax 12.4, Hull 15.1, Leeds 18.3, Leicester 12.3, Liverpool 19.6, London 20.0, Manchester 23.7, Newcastle-on-Tyne 16.9, Nottingham 13.7, Plymouth 21.7, Portsmouth 19.2, Preston 27.2, Salford 22.8, Sheffield 22.8, Swansea 13.2, West Ham 24.4.

METEOROLOGICAL RECORD

For the week ending Nov. 30, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barom-eter		Ther-mometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S...21 29.70	40	45	36	85	100	92	N	E	N	E	31	20	O. R.	1.21
M...22 29.74	38	42	35	95	82	88	N	E	N	E	15	24	R. O.	.71
T...23 29.60	30	36	24	89	76	82	W	N	W	N	20	27	S. O.	.91
W...24 29.01	24	32	17	78	59	68	N	W	N	W	20	24	O. C.	
T...25 29.11	19	24	11	41	60	70	N	W	N	W	20	20	O. C.	
F...26 29.06	10	22	12	80	76	78	W	N	W	N	20	20	O. C.	
S...27 29.58	28	34	21	87	65	76	W	N	W	N	6	9	O. C.	
28 29.80	35	23			79									1.93

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING NOV. 30, 1901.

J. J. SNYDER, assistant surgeon. Ordered home and granted 5 months sick leave.

EDGAR THOMPSON, assistant surgeon. Detached from the Naval Hospital, Chelsea, Mass., and to duty at the Charleston Exposition in charge of the exhibit of the Medical Department of the Navy, and in attendance on the Marine Guard and the Marine Recruiting Rendezvous.

R. C. PERSONS, medical director. Commissioned medical director from Nov. 3, 1901.

E. H. GREEN, medical inspector. Commissioned medical inspector from Nov. 3, 1901.

N. H. DRAKE, surgeon. Detached from duty as member of the Medical Examining Board, Naval Laboratory, New York, and ordered home to wait orders.

A. C. H. RESSELL, surgeon. Ordered to duty as member of the Medical Examining Board, Naval Laboratory, New York, Dec. 4.

D. G. BERKE, assistant surgeon. Resignation accepted, to take effect Nov. 30, 1901.

EDGAR THOMPSON, assistant surgeon. Commissioned a passed assistant surgeon from April 19, 1901.

DR. J. B. BUCHANAN. Appointed an assistant surgeon in the Navy from Nov. 23, 1901.

FOR THE SEVEN DAYS ENDED DEC. 7, 1901.

H. H. HAAS, passed assistant surgeon. Detached from Norfolk Navy Yard, and to the "Kearsarge" for duty with the marine detachment.

F. M. FRERLON, assistant surgeon. When detached from New York Hospital, ordered home on sick leave for 2 months.

P. E. McDONNOLD, assistant surgeon. Detached from the "Constellation" when discharged from Naval Hospital, New York, and ordered home with 1 month's sick leave.

W. M. GARTON, assistant surgeon. Detached from the Naval Academy and ordered to the Naval Hospital, New York.

J. B. DENNIS, assistant surgeon. Detached from the Naval Hospital, New York, and ordered to the Naval Academy, upon reporting of relief.

SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY.—A meeting of the Section for Clinical Medicine, Pathology and Hygiene will be held in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, Dec. 18, at 8 P.M.

Subjects: "Practical Experience with Hydrotherapy," by Drs. J. J. Putnam and G. W. Fitz; "The Value of Alcohol as a Therapeutic Agent," Dr. H. F. Hewes; "The Pharmacology of Alcohol," Dr. E. P. Joslin; "Alcohol in Diabetes," Discussion of "The Use of Alcohol in Medicine as Viewed from the Clinical Standpoint," Dr. F. C. Shattuck, Dr. E. G. Cutler, Dr. R. C. Cabot.

HENRY F. HEWES, M.D., Secretary.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the society will be held at the Medical Library Building, 8 The Fenway, on Monday evening, Dec. 16, at 8.15 P.M. Subject: "Is there danger to the health of growing girls in our public school education?" Remarks will be made by Dr. E. G. Brackett, Dr. R. W. Lovett, Dr. Grace Wolcott, Dr. Kelly-Sabine, Dr. E. W. Taylor, Dr. E. M. Hartwell, Dr. A. Worcester, Dr. Edw. Reynolds and others.

ARTHUR K. STONE, M.D., Secretary,
543 Boylston Street.

RECENT DEATHS.

JAMES ROBINSON DEANE, M.D., M.M.S.S., died in Newton Highlands, Dec. 6, 1901, aged 68 years.

DR. CHARLES H. G. STEINSECK, of New York, a graduate of the medical department of the University of the City of New York in 1882, died on Dec. 3, at the age of 43.

DR. JOHN E. BEERS of Danby, N. Y., one of the most prominent physicians and citizens of Tompkins County, died from apoplexy on Dec. 1, at the age of 61. He was a surgeon in the army during the Civil War, and for a number of years was a member of the United States Pension Examining Board. He served for some time in the State Legislature, and had filled many positions of trust.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the Chicago Pathological Society. 1901.

Études Anatomiques sur Les Grossesses Tubaires par le Dr. A. Couvreur. Illustrated. Paris: G. Steinheil, éditeur. 1901.

The Physicians' Visiting List (Lindsay & Blakiston's) for 1902. Fifty-first year of its Publication. Philadelphia: P. Blakiston's Son & Co. 1901.

A Practical Guide to the Administration of Anesthetics. By R. J. Probyn-Williams, M.D. Illustrated. London, New York and Bombay: Longmans, Green & Co. 1901.

Transactions of the Twenty-third Annual Meeting of the American Laryngological Association, held at New Haven, Conn., May 27, 28 and 29, 1901. Illustrated. New York: Rooney & Otter Printing Co. 1901.

An American Textbook of Pathology. For the use of Students and Practitioners of Medicine and Surgery. Edited by Ludwig Heikoen, M.D., and David Riesman, M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

Anatomy in its Relation to Art, an Exposition of the Bones and Muscles of the Human Body with Especial Reference to their Influence upon its Actions and External Form. By George McNeillan, M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

Phototherapy: (1) The Chemical Rays of Light and Smallpox. (2) Light as a Stimulant. (3) The Treatment of Lupus Vulgaris by Concentrated Chemical Rays. By Prof. Niels R. Flinsen. Translated from the German edition and with an Appendix on The Light Treatment of Lupus by James H. Sequeira, M.D. (Lond.), M.R.C.P. Illustrated. London: Edward Arnold. 1901.

Original Articles.

A DISCUSSION OF THE RELATION BETWEEN HUMAN AND BOVINE TUBERCULOSIS, WITH SPECIAL REFERENCE TO PRIMARY INFECTION IN CHILDREN THROUGH THE ALIMENTARY TRACT.¹

BY A. D. BLACKADER, M.D., MONTREAL, CAN.

Professor of Pharmacology, Therapeutics, and Lecturer on Diseases of Children, McGill University; Physician to Montreal General Hospital, etc.

UNTIL two months ago the presence of the tubercle bacilli in milk has been regarded by the profession in all countries as a possible source of much danger, and although some recent writers have stated that in their experience the danger was but a nominal one, yet in all the more important countries in Europe, the profession has deemed it wise to obtain authoritative pronouncements from their several governments, and legal enactments have been passed to guard the public against what has been declared to be a very serious menace to its health. Nevertheless, at the recent Tuberculosis Congress in London, Koch made the startling statement that the infection of human beings by bovine bacilli is but of rare occurrence; cases in which the disease has been conveyed by the milk or meat of tuberculous cattle, or by butter made from such milk are not, in his opinion, more frequently met with than are cases of hereditary transmission; and, therefore, that the danger arising from this source may be practically disregarded.

By this statement he condemns as useless the precautions which have been declared to be necessary by every board of health, and which have been re-emphasized by all of us in our own professional circles.

When asked by Professor Rotch a few weeks ago to read a short paper before this society, I thought that it might not be without some interest to briefly review the facts which led up to this general belief in the possibility of primary infection through the intestinal tract by the bacilli in milk, hoping that in the discussion which might follow, the position to be taken by us as a medical profession, at the present, might be more clearly defined.

In 1865 Villemin² excited the interest of the medical world by his statement that tuberculosis is a specific affection; the cause is an inoculable agent, inoculation of tuberculous material into the rabbit producing tuberculosis. Chauveau,³ following him, found that such material may be also effectively introduced into the body through the alimentary canal, and that calves might be rendered tubercular by feeding them with the milk, sputum, or flesh of an infected animal, a fact verified later by Gerlach,⁴ Klebs, Orth and Bollinger.⁵

A few years afterwards experiments made by Baumgarten,⁶ showed that a few ounces of milk, to which a quantity of phthisical sputum had been added, were sufficient to produce characteristic tubercular lesions in the intestine of the rabbit with considerable precision and certainty. And Wesener⁷ found that when sputum was given with the food of rabbits the mesenteric glands alone became infected, but when sputum was injected directly into the intestine, intestinal lesions of a virulent character ensued. This difference in the results Wesener attributed to the germicidal power of the gastric juice.

It was in 1882 that Koch discovered the tubercle bacillus and announced to the world that tuberculosis, whether human or bovine, was one disease, and dependent in all cases upon the one specific micro-organism; a view questioned by Virchow and others, who recognized even then that the contagium of bovine tuberculosis was much more virulent for experimental animals than that met with in human tuberculosis. Koch now maintains that human tuberculosis differs from bovine and cannot be transmitted to cattle, and adds that if one studies the older literature of the subject and collates the reports of the numerous experiments that were made in former times by Chauveau, Gunther, Bollinger and others, who fed calves, swine and goats with tuberculous material, one finds that the animals that were fed with the milk and pieces of the lungs of tuberculous cattle, always fell ill of tuberculosis, whereas those fed with human material did not.

Opposed to this view, thus absolutely stated, let me quote the following: In 1888 Crookshank⁸ reported to the Board of Agriculture in England that he had inoculated an animal with sputum from a case of advanced phthisis, which evidently had contained besides tubercle bacilli suppurative micro-organisms, and stated that he had been able to produce numerous tubercular nodules in the peritoneal cavity of a calf. The animal, however, rapidly succumbed to pyemic poisoning. Evidently the development of tuberculosis had been greatly favored by the lowered vitality dependent upon the double infection.

In 1893 the following experiments on cattle were carried out by Professor Sydney Martin, (Royal Commission on Tuberculosis, 1895): Six calves were fed on tuberculous sputum; 2 of them received each 440 cc. of human sputum containing bacilli in large numbers. One of these after 56 days was killed and was found to be suffering from tuberculosis of the intestine and mesenteric glands; the second was allowed to live for 138 days; when killed it was found to be quite free from tuberculosis. The 4 other calves received, mixed with their food and in one meal, 70 cc. of human sputum containing numerous bacilli. They were killed at intervals of 33, 63, 85 and 283 days from the commencement of the experiment. The first was slightly tuberculous, the

¹ Read before the Suffolk District Medical Society, Oct. 26, 1901.² *Gaz. Hebdom.*, 1865, p. 56.³ *Bull. de l'Acad.*, 1868, t. xxxiii, 1, 607.⁴ *Virchow's Arch.*, Bd. ii, 297.⁵ *Arch. f. Exp. Path., u. Pharm.* 1873, Bd. i, 366.⁶ *Centrbl. f. Klin. Med.*, 1884, Nr. 2.⁷ *Virchow's and Hirsch's Jahrb.*, 1886, xx, part I, 236.⁸ *Transactions of the Pathological Society, London*, 1891, p. 332.

second and third had distinct tubercular nodules in the intestine, while the fourth remained free from the disease. In similar experiments carried out with tubercular material of bovine origin, the disease came on much more rapidly and was more extensive. In his reports Martin writes: "It is evident we are dealing in the case of tuberculous sputum with material which is less infectious to calves than bovine tuberculous material, since, in those calves fed with human sputum, not only did two not become infected at all, but the others only developed a local lesion of the intestines and the mesenteric glands, while in those fed with bovine tubercular material, the disease has spread from the intestines and mesenteric glands to the lymphatic glands of the thorax and to the lungs."

In this country important experimental investigations have also been carried on. Frothingham in 1897,⁹ reported that he had inoculated calves in the peritoneum, in the trachea, and subcutaneously, with emulsions of tubercle bacilli from human sources, with the result that local nodules were produced. The following year Theobald Smith¹⁰ also reported that as the result of his investigations he found that the tubercle bacilli from bovine sources had in culture fairly constant and persistent peculiarities of growth and morphology, and might to some extent be differentiated from bacilli of human origin. There was also a marked difference in their pathogenic power. In 1899 Adami,¹¹ in summing up the evidence, wrote: "Cattle if treated identically and given equal quantities of growths of tubercle bacilli emanating from man and from cattle respectively, react to the two cultures differently. In the former only a localized and thus noninfectious disease is produced, in the latter a generalized and consequently infectious disease develops."

These conclusions, however important in themselves, were only on lines of thought and investigation along which pathologists in many countries were working. Strauss and Gamaleia¹² in 1891 had pointed out many differences in culture growth, and pathogenic power for other animals, between avian and human bacilli, and for some years it had been generally recognized that although Koch's statement was true that the disease tuberculosis, whether appearing in man, cattle, swine, birds, etc., is dependent upon a micro-organism which has in all cases the same general morphological characteristics and staining reactions, yet as found in each class of animal the bacillus appears to have more or less well-marked distinguishing characteristics. It would appear, however, that we have not to deal with absolutely different species, but rather with mere variations acquired by the bacillus in its passage through successive individuals of one species (Adami). Nocard and Roux¹³ have shown that in the two forms regarded as most distinct,

namely, avian and human bacilli, one can, by special methods of growth outside the body, obtain eventually cultures of the two that are indistinguishable. They have also shown that by enclosing a culture of the human bacillus very carefully in a sterilized capsule of collodion, hermetically sealing this and placing it in the body of a bird, the bacilli thus protected continued to grow, nourished by the lymph which diffuses into the interior of the capsule; growing thus, the bacilli gradually assumed the characters of the avian bacilli.

Thus it is shown that variations more or less pronounced may manifest themselves in bacilli by development in different kinds of animals, and it is generally considered that the passage of pathogenic germs through a series of animals of one species leads to those germs acquiring a maximum virulence for that species, and at the same time in many instances a marked diminution in virulence for certain other classes of animals.

An excellent clinical example, as Adami¹⁴ has pointed out, of this modification of a micro-organism by its passage through a succession of animals of one species, is afforded by what is now definitely ascertained in regard to the contagium of smallpox and cowpox. For many years it was held that cowpox in the cow and smallpox in man were two absolutely distinct diseases, an opinion due, in great measure, to the extreme difficulty that was experienced in inoculating cattle with the virus of human smallpox. We now know they are the same, for many observers have shown that if we take matter from a smallpox vesicle and inoculate it with care into calves, we obtain, not a typical vesicular eruption, but a few hard papules only. If these are broken up, however, and inoculated into a second calf, in that calf the result is more typical, and, by renewing the process, after three or four passages we obtain the development of a perfect vaccine vesicle. Lymph taken from this vesicle produces typical vaccinia, or, smallpox with localized symptoms, as opposed to the smallpox with generalized symptoms, that the original virus would have produced.

Considering these facts I cannot avoid drawing the conclusion that the first part of Koch's statement that human tuberculosis differs from bovine, and cannot be transmitted to cattle, is to be regarded as true only in a modified sense. Here let me also call attention to the fact that although there is much difficulty in inoculating the cow with smallpox virus, there is but little difficulty in inoculating man with cowpox virus. Is it not possible that a similar condition may exist in regard to the bovine tubercle bacillus?

Permit me briefly to refer to the evidence pointing to the transmission of bovine tuberculosis to man. From the nature of the case we would expect proof to be difficult. Man is a cooking animal and direct experimentation is out of the question. Cases of accidental inoculation are all liable to be disqualified from our inability to ex-

⁹ Report of the Massachusetts Cattle Commission, 1897.

¹⁰ Journal Experimental Medicine, III, 431.

¹¹ Report to Minister of Agriculture, Ottawa; Sessional Paper, No. 1, 1900.

¹² Arch. de méd. Exp., 1891, No. 3, p. 457.

¹³ Ann. de l'Inst. Pasteur, 1898.

¹⁴ Report to the Minister of Agriculture, Ottawa, 1900, p. 140.

clude every other possible source of infection. A few, however, appear fairly trustworthy. Professor Jensen of the Veterinary School of Copenhagen was severely infected on his hand while performing autopsies on tuberculous cows, and was said to have been saved from general infection only by surgical removal of the lesion. Dr. Thomas Walley of the Royal College of Edinburgh was infected in a similar way, and death is said to have resulted from the infection. Ravenal¹⁵ also reports 3 cases of infection in the same manner, in which, however, the general infection was prevented by removal of the primary lesion, and adds that the value of such cases as he has reported in proving the virulence of the bovine bacillus for man, has been questioned on the ground that the lesions resulting from inoculation are usually slight, and remain localized; the conclusion being forced that the bovine tubercle bacillus has little virulence for man. All observers, however, agree that the skin offers a very poor soil for the growth of tubercle bacilli, as indicated by the slow evolution of skin lesions, and the small number of bacilli as a rule found in them. Chauveau failed entirely to infect calves by superficial scarifications and punctures even with the bovine bacillus, the nodules so formed often disappearing spontaneously; even the guinea pig, one of the most susceptible animals to the infection of tubercle bacilli, resists invasion by the skin. Ravenal concludes that it is unfair to consider the local character of the lesions produced by superficial inoculation as an indication of lessened virulence for man.

He also quotes a case reported by Pfeiffer. A man of good family history and in good health, was wounded in the thumb of the left hand, while making an autopsy on a tuberculous cow, the point of a knife entering the articulation between the first and second phalanges. The wound healed without suppuration, but after 6 months a cutaneous tubercle formed about the scar and the joint was attacked. The lungs became involved and the man died 18 months after the accident. At the autopsy the local lesion was found filled with a caseous mass very rich in bacilli.

These cases indicate at least the possibility of direct infection by bovine bacilli. They may also be regarded as an illustration of what has been observed in systemic infection by many forms of micro-organisms, that the amount of resistance offered to infection by an animal varies according to the special tissue attacked, while the possibility of infection is greatly increased by the presence of an already existing lesion.

Shortly after Koch had demonstrated the presence of the bacilli in the tissues, other investigators found the same bacilli in the milk of cattle suffering from the disease. Nocard, Bang, Rabonowitch, Petri, Ernst and many others working in this field for many years, have established beyond doubt that true tubercle bacilli are found in considerable numbers in the milk of cows suffering

from advanced tuberculosis or tubercular mastitis. They are also found occasionally in the milk of cows giving only slight clinical evidence of tuberculosis, but distinctly reacting to tuberculin. Butter also frequently contains the tubercle bacilli, but meat comparatively seldom.

Experimental investigations following in the wake of these bacteriological researches proved undoubtedly, as had been stated before, that milk in which bacilli existed in sufficient numbers was assuredly pathogenic for young animals, and led to general tubercular infection. It is to be noted, however, that the experiments of Adami and Martin¹⁶ at Outremont, near Montreal, corroborating those of observers in other countries, show that to prove pathogenic, even for young cattle, the bacilli must be moderately abundant in the milk. Four calves of healthy stock were tested with tuberculin previous to the commencement of the experiment. They were then kept in special stalls and fed with the milk from a tuberculous cow which had reacted to tuberculin, and in whose milk bacilli in small numbers were found. Tested 6 months afterwards, all of them still failed to react to tuberculin.

Wysokowicz insists that there is a minimum number of tubercle bacilli which must be inoculated into an animal in order to induce the disease. Two or three bacilli inoculated into the peritoneal cavity of even a susceptible animal are destroyed. He found that more than 15 must be inoculated into a guinea pig for the disease to be set up in that animal. It follows, therefore, that they must be introduced in considerable numbers into the alimentary tract before they can, even under favorable circumstances, give rise to general infection.

The consideration of those instances in which the infection is said to have been conveyed to human beings through milk, even more than in the case of direct infection through a wound, involves the possibility of error. Many instances have been published, but time permits me to refer to only one or two in which the evidence is fairly convincing in its character. Nocard¹⁷ relates the following: "Dr. Gosse, a well-known medical man in Geneva, lost a daughter 17 years old, under the following circumstances: She had been in perfect health up to the year preceding her death, when symptoms of marasmus set in, which in 10 months terminated fatally. The autopsy revealed extensive tuberculous disease of the intestine and mesentery. Careful investigation revealed neither any family history nor known personal exposure, but it appeared that every Sunday Dr. Gosse and his family spent the day at a small estate on the hills where the young girl was in the habit of drinking freely of warm fresh milk. On testing the cows with tuberculin, 4 out of 5 on the estate were found to be tuberculous. They were killed, and in 2 of them tuberculous mastitis was discovered.

Brouardel relates that in a small boarding-school

¹⁵ Proceedings Pathological Society, Philadelphia, ill, N. S., 259.

¹⁶ Report to Minister of Agriculture, Ottawa, 1899.

¹⁷ La Tuberculose. Dict. Vétérinaire, p. 413.

in Paris under his care 5 of the pupils in 1 year contracted tuberculosis, the only origin for which that he could discover was the milk of a cow afterwards found to be suffering from tuberculous mastitis, and of which these pupils had drunk freely. Marfan and Olivier also relate similar cases.

As the result of the evidence afforded by experimental researches in animals and the publication of instances similar to the above, milk was then regarded by the profession as a frequent source of tubercular infection, especially in the case of infants and young children, and a committee appointed by the British Medical Association reported in 1895¹³ that the mortality from tuberculosis in early childhood was not decreasing in the United Kingdom to the same extent as the death-rate from this disease at other ages, and "the opinion that this great prevalence of the disease in childhood is due to infection through the alimentary canal by milk from tuberculous cows, appears to be well founded."

The attention of pathologists was now directed to the paths by which the bacilli effected an entrance into the body, but with the investigation of the seat of the primary lesion doubt was thrown upon the view that infection by milk was the great cause for the tuberculosis of early infancy. The detection of this primary lesion is in many cases difficult and the result of the post-mortem findings have to be read with some caution. In general we are guided by the fact that the lymphatic glands in childhood form a delicate index of the extent and duration of the tuberculous infection in the organs to which they correspond. Their condition is to be regarded as of much more importance in the determination of the duration of the lesion than the condition of the organ itself, or the sequence of clinical symptoms.

One of the first to investigate the pathway of infection in children was Northrup¹⁴ of New York, who, in 1891, in a paper read before the Academy of Medicine, presented the statistics of the New York Foundling Asylum, which emphasized the fact that in the great majority of cases of tuberculosis in children, the seat of primary infection was in the lymph nodes clustered about the bifurcation of the trachea and the root of the lungs. In 125 autopsies on tubercular children, he found 88 cases of primary infection through the respiratory tract, 3 apparently of primary infection through the intestinal tract, and 34 in which the seat of the lesion was unable to be determined. He explains these last as cases in which the ravages were so extensive that the seat of primary infection was not clear; "the bronchial nodes were large and cheesy; likewise the mesenteric; the lungs contained tubercles, so did the liver, spleen, kidneys and meninges."

Holt,¹⁵ reporting in 1896 a series of 119 autopsies on tubercular children, stated that he

found the intestines involved in 40 cases, and the mesenteric lymph nodes in 38 of these, but in his opinion primary infection of the alimentary tract was extremely rare. He adds: "In the series of autopsies above given, there was not one in which a careful study of the lesions made it at all probable that the seat of the primary infection was either in the stomach or intestines, while in 63 of the cases the intestines were not infected at all. In those cases where the stomach and intestines were the seat of tuberculous disease, with very few exceptions the disease was only slightly marked in that locality, although very advanced in the lungs and bronchial lymph nodes."

In 1899 Bovaird¹⁶ of New York brought up to that date the records of the New York Foundling Asylum, giving the details of 75 additional post mortems to those previously reported by Northrup. In 60 of his cases the primary lesion was found either in the lungs or bronchial glands; in 8 the lesions of the bronchial and mesenteric glands were so nearly alike that the question of priority could not be determined, and in 7 the records were incomplete.

English pathologists, while acknowledging the great frequency with which infection apparently enters through the respiratory tract, all unite in stating that in from 25 to 30% of their cases the primary lesion is connected with the intestinal tract. Coleman¹⁷ in 1893 published the details of a series of 62 cases occurring during a year's work in the post-mortem rooms of the Hospital for Sick Children, Great Ormond Street, London, and stated that as the result of his investigations, while not doubting an infection by milk in some cases, he attached more importance to infection through the thoracic glands, as the tuberculous process was more advanced in them as a rule than in the mesenteric glands.

In 1894 J. Walter Carr¹⁸ published the following record from the post-mortem room of the Victoria Hospital for Children: "Out of 120 autopsies on tubercular children, he met with 4 in whom the disease was very generalized, and the infective lesion was not discovered; 79 cases in which the primary lesion was in the lungs or bronchial lymphatic glands; 20 cases in which the primary lesion was in the intestines or mesenteric glands, and 6 in which it was difficult to state which of these two systems was the earlier infected; in 11 the caseous centres were numerous, and it was impossible to say which was the primary one."

Guthrie, in 1899,¹⁹ tabulating the post-mortem records of the Children's Hospital, Paddington Green, for the previous 8 years, stated that out of 77 cases dying of tubercular disease, he found 42 cases in which the primary lesion had been apparently in the respiratory tract; in 19 he met with it in the intestinal tract; in 7 both tracts were equally affected and in 9 the origin was uncertain.

¹³ Quoted by Still, *British Medical Journal*, 1899, II, 455.

¹⁴ *New York Medical Journal*, Feb. 21, 1891.

¹⁵ *Medical News*, 1896, LIX, 657.

¹⁶ *New York Medical Journal*, July 1, 1899.

¹⁷ *British Medical Journal*, II, 1893, p. 710.

¹⁸ *London Lancet*, May 12, 1894, p. 1177.

¹⁹ *London Lancet*, Feb. 4, 1899, p. 286.

Still ²⁵ of Great Ormond Street, in a very interesting paper, gives us the following statistics :

Lung.....	165	138	153 = 57.2%	
Probably lung.....	33			
Ear.....	9			
Probably ear.....	6	63 = 23.4%	53 = nearly 20%	
Intestine.....	53			
Probably intestine.....	10			
Bones, etc.....	5	53 = nearly 20%		
Fauces.....	2			
Uncertain.....	46			

While many German pathologists state that in their experience the primary lesion is almost never found in the intestinal tract, a few have met with it in a small percentage of their cases. Spengler ²⁶ quotes the records of 92 cases in which the intestinal tract was alone involved in 4. Kossel ²⁷ of Berlin, discussing the statistics of 286 consecutive autopsies on children, of whom 22 had died of tuberculosis, met with only 1, an infant 9 months of age, in which the infection was confined to the intestinal tract.

French statistics corroborate to some extent the English. Marfan, ²⁸ writing in 1899, says: "Tuberculosis by ingestion is certainly rarer than tuberculosis by inhalation. . . . Alimentary tuberculosis is met with, especially between the ages of 1 and 5 years, and accounts for about 8% of the cases of tubercular infection observed at this period of life. These are the figures given by McFadyean and Woodhead, and they accord with those I have observed myself." Comby ²⁹ writes: "Children become tuberculous through the respiratory tract."

A very interesting class of statistics are those cases of latent tuberculosis in children, who die of diseases other than tuberculosis, and in whom the presence of tuberculous lesions has frequently not been recognized during life. Still ³⁰ speaks of 43 cases dying of other diseases in whom the primary focus of infection was easily determined on account of the comparatively early period at which they were enabled to make the examination, and the local character of the infection. Of these the primary lesion was found in the respiratory tract in 26 cases, in the intestinal tract in 16 cases, and in the ear in 1 case.

Kossel, ³¹ in his series just referred to, met with tuberculous lesions in 14 children who died from other diseases, and who during life had not been recognized as suffering from tuberculosis. Of these 14 latent cases, in 10 the bronchial glands and in 4 the mesenteric glands were infected.

To interpret these records aright we must recognize:

(1) The peculiar susceptibility of pulmonary tissue to the growth and development of the tubercle bacilli.

(2) That generalization of the infection is a striking feature of tuberculosis in childhood, due probably to the activity of the lymphatic circulation in the child. It may, however, be also an indication of virulence in the infecting bacilli.

(3) That tubercle bacilli, gaining access to the body through the intestines, may be readily conveyed from the lacteal ducts by the lymph stream through the thoracic duct into the right side of the heart, and thence directly into the lungs.

(4) With our present knowledge of the distribution of the bacilli from human sources it is extremely probable, considering the way children are allowed to creep upon the floor, and the tendency they have to put everything into their mouth, that bacilli may frequently be introduced on their fingers or on their playthings. It is also probable that much more frequently than the germs of typhoid fever human bacilli may be introduced with the food. The ingestion of bovine bacilli conveyed in milk is therefore by no means the only source of intestinal infection we have to reckon with.

From these statistics, however, we must conclude, that in the past the general profession has unquestionably exaggerated the danger of infection from ordinary milk. We have been misled, perhaps by the frequency with which bacilli have been reported to exist in milk, for many investigators have mistaken other acid-fast bacilli found both in milk and in butter for true tubercle bacilli.

We have also been unduly afraid of a few bacilli in otherwise normal milk. Holt ³² is undoubtedly right when he says, "Unless the udder is the seat of disease, the number of bacilli contained in cow's milk is so small that infection from this source can hardly be considered as anything more than a possibility. There is, I think, little doubt that tubercle bacilli in small numbers may be introduced into the stomach with the food almost with impunity, traverse the intestinal tract, and be discharged without ever attaching themselves to its mucous membrane."

The mixing of milk from the whole herd also lessens the number of bacilli in any given quantity of the milk. At least it is probable that it does so in America, for tuberculosis in cattle does not exist to anything like the extent it does in England and in many European countries.

It is also to be remembered that tubercle bacilli do not develop in milk under ordinary circumstances as many other micro-organisms do, and that if they are not actually destroyed, their virulence is at least inhibited by the many modes in which the milk is prepared for the child.

Although contrary to our experience in America, careful and recent records like those of Still, demand much consideration. It may be regarded as some explanation of the difference between his statistics and those of Northrup, Holt and Bovard in America, to point to the much greater frequency of tuberculosis in the cattle in England, and the fact that the children attending the English hospitals whose records we have quoted, are children drawn almost entirely from the congested central districts of London. As one writer says: "They are children that rarely see more than the four walls of their home." American children have more fresh air at home, and to a much greater de-

²⁵ *Pediatrics*, viii, 335.

²⁶ *Zeitschr. f. Hyg.*, 1893, xliii, 246.

²⁷ *Zeitschr. f. Hyg.*, 1896, xliii, 159.

²⁸ *Traite des Mal. de l'enfance*, June 11, p. 636.

²⁹ Quoted in *Pediatrics*, vii, 45.

³⁰ *Loc cit.*

³¹ *Loc cit.*

³² *Loc cit.*

gree are they taken out into the country. These children are, therefore, pre-eminently, children of low vitality, and Crookshank's experiment in which his unwittingly introduced pyemic bacteria increased greatly the virulence of the human bacilli and led to systemic infection of the cow, may assist us in understanding the frequency of intestinal infection in them. This thought is also corroborated by the greatly increased frequency with which tuberculous affections are met with in infancy and early childhood in London and the Continent, to what they are with us in America. Holt refers to this, and certainly in Montreal, tuberculosis in early infancy is very rarely seen. We have also very little tuberculosis in cattle.

In this connection we may ask the question, do those cases in which the mesenteric glands are alone affected, represent truthfully all the possibilities of infection through the intestinal tract and by food? Does not Koch himself give us another suggestion, perhaps somewhat unwittingly, when describing the post-mortem findings in animals who had eaten the bacilli of bovine tuberculosis, he says: "These animals had without exception severe tubercular disease, especially tuberculous infiltration of the greatly enlarged glands of the neck and of the mesenteric glands, and also extensive tuberculosis of the lungs and spleen." With such rapid generalization occurring in a tuberculosis of only three months standing, namely, from the administration of the infected food to the killing of the animal, may we not find an explanation of some of those cases rejected by Northrup when he says: "Thirty-four cases were indeterminate; cases in which the ravages were so extensive that the seat of primary infection was not clear; the bronchial lobes were enlarged and cheesy, likewise the mesenteric; the lungs contained tubercles, so did the liver, spleen, kidneys and meninges."

Leonard Pearson has also recently shown by many feeding experiments under the auspices of the Pennsylvania State Live Stock Sanitary Board, that animals fed with tuberculous material may develop pulmonary tuberculosis, and in some instances fail to show lesions in any other organ.

A clinician on these matters must speak with some diffidence, but from these statements and others it would appear probable that in a certain percentage of those cases in which the respiratory tract is involved, the infection may have been originally conveyed in the food, but it also follows that the bacilli in these cases were of a virulent character.

When discussing these points with Dr. Adami one evening he suggested that it was perhaps possible to differentiate in childhood, two types of the disease, one of human origin, the other perhaps from bacilli of bovine origin. He has kindly favored me with his views in writing as follows:

"I might point out what very possibly has been pointed out by others, though if so, I have not noticed any reference to such a statement, that more especially in the young, we meet with two

types of tuberculosis, the rapidly, and the slowly progressive forms. Concerning the former I need say little; it corresponds to the fatal tuberculosis of early adult life, save in this, that it appears apt to be still more rapid, to generalize simply, and to end in acute miliary tuberculosis, or tubercular meningitis; its very rapidity indicating that the young are even more susceptible to virulent tuberculosis than are adults. It is to the slowly progressive form, however, that I would especially draw your attention, the form which shows itself as serofulous lymphatic glands and tubercular peritonitis, a peritonitis often so mild that it can be cured by inunctions of mercurial ointment and other drugs setting up a mild irritative process. I remember how I used to be struck by these cases when a house physician years ago. Here is something very different from ordinary tuberculosis and our general conceptions of the disease.

"One explanation of this slowly progressing form, which immediately presents itself, is that the progress of the disease is dependent upon the powers of resistance on the part of the organism and of the attacked tissues, and that in these slowly progressing cases we are dealing with the development of tuberculosis in those relatively insusceptible. But on consideration not a little is to be said against this view. For, granting, as all will, I think, grant, that with advancing age, and especially after early adult life, there is a progressive insusceptibility to the disease, then, were this reason correct, we ought to meet with this slow form most frequently between the ages of 25 and 40. It is just at this period that we do not come across it to any extent.

"Another explanation appears more probable, namely, that the relative rapidity of the systemic infection in different individuals is not due to a variation in tissue susceptibility, so much as to a variation in the pathogenic properties of the bacilli. It is especially at the milk drinking period of life and in connection with the alimentary tract that this milder form manifests itself (for infection of the cervical lymphatics would seem secondary to infection from the mouth, tonsils, etc., and tubercular peritonitis is evidently closely associated with the intestines). Is it not, therefore, possible that infection with bovine tubercle bacilli leads in the first place to the production of this relatively mild form of tuberculosis, while the more acutely progressive form is due to bacilli which, by passage through a series of human beings, have acquired heightened virulence for man? I do but suggest this tentatively; to prove it, or seek to prove it, requires careful study of a full series of cases.

"That this mild form at times culminates in acute miliary tuberculosis, is freely admitted, but this, after all, is what is to be expected. As Noeard's observations upon avian bacilli fully demonstrate, after long continuance in the body of birds, the ordinary (human) tubercle bacilli acquire for birds the character and virulence of avian tubercle bacilli, so, long continuance in the

human body would eventually modify bovine bacilli; they would acquire increased proliferative powers and toxicity against the human tissues."

Associated with these suggestions of Adami may I briefly refer to the investigations of Kossel,³³ who, in a series of 63 children under 10 years of age, hospital out-patients, tested with tuberculin, found that out of these 63, 28 gave the reaction. He was not content with 1 typical reaction, but in all cases he insisted on having 2. Of these 28 in 24 no physical signs were found. Kossel believed that two-thirds of these cases of latent tuberculosis were cases of involvement of the bronchial or mesenteric glands, the other third he considered represented involvement of the cervical glands, bones, etc. He believed that these 28 cases, or 40%, were nearer the truth as a representation of ailing children affected with tuberculosis than the 12% he found at autopsies. *Jederman hat ein bisschen tuberculose.*

Hitherto we have given all the credit to the improved health and environment of the patient in withstanding the attack of the bacillus; perhaps, in some cases, the source from which the microbe originally came has also much to do with the result.

In this somewhat hurried résumé, I have endeavored to lay before you the more important facts thus far ascertained, which have a bearing on this very interesting problem. The more one considers them, the more is one convinced that much clinical and bacteriological work still remains to be accomplished before the latest statements of Koch can be either accepted or contradicted.

ON THE NECESSITY FOR SPECIAL STUDY AND EXPERIENCE IN TREATING CHILDREN.¹

BY FREDERICK A. PACKARD, M.D., PHILADELPHIA, PA.

WHEN I was asked to address the Suffolk District Medical Society this evening, among other thoughts that occurred to me was that it might be advantageous to briefly consider some of the characteristics of infancy and childhood in health and in disease which make it important for every practitioner of medicine to have had at some time more or less to do with the handling and treatment of sick children. This I felt that I should be competent to do, because it has been my good fortune to see and to be seeing a fair amount of clinical work, both in adults and in children. It is easy, therefore, for me to see a difference between the sick infant and the sick adult, and possibly on that account I may appreciate the differences more than would one who was always treating the one class to the exclusion of the other. My own horror on first having to treat a sick child is still too recent for me to have forgotten how clumsy I felt, and how profoundly ignorant I was. Since then I have seen others who evidently feel the same inability when ex-

amining and treating children, no matter how at home they may feel when the patient in question is an adult. In addition to this, I have at times had the opportunity of seeing into what errors a man may fall whose practice is almost exclusively confined to adults and who is called upon to treat a sick child. While I have nothing new to advance, and all that I shall say concerns matters already well threshed over and adjusted, I hope that reconsideration of some of these points may be not absolutely without interest.

In some respects the practice of medicine among children resembles veterinary medicine. This is chiefly so because of the fact that in babies and young children, and in the nonhuman animal, questioning elicits nothing. In children, however, we can question the parents, have the opportunity of examining other members of the family, and also, if we are familiar with it, learn much from the expression of the face and the attitude. The practice of veterinary medicine has the advantage that direct experimentation can be made on those of the same species in order to elucidate various problems. One of the interesting features of the practice of medicine among children is the very fact that oftentimes upon our own examinations alone do we have to depend for a solution of the difficulty. It is because of the importance of observation and interpretation of physical conditions present in the child that specially trained powers of observation are necessary in their examination.

The way in which a child is handled differs decidedly in accordance with the familiarity with or strangeness to children on the part of the examiner. In addition to this, it is very frequently the case that one dealing with the adult alone soon forgets to intuitively observe certain appearances in the child which to one used to handling them are noticed at once, as a matter of course. Some of these I shall mention later.

It is absolutely essential in the examination of children that it should be recognized that the child is not a man cut down. On the other hand, I think we are sometimes apt to forget how great a significance the diminutive size has in the severity of certain lesions. The amount of swelling of the mucous membrane of the nose, which in an adult would scarcely give rise to discomfort, may in the child cause serious nasal obstruction with consequent mouth-breathing and resulting bronchial irritation. So in the larynx, an amount of swelling of the mucous membrane of the false cords that would possibly simply render the adult's voice husky, so handicaps the action of the larynx in the child that the vocal cords can scarcely be separated or approximated. In the same way with other channels and cavities, the difference in size causes marked difference in results. A scarcely perceptible renal calculus will, in the child, cause serious obstruction to the outflow of urine, whereas in the adult such a stone would scarcely deserve the name.

To one accustomed to seeing sick children much can be learned from the attitude alone; as,

³³ Quoted in *Pediatrics*, vii, 45.

¹ Read before the Suffolk District Medical Society, Oct 26, 1901.

for example, in meningitis, where slight retraction or rotation of the head may at once direct attention to the meninges, or as in scurvy, where oftentimes grotesque attitudes are assumed in order to take pressure from the parts whose periosteum is in trouble, or as in intestinal colic, where the flexion of the thigh on the abdomen with boardlike rigidity of the latter, almost of themselves make the diagnosis. Jadelot's lines are frequently of value as pointing the way toward more careful investigation of certain systems; for instance, presence of the oculozygomatic line would naturally suggest to one who realizes its significance careful examination as to the presence or absence of serious lesion of the brain, while the nasal line would draw particular attention to the gastro-intestinal tract, and the labial line would make one particularly careful in the examination of the respiratory organs. The character of the cry, to one familiar with its changing significance, almost at once reveals in a general way the cause of distress; the cries of fretfulness, of hunger, of colic or of painful dentition, are as distinctive as are the sentences by which an adult patient expresses the cause of his distress. The cry of pain produced on movement in cases of scurvy or of rheumatism never so closely resembles that of a child who simply does not wish to be disturbed that one would be justified in overlooking one of these serious troubles under the idea that the child simply wished to be left alone. The cry of meningitis has been frequently spoken of as being absolutely characteristic. It is characteristic to the extent that a similar cry is rarely heard in any other condition, yet in the fair number of cases of meningitis which I have had the opportunity of seeing, I have seldom heard the cry that is usually described in the textbooks as being characteristic of that lesion.

From the character of the respiration we can learn fully as much in children as we can in the adult. Nasal obstruction produces a curious snoring breathing which is shown at once without the necessity for rhinoscopic examination, which is often impossible and always difficult in the young. The slow, labored breathing of croup is of course easily recognized, but undoubtedly the curious reversal of pauses and change of rhythm always observable in cases of pneumonia in children even before physical signs are present is frequently overlooked. The cough, of course, frequently is characteristic of various conditions, yet it would be oftentimes a great comfort were we able to definitely determine from the character of the cough whether we had to do with pertussis or with enlargement of the bronchial glands. Probably others have had the same experience that I have encountered on two or three occasions in making the almost positive diagnosis of whooping cough two or three times in the same child, where the cause for the error was that for some reason the bronchial glands easily became swollen on the occurrence of an ordinary bronchial catarrh. The cough in the two conditions

is so similar that for a long time I have felt convinced that probably much of the spasmodic character of the cough of pertussis was due to the enlargement of the bronchial glands, which undoubtedly occurs in this infection. The cough of pneumonia is I think no more characteristic than is the cough of the same lesion in the adult; with effusions in the pleural cavity, whether serous or purulent, there is a curious explosive, and yet suppressed cough, which I think is quite diagnostic.

On looking at the face there are certain appearances in addition to those mentioned that are suggestive to one accustomed to seeing children. The puffy, lachrymose appearance seen in whooping cough and in measles for some reason receives but little mention in the textbooks. In the latter of these diseases the characteristic appearance is often seen before the exanthem is visible and is almost as peculiar as is the presence of Koplik's spots. The presence of adenoids gives such a typical appearance to the face that it is impossible for one used to the features of childhood to forget to investigate for these growths when this appearance is seen. The presence of a subconjunctival ecchymosis suggests at once the possibility of unobserved convulsive attacks, the existence of whooping cough or of scurvy or of acute leukemia. A habit which one readily forms and practises unconsciously in dealing with children is the examination of the fontanelle as a routine matter. It is quite striking to notice how, in watching the work of those used to treating children, the examiner's hand almost unconsciously is passed over the patient's head to determine the condition of the fontanelles, while with one not accustomed to treating children the condition of these parts is sometimes not taken into consideration even though the existence of brain symptoms would naturally, one would think, suggest such an enquiry. The rapidity with which one can determine the probable influence of dentition by a simple digital examination of the gum, certainly grows remarkably with practice; and while I know that at the present time the eruption of the teeth is supposed to cause no symptoms and to seldom require help from the physician, I cannot subscribe to the opinion so frequently expressed at the present time that lancing the teeth is unnecessary. Incidentally I might say that I ruthlessly lance teeth wherever I feel that the irritation produced by their eruption is sufficient even to add to the patient's discomfort to a marked degree. I by no means believe that every child that is getting teeth should have the teeth lanced, and of course the practice of viewing the teeth as a cause of symptoms without proper general examination, cannot be too strongly deprecated. I have, however, so frequently seen the temperature fall or convulsions stop or the digestive tract cease misbehaving promptly after the lancing of teeth, that I am sure the generally expressed view that lancing of the teeth is seldom necessary, must be an error. I would not for a minute be considered as advocating the indiscriminate lancing of teeth, or attributing to the eruption of teeth

all the symptoms which the child may show. I do, however, believe that, if after careful examination and the exclusion of every other cause for the child's ailment, the imminent teeth are lanced, the symptoms will often rapidly disappear. Examination of the tongue is in the child almost as valuable as it is in the adult, yet contradictory as it may appear I think that the statement is true, that while the tongue of the child is drier than is that of the healthy adult, we never see in the child as dry a tongue as is encountered in the low fevers met in those of mature years.

I think it possible that, among other causes, the absence of characteristic appearance of the tongue in typhoid fever has a considerable amount to do with the belief so long held that typhoid fever was rare in infancy and in childhood. After seeing quite a large number of cases of typhoid fever in children I have thought there are as many forms of what might be called characteristic typhoid tongue in the child as there are in the adult, yet each of these differs decidedly from the appearance of the organ seen in those of older years. In speaking of the mouth I would urge that those who have not had the opportunity to have pointed out to them the appearance of Koplik's spots in the early stages of measles should avail themselves of the first opportunity of seeing them. Familiarity with their appearance aids greatly in their recognition and the ease with which they are seen after having been pointed out to one unfamiliar with them reminds one forcibly of the story of Columbus and the egg. Examination of the throat in children is I think frequently almost as much dreaded by the examiner as by the child. The importance, therefore, of the ability to quickly observe all portions of the throat is of advantage to both and is easily cultivated.

The trunk of a child offers certain interesting peculiarities which should be mentioned. The disproportionate size of the abdomen as compared with the chest and the elevation of the lower ribs in the child needs to be borne in mind. To one accustomed to examining children search for evidence of rickets in the shape of the rosary is made a routine part of the palpation of the chest. In the child, too, the thymus body is so much less of an inert tissue than it is in the adult, that examination as to its enlargement is a necessary part of thoracic physical diagnosis.

In examining the chest of a child there are certain points with which one must be familiar in order to avoid falling into error. The position of the apex beat which in the adult is normally so definitely in the fifth intercostal space just within the left nipple line, is in the child considerably higher, so that the finding of the apex beat in the fourth interspace, or above the nipple, has no significance in those of younger years. The area of cardiac dulness is relatively larger in the child than in the adult, while it is important to remember that the second sound at the pulmonary area is normally louder and more clearly defined in the child than it is in those of mature years. The reason for this relative normal accentuation of

the pulmonary second sound has been the subject of a considerable amount of discussion. My own opinion is that the best explanation of the rise of intensity of the second aortic sound with increasing years is that it is due to augmentation in arterial tension and thickening of the arterial walls as the result of infections, intoxications and physical work.

Occasionally in examining the chests of children without any evidence of respiratory disease, I have found a curious square area of dullness at the extreme left chest, posteriorly, closely resembling, except in its lower position, the dull area described by Ewart as a sign of pericardial effusion. According to my experience this area varies in size from $1\frac{1}{2}$ to 2 inches, does not show much resistance to the percussed finger and on auscultation is found not to transmit the breath sounds. What its explanation is I am at a loss to state, but I think it not unlikely that the posterior edge of the left lobe of the liver may be responsible for it. I do not remember ever having seen this curious area mentioned, and when I first noticed it was quite puzzled because of its resemblance to a small pleural effusion. The examination of the lungs in children is, I believe, one of the most difficult questions that confronts one not accustomed to handling young subjects. The signs elicited are often completely different from those found in the adult. For example, it can readily be shown by anyone with what ease the cracked-pot sound can be developed on percussing the healthy chest of a crying child. The note so elicited is precisely the same as that obtained on percussing over a cavity in an adult patient when the mouth is held open. The error to which this might give rise and one which I have seen made, is readily appreciable.

The diagnosis of croupous pneumonia in the young is in some respects a totally different matter from what it is in adults. While in the adult we frequently have a so-called central pneumonia giving rise to symptoms long before physical signs of consolidation can be elicited, in the child this order of events is far less unusual. Naturally we would expect that in the small lung of the child areas of consolidation would be relatively smaller and therefore more difficult to detect than in the adult, but even taking this fact into consideration I am sure that the proportion of central pneumonias in childhood is far greater than it is in adults. Ordinarily, however, the character of the respiration with reversal of the pauses and the curious catching at the end of inspiration and the short suppressed cough with the disturbance of the pulse-respiration ratio will enable us to suspect the disease, or even to positively confirm its presence, long before the process has reached a portion of the lung giving rise to signs appreciable by a physical examination. Now and then even with closest attention to all the symptoms and signs we can only suspect without being able to positively assert the presence of pneumonia. In a 4-year-old child that I had seen a few times last year because of an attack of acute bronchitis,

the temperature suddenly shot up to 105° and within a few hours rose to 106.25°, and except for temporary falls from the use of cold baths, kept that height for 36 hours before the first area of tubular breathing and slight impairment of resonance developed in the left spinal gutter just below the root. In this case the respirations were by no means those usually seen in pneumonia; there was no reversal of the pauses; the respirations were not particularly hurried and, as a rule, maintained the proportion of 1 respiration to 4 beats of the heart. Examination of the blood showed the absence of malarial organisms and pigmentation of the leucocytes, but the latter numbered 15,000 to the cubic millimeter. When I was asked by the parents what was the matter with their child, I told them that I believed that the child had pneumonia, but that I could not tell just what portion of lung was involved. My belief, however, was due more to the absence of any other evident cause for sudden elevation of temperature with increase in the leucocytes than from any particular symptoms or signs that were present. As is often the case, the appearance of physical signs was coincident with a fall of temperature to a lower plane.

While I have no figures upon which to base my idea, I am quite certain that we see in the child more frequently than in the adult the occurrence of what may be called silent pneumonias and noisy pleuritis, where the pneumonias give dullness and absence of breath-sounds, at least for a time, while the pleural effusions give flatness with tubular breathing. In my experience it is not usual to find either in hospital or in consultation work, that empyema is often overlooked in the adult. In children, on the contrary, I should say that the two most frequent errors of diagnosis were the failure to recognize the existence of empyema and the absence of suspicion as to the presence of osteomyelitis as a cause for supposed "rheumatic" symptoms. The diagnosis of empyema in the child is not particularly difficult and could not be so often overlooked were the likelihood of its occurrence more constantly remembered. In hospital work we frequently find that even rapid clubbing of the fingers is not sufficiently suggestive to cause the diagnosis of empyema to be made before admission.

An important portion of the anatomy of the child is the mediastinum. Of course, this is the case in adults also, but in the latter it is chiefly because of the frequency of aneurism. In childhood we have a condition which I believe to be far more frequent than is generally recognized and which I am sure is but little thought of by those not accustomed to handling children; I refer to enlargement of the tracheobronchial glands. When we consider the size of the child's mediastinal space and the slight distance between the anterior surface of the bodies of the vertebrae and the posterior surface of the sternum, we can readily see how a slight enlargement of these glands would cause serious pressure symptoms. When also we remember that in the child lymph-

atic enlargement occurs with apparently greater ease than with the adult, and how frequent bronchial affections are in the young, not only as a primary affection but as a secondary manifestation of certain of the constitutional infections, the importance of this group of glands is readily realized. The classical signs of dullness in the spinal gutter or beneath the upper portion of the sternum, or slightly to either side thereof, are but rarely found. Unilateral diminution in the loudness of the breath-sounds without evidence of material interposed between the lung and the chest wall is of course a valuable sign when we can positively exclude the presence of a foreign body in the bronchus of the affected side. The true cause of the paroxysmal, pertussis-like cough so frequently seen in enlargement of these glands may be incapable of positive demonstration unless we bear in mind the sign of enlarged tracheobronchial glands first described by Eustace Smith and named in his honor. I refer to the venous hum developed on extreme extension of the head when the bell of the stethoscope is applied over the upper portion of the sternum. In studying this sign I have been much impressed with its value when present. Unfortunately, it at times is absent where enlargement of this group of glands is found at autopsy. In one case I was led to make the diagnosis of enlargement of glands at the root of the lung from the fact that in nursing from the bottle the child invariably extended the head to so great an extent that, until we recognize the fact that this attitude was assumed in order to facilitate swallowing, it was supposed that the retraction might be due to irritation of the cerebral meninges. The suspicion created in our minds by this temporary retraction of the head in the effort to straighten the esophagus was confirmed by the finding at autopsy of a tuberculous infection and enlargement of the bronchial glands. In many cases the diagnosis of enlargement of the bronchial glands cannot be made with certainty, yet I believe that careful search for the various signs which they are capable of producing will cause many to be discovered during life which otherwise would only be diagnosed by the pathologist.

The examination of the abdomen of the child offers even more peculiarities than does that of the chest. Among a few points that I might mention in this regard are, in the first place, the normally large size of the liver in the child as compared with the adult, so that a liver's edge felt a finger's breadth below the costal margin in the child, has no significance, whereas the same finding in an adult would be of diagnostic importance. The examination of the spleen in the child is, I should say, easier than in the adult, but slight enlargement of that organ making it easily palpable, when one knows what it feels like and how to feel for it.

Undoubtedly the routine careful examination of the abdomen in every case of diarrhea with small, bloody mucous stools and abdominal pain would cause the earlier recognition of many cases of in-

tussusception, entirely overlooked or discovered too late. There should be noted here as a rare but important condition, more frequently seen in the child than in the adult for obvious reasons, the occasional finding of a patent Meckel's diverticulum, the mucous membrane of which may form a reddish, vascular growth at the umbilicus, closely resembling granulation tissue. The snaring off of such a supposed growth would of course open the peritoneal cavity and allow of the escape into it of fecal matter from the lumen of the intestine. In examining the abdomen of the child it is also important to remember that the bladder is an abdominal rather than a pelvic organ, a fact that is sometimes overlooked, as is shown by the mistaken diagnosis of abdominal tumor which is found capable of relief by the catheter.

In regard to the examination of the nervous system I would only refer to three points. It is recognized that in adults the presence of Kernig's sign is valuable evidence of the existence of meningitis. In young babies it would seem to me that the absence of this sign has no significance whatever. The recently described Babinski reflex is of but little value in children because of the fact that in perfectly healthy children irritation of the sole of the foot will cause a different character of reflex to appear in the same child almost with each succeeding stroke of the finger. The frequency of the occurrence of meningitis in children is probably the reason why most of the work upon lumbar puncture has proceeded from those interested in diseases of children. The ease with which it can be performed in babies and the frequency with which it is required for diagnostic purposes make it of course especially valuable to the pediatricist. Nevertheless, it is an extremely valuable procedure in the case of adults in a diagnostic sense and occasionally as a therapeutic measure.

Almost, if not quite, as difficult as a diagnosis in children is the question of prognosis. While it is a universally recognized fact that children recover quickly, it is unfortunately also the case that children rapidly succumb. While the resisting power of the child is less than is that of the adult the various excretory organs are usually in fairly good condition, and the myocardium has had less opportunity to be damaged by repeated infections, intoxications and excesses in physical and mental work. The almost invariable recovery of infants from typhoid fever is of course now recognized as the cause for the belief so long entertained that typhoid fever was a rare disease in infancy and younger childhood. I feel convinced that there is the same cause for the frequent statement, which I believe to be erroneous, that croupous pneumonia is far less frequent in childhood than is the catarrhal form. It is but little exaggeration to say that in a previously healthy child croupous pneumonia never terminates fatally; secondly, statistics based upon post-mortem examinations are entirely valueless in estimating the relative frequency of pneumonia of the massive croupous form or of the lobular variety. The lobular, or so-

called catarrhal form, is usually secondary to some constitutional infection, which of course modifies the chance of recovery. In regard to the propriety of viewing croupous pneumonia as a constitutional disease with a local lesion, or as a local infection with constitutional symptoms, there is of course still some dispute. My own belief is, and naturally I think it the only rational one, that croupous pneumonia is a local infection of the lung from which organ toxins are absorbed or even micro-organisms escape and produce generalized intoxication or infection, as the case may be. In the child the excretory organs being relatively unimpaired, toxin elimination can be presumed to take place with greater facility than in the adult, while the heart of young children is universally recognized as having far greater reserve force and reparative power than has the heart of those of older years.

The practitioner armed only with Young's rule for the dosing of children and the belief that milk is all right if it is somehow or other modified, is by no means fitted to practice medicine among children. Undoubtedly, in the treatment of children the question of proper regulation of the diet is one of supreme importance. It would be an interesting investigation to find out how many of the leading consulting physicians, of national or international repute in internal medicine, could direct the proper feeding of a baby, or even tell whether a mixture previously given was the cause of illness. In spite of the large amount that has been written in regard to the modification of milk, the real inwardness of the question seems to escape many practitioners. The mere dilution of milk with water, or the dilution of milk with water and the addition of cream, is, of course, milk modification; but this is not all, as milk modification cannot be done by rule. Modification has for its object not the simple alteration and dilution of cows' milk so as to make it resemble the milk of a human being, but to make a milk mixture appropriate to the particular infant with a digestive capacity changing from time to time, often to a great extent. Proper milk modification is not difficult of attainment, either by the use of the milk laboratory or by some such formula as Baner's, Westcott's or Holt's, or by methods of proportioning the cream and milk used by some such means as the dipper devised by Chapin. The whole duty of man is not performed when he puts a child on laboratory milk, or when he throws together water, cream and milk sugar in varying proportions, to imitate the formula of human milk. The self-satisfied way in which some men say that they have the baby on Walker-Gordon milk, and feel that that is a sufficient answer to the question as to the nourishment, would be amusing, were it not indicative that harm had been done. Doubtless others have had a similar experience to one instance which I would cite, where a physician told me that his sick baby was on Walker-Gordon milk (seeming to think that that was all that need be said about the matter), and on further ques-

tioning, informed me that, as the baby had been constipated he had changed the formula from 3 of fat, 6 of sugar and 2 of proteid by doubling the amount of fat, so that the child was then taking a mixture of 6% of fat, 6% of carbohydrates, and 2% of proteids. The following out of the direction guardedly made that it might be well to increase the fat by .25 of 1% beyond the original formula was all that was necessary to relieve the condition that was present. One difficulty that we all have to meet with in the modification of milk at home is the fact that the average dairy does not furnish a milk or cream of constant strength, and that our best efforts at percentage milk modification at home may be rendered entirely futile by the variation in the constituents of the original ingredients of the mixture. To obviate this, we in Philadelphia have lately tried the establishment of a milk commission, under the supervision of the Philadelphia Pediatric Society. Its success has been most satisfactory, but the consideration of its work would occupy an evening instead of a small portion of an already long paper.

The relatively slight value of drugs as compared with the proper regulation of the food and the proper cleansing of the digestive canal, has, I think, led to some errors that need to be avoided. A routine treatment is always dangerous, and the evils of mechanical treatment of digestive troubles are, I am sure, sometimes forgotten in the enthusiasm over the reaction against useless drugging for the digestive ills of adults and children. In adults, too many stomachs are being too often irrigated; in children, catarrhal conditions of the intestine are at times prolonged and even increased by the too frequent use of rectal irrigations. Too often do we hear a man say, with an air of perfect satisfaction, that he has irrigated the bowel thoroughly twice daily, and on inquiry find that he has been giving food possibly too rich in proteid, or has failed to see that the bottles and nipples were properly cared for. Mechanical, nonmedical treatment is of value, but is capable of harm, as well as of good.

Many other questions might have been considered in addition to those that I have mentioned above, such as the too frequent practice of making the diagnosis of intestinal parasitism by the administration of santonin instead of by the examination of the stools for ova, the impropriety of slitting the frenum of the tongue in order to help all backward children to learn to talk, the folly of indiscriminately applying braces instead of electricity and massage to the backs of rickety children, the importance of retropharyngeal abscess as a lesion in childhood, the relatively easy vulnerability of the endocardium in the child, the importance of examination of the ears in obscure cases, the variability of symptoms of malarial infection, as seen in children, and many others of a similar kind.

In conclusion I ask that you charitably look upon this paper as being intended to be merely suggestive as to certain advantages derivable

from a period of observation of children, and that would apply to both general practitioner and those in whose heads the bee of consultation work is seductively buzzing.

NOTES ON X-LIGHT: RADIABLE WINDOWS IN X-LIGHT TUBES.

BY WILLIAM ROLLINS, BOSTON.

IN treating those surface conditions to which x-light is applicable it is the custom to use a non-radiable mask with a hole in it to admit the light to the diseased area. As it is not easy to cut the hole to accurately correspond with the irregular outlines of the diseased area, or to adjust the mask to bring the hole into correct relations, I mention another way. The hole in the nonradiable mask is made larger than the area to be treated, the opening being covered with thin, transparent celluloid, gelatine or collodion, held in place by rubber or other elastic cement. The mask is then adjusted to the patient, the celluloid being covered with a nonradiable paint applied with a small brush up to the edges of the diseased area. As this diminishes under treatment, fresh paint is applied. I have tried two kinds of paint, one which dries quickly, —white lead in japan or shellac,—another which does not dry —white lead in petrolatum. The latter is useful, as it can be quickly wiped off and applied again, when at a second sitting the mask has not been put in exactly the same position. The paint when mixed is kept in a bottle with a wide mouth, closed by a rubber cork through which passes the handle of the paint-brush. The paint and brush not being exposed to the air are always ready for use. If it is considered desirable to protect a patient from the space of strained ether surrounding an excited x-light tube, the paint may be made of finely divided metals of high atomic weights, instead of their oxides or salts, in which case the mask should be grounded. As Tesla stated that a grounded screen between the tube and the patient prevented burns, and as it has been shown (*A*) that burns can be produced by an x-light apparatus when it is giving no x-light, it is well to use every precaution. In any case the tube should be in a nonradiable box from which no x-light can escape except the smallest cone of rays that will cover the area under treatment (*B*). The simplest way to accurately adjust the size of the cone of rays is to use an adjustable nonradiable diaphragm to reduce the size of the normal opening in the box (*C*).

(*A*) Rollins. *Electrical Review*, Jan. 5, 1898.

(*B*) Rollins. *Electrical Review*, Aug. 17, 1898, and April 11, 1900.

(*C*) Leeds and Stokes. *Western Electrician*, March 4, 1896. Rollins. *International Dental Journal*, August, 1896.

The death rate in Russia, according to Russian journals, is higher than in any other country, and the average of life shorter; it is said to be but 29 years. In St. Petersburg the death rate percentage is 40 per 1,000,—*American Medicine*.

THE FORMATION OF CYSTS IN THE FAUCIAL AND PHARYNGEAL TONSILS.

BY J. L. GOODALE, M.D., BOSTON.

In the faucial and pharyngeal tonsils cystic growths have been reported of varying size, which have been supposed to arise as the result of inflammatory processes. The precise mechanism of their production has not, however, been explained. In the faucial tonsils they have been observed after inflammation or partial excision of the organ. In the pharyngeal tonsil it is supposed that adhesion of the surface of the median folds first takes place, converting the median furrow into a canal open at both ends. When the mouth of this canal becomes closed, retention of its contents ensues, with the result of cyst formation. No histological evidence has been offered, however, in explanation of the adhesion of the walls of the crypts and of the surface of the folds in these structures.

In the faucial tonsils cystic dilatation appears somewhat common, but it does not, as a rule, attain a large size, probably for the reason that the organ is favorably situated for examination and operative treatment.

In the pharyngeal tonsil the condition is more apt to escape observation. Lamphear¹ reports a case of a man 24 years old, in whom a cyst was found occupying the vault of the pharynx, having the appearance of an oblong bean-sized body covered with a smooth mucous membrane. The mass, on microscopical examination, was found to possess a wall, both outer and inner surface of which was covered with stratified pavement epithelium. The inner surface was smooth, except at its attachment to the pharynx, where there were a few crypts. The mucous membrane was rich in lymph corpuscles, but there were very few lymph follicles. This cyst seems to have resulted from adhesions between the lateral folds of a hypertrophied pharyngeal tonsil, its wall being formed by the complete closing in of the median fissure.

Jonathan Wright² reports a case of a young man, 17 years of age, who showed large tonsils of extensive distribution, preventing posterior rhinoscopic examination. After reduction of the tonsillar hypertrophies, it was possible to see that the pharyngeal vault was much lower than normal, the wall almost touching the soft palate. Palpation showed a large, smooth globular mass, extending from the vault near the septum down onto the posterior pharyngeal wall, of the shape and size of a pecan nut, with its long axis from above downward. The walls seemed thin, and there was distinct fluctuation. On moderate pressure the cyst suddenly gave way, with the escape of a clear, slightly viscid, fluid. There were no adenoid vegetations. No microscopical examination was made.

The writer has had an opportunity to examine a cyst of the faucial tonsil and a cyst of the phar-

yngeal tonsil, the latter in its early stage. A study of the histological appearances, in connection with the lesions of acute tonsillitis, appears to throw considerable light upon the method of their origin.

CASE I. A large adenoid was removed from a patient 5 years old. On cross section of the growth, a cavity 2 mm. in diameter was found in its interior, near the epithelial surface, filled with a creamy fluid.

Histological examination showed the substance of the mass to be composed of an aggregation of lymph follicles in an endothelial reticulum, presenting the ordinary characteristics of a hypertrophied pharyngeal tonsil. The cavity or cyst is filled with a homogeneous fine granular substance, containing a few closely aggregated lymphoid cells and polynuclear neutrophiles, together with degenerated and necrosed epithelial cells. The wall of the cavity consists of two to four layers of stratified pavement epithelium, in most places compact and without interspaces. Lying below the epithelium or the cavity on all sides there is an endothelial reticulum containing lymphoid and plasma cells. On one side of the cavity are a few small follicles presenting nothing abnormal. On the other side, the endothelial reticulum over an area of about 1 mm. in diameter shows numerous irregular widenings of the lymphatic channels and blood vessels. The walls show a swelling of the endothelium in places, particularly in the immediate neighborhood of the cavity, where the dilatation of the lymph spaces is most pronounced. The cavity is separated from the free surface of the epithelium by a distance of about $\frac{1}{2}$ mm. On the outer surface of the adenoid, at this point is a slight invagination of the epithelium in the manner of a shallow crypt. At the floor of this crypt the opposite epithelial surfaces meet and are continued downward into the tissue of the tonsil, almost but not quite as far as the cavity itself, being separated from the latter by a narrow strip of connective tissue reticulum. The mucous membrane lining this invagination is relatively loose and does not differ essentially from that ordinarily found in tonsillar crypts.

Reviewing briefly these appearances, we find a cavity lined with stratified pavement epithelium in the interior of the adenoid, lying directly below a short, abruptly terminating furrow or crypt, the mucous membrane at the base of the latter extending nearly to the wall of the cavity. It seems reasonable to infer that the cavity represents a former portion of the crypt, and has been cut off by the adhesion of the walls of the latter near its orifice. It is evident from the closely appressed epithelium lining the cavity and from the dilatation of the adjoining and communicating lymph spaces on one side, that a heightened pressure exists within the cavity. On this supposition it can be readily seen that the continuance of these conditions over a prolonged period would result in a progressive increase in the size of the cavity, which might ultimately bring about the conditions described in the two preceding cases.

¹ New York Medical Record, Aug. 4, 1894.

² Medical News, Sept. 7, 1899.

CASE II.—A large cyst was found in a tonsil removed at autopsy from a man 65 years of age. The tonsil presented microscopically an atrophied appearance, being about $1\frac{1}{2}$ cm. in diameter, and covered almost completely with folds of mucous membrane, extending from the pillars. On histological examination the right tonsil was found to be in an advanced stage of retrograde metamorphosis, the lymphoid tissue being reduced to an area of about 1 cm. in cross section. Above and below this lymphoid area are regions of nearly equal size, consisting chiefly of fibrous tissue, with here and there a few small aggregations of lymphoid cells, some of which contain a few endothelial cells in their centre. In the centre of the larger lymphoid area is a cavity about 3 by 5 mm. in cross section, extending from the fibrous capsule at its base to within 1 mm. of its free surface. It is separated by a narrow band of fibrous tissue from the muscles at the base of the tonsil. The cavity is lined with compact stratified pavement epithelium at its base. Towards its distal portion this epithelium is seen to be exfoliated in more or less coherent shreds, so that at the portion of the cavity nearest the free surface of the tonsil the cavity meets directly with the lymphoid tissue. The cavity at its distal end is separated from the free surface of the tonsil by a broad zone of fibrous tissue containing here and there fat cells. There is no dilatation of the lymph sinuses in the vicinity of the cavity.

In the preceding case it is seen that we have to do with a cavity lined with pavement epithelium, occurring in the middle of the tonsil which shows advanced atrophy of its lymphoid tissue with fibrous changes in the reticulum. These findings render it probable that the formation of the cavity was dependent upon the occlusion of a pre-existing crypt, either by old fibrous contraction or by adhesion of its walls through inflammation, or by the covering of its orifice from a fold of overlying, adherent membrane.

In both the preceding cases, attention should be called to the absence of acute inflammation in the vicinity of the cavities. There is no evidence of unusual proliferation of lymphoid or endothelial cells about the margin, nor are bacteria found in its interior. The contents consist chiefly of degenerated and desquamated epithelial cells, together with a few lymphoid cells and polymuclear neutrophiles. The walls of the cavity where preserved are compact, resembling much more the epithelium of the free surface of the tonsil than that ordinarily found in the crypts. Its interspaces contain but few polymuclear neutrophiles. The conditions obtaining, therefore, in the cavity are those of pressure rather than those characteristic of inflammation.

The suggestion might perhaps be offered that these cavities represent the remains of an antecedent abscess within the tissues. As has been shown by the writer in a previous paper,⁸ intra-follicular abscesses occur at times in acute inflammations in the tonsils, which discharge usually into

the crypts, but sometimes into the efferent lymph spaces. We know that in some conditions the purulent contents of an acute abscess become absorbed, as in the case of the septum, leaving a cyst-like space filled with a fluid of varying composition. Such conditions, however, occur in the interior of the parenchyma of the structure involved, and the cavity formed is bordered by the connective tissue cells without intervening mucous membrane. That such could not have been the course of events in the present case is sufficiently evidenced by the fact that the cavities described are lined with stratified pavement epithelium, the only source of which must have been a pre-existing crypt.

We come now to the consideration of how the orifice of a crypt becomes permanently occluded by acute inflammation, and we therefore turn to an examination of the histological appearances in acute tonsillitis. As shown by the writer in the paper just cited, acute tonsillitis is characterized histologically by a diffuse inflammation of the parenchyma of the organ, appearing in the form of an increased proliferation of the lymphoid cells and of the endothelial cells of the reticulum, due to the absorption of a toxine formed in the crypts. The crypts are filled with exfoliated epithelial cells, leucocytes, bacteria, amorphous debris, and in some cases fibrin. The leucocytes are chiefly polymuclear neutrophiles, many of which contain bacteria in their interior. Some show nuclear fragmentation, with dispersion of their chromatin. There are also seen smaller numbers of lymphoid cells, plasma cells, and cells intermediate in character between these two. Of chief importance in the present connection is the different degree of intensity of the process in the distal and proximal portions of the crypts. Bacteria are abundant near the orifice of the crypt, gradually diminishing towards the base, which at times seems nearly free from them. The phagocytic leucocytes correspondingly near the orifice of the crypt exhibit the greatest number of incorporated bacteria. In cases of especial clinical severity, fibrin is seen along the walls of the lacune near the orifice, as a delicate network enclosing cells and bacteria. In the deeper portions of the crypt fibrin occurs only in exceptional cases. We thus see that in acute tonsillitis the activity of the process is chiefly manifested near the distal portion of the crypt. It is thus evident that denudations of the epithelium and adhesions of the opposite walls would occur more readily near the orifice of the crypt than near its base.

Although we have no exact information as to the conditions in acute inflammation of the pharyngeal tonsil, yet in view of its essential histological identity with the faucial tonsil, we may be allowed to transfer the results of our examination from the one to the other. We may thus assume that near the distal surface of the folds the inflammatory process is more intense than in the depths, and that the destruction of phagocytic leucocytes and the formation of fibrin is chiefly in

⁸ Journal, Boston Society of Medical Sciences, January, 1899.

this situation. Adhesion of opposite folds would consequently be found chiefly here, although, owing to the arrangement of the parts, the production of a cyst would be less likely to occur than in the faucial tonsils.

Clinical Department.

ACUTE INTESTINAL OBSTRUCTION.

DUE (1) TO CANCEROUS STRICTURE OF INTESTINE, RESECTED BY DR. CHARLES MCBURNEY OF NEW YORK; (2) TO INTERNAL STRANGULATION, IN SAME PATIENT FIVE YEARS LATER.

BY HOMER GAGE, M.D., WORCESTER, MASS.

This case is of unusual interest, not only because of the brilliancy and thoroughness of Dr. McBurney's surgery, but also on account of the age of the patient, who was 75 years old at the time of the first, and 80 years old at the time of the second operation. It was also very satisfactory to be able to demonstrate on the living subject, that at the end of 5 years there had been no recurrence of the cancerous growth. I am under very great obligations to Dr. McBurney for his complete record of the case, and for his kindness in permitting me to incorporate it in this report.

Mr. G. had always enjoyed good health, been accustomed to dealing with large matters of a personal and public nature, and been a man of great activity and energy. He had always led a very abstemious life, and at the age of 75 was still vigorous in mind and body.

Dr. McBurney's notes are as follows:

"I was asked to see Mr. G. on June 8, 1896, in consultation with Drs. Carr and Peabody. About 24 hours earlier he had a rather sudden attack of abdominal pain, soon followed by nausea and inability to expel intestinal gas. At my visit I found him with a decidedly distended abdomen, no fever, a rather weak pulse, of about 80.

"He had but little pain, but was entirely unable to expel gas or feces. No tumor could be felt by palpation or by examination by the rectum. The diagnosis made was that obstruction, probably malignant, existed at some point in the large intestine. Early relief was clearly indicated, and I therefore made an artificial anus in the caput coli. Through the abdominal wound it was possible to locate the obstruction in the sigmoid flexure, but I did not think that the patient's age and condition justified a radical operation at that time. The artificial anus gave immediate relief, and very large quantities of gas and feces were expelled.

"The patient very rapidly recovered his usual health, and on June 25 I did the second operation. A 4-inch incision was made on the left side of the abdominal wall, about 2 inches to the inner side of the iliac spine. The obstruction was readily found in the form of a densely indurated mass, in the lower half of the sigmoid flexure.

No adhesions to other parts existed, and no enlarged glands could be felt.

"About 6 inches of intestine were resected, the tumor occupying the central point, and then a careful end-to-end anastomosis with suture was made. This was difficult, as the portion of intestine below the resection was short and only slightly movable.

"Recovery from the immediate effects of the operation was rapid and complete. Healing was interrupted by a very small point of leakage at the site of operation, but this soon healed, and complete closure of the artificial anus on the right side followed rather tardily. Normal function of the bowel has continued ever since, and complete restoration of health occurred.

"The tumor was very carefully examined. It consisted of a dense indurated mass, about one-half inch in width, which entirely encircled the gut, and formed a stricture, the calibre of which was, at that point, less than one-quarter of an inch. Microscopic examination of the tumor showed that it was a pure carcinoma. No extension of the disease to the other parts existed."

Before the fistula had wholly healed the patient was removed from New York to his summer home in Worcester, and I had the care of him until his return to New York in the fall. I saw him again in the following year, when he seemed to be in excellent health; but not again until the 3d of last August. I learned then that he had been quite well, active, and taking his share of important responsibilities all the spring and summer.

There had been some occasional distress in the neighborhood of the cicatrix, on the right side, where a ventral hernia had developed, but he wore a heavy pad for support, and no apprehension of serious trouble was felt.

While out driving on the afternoon of Aug. 2 he began to feel some discomfort in his bowels, which increased during the evening, until about 11 o'clock, when he was obliged to send for his physician. The chief symptoms were pain and vomiting, no localization, no disturbance of pulse or temperature. The pain was controlled by morphia, but the vomiting continued through the night, and all the next day, and all efforts to secure a movement of the bowels were unavailing. After several attempts to get into communication with Dr. McBurney, who was on his vacation, I was sent for, and operated upon him that evening.

His mind was perfectly clear and his strength good, pulse 84, soft and of not much volume, temperature normal. The abdomen was somewhat distended, but there was no localized area of tenderness or of muscular resistance. He was vomiting every half-hour, and the vomitus, as well as his breath, had a very strong fecal odor.

Under chloroform, with the assistance of his physician, Dr. W. A. Brown, and Dr. Seelye, I made a vertical incision, close to the scar on the right side, thinking that the obstruction might be in some way connected with the ventral hernia, but it was not. After introducing my whole

hand into the abdominal cavity, I found a mass on the left side, just below the level of the umbilicus, which I was able to bring within the range of my incision. It proved to be a coil of small intestine, tightly constricted by a fatty band, which passed directly over it, and which seemed to be a part of the mesentery of an adjacent coil. In the course of my manipulations, in trying to determine exactly its origin and insertion it ruptured and retracted beyond my reach. I was, however, able to satisfy myself that it did not bleed.

On either side of the constricted portion of the gut, which had a white lustreless appearance, the intestine was very dark colored but seemed viable, and was quickly replaced. In making my incision I unfortunately found the cecum at the site of the old fecal fistula, adherent directly to the under surface of the skin, and before its exact limits could be discovered I found that I had made an opening about one-half inch long into the gut.

I was, however, able to close it pretty well, and although it leaked for a short time, the whole wound healed perfectly, and before the first of September the patient was out every day riding and walking about his estate.

I used chloroform instead of ether in this case, because the patient had had, for some time, a little cough with rather free expectoration and I was afraid that ether might induce an excessive bronchial secretion. He had entirely recovered from the effect of the anesthetic in less than an hour from the beginning of its administration, had no nausea and no bronchial irritation at all. I realized that chloroform was not as safe as ether, but believed that in this case the greater danger lay in permitting his throat and air passages to become filled with mucus.

It was a great satisfaction to be able to examine thoroughly the contents of the abdomen, and to demonstrate the entire absence of any recurrence, so long after the primary operation for removal of intestinal cancer. In our constant battle with malignant disease, such instances of long continued immunity are most encouraging, and serve to stimulate us to greater boldness and to more radical thoroughness of excision.

The last operation, too, emphasizes once again the value and importance of early exploration in cases of acute intestinal obstruction, even under very discouraging circumstances. To wait until the localization of the lesion is assured, or until distention has become extreme, is to wait until the chance of success is lost. At such times, the operation rarely brings other than discredit upon the surgical art.

The board of trustees of the State Hospital for the Care of Consumptives, after inspecting many sites, believe that Raybrook, on the west side of the Adirondacks, is the best suited for the proposed institution. While Governor Odell has not finally approved of this site it was learned that he thought it the most available of those inspected.—*Journal of the American Medical Association*.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY.

FREDERIC J. COTTON, M.D., SECRETARY.

REGULAR meeting, Oct. 26, 1901, Dr. THOMAS M. ROTCH in the chair. Dr. A. D. BLACKADER of Montreal read a paper on

THE RELATION BETWEEN HUMAN AND BOVINE TUBERCULOSIS, WITH SPECIAL REFERENCE TO PRIMARY INFECTION IN CHILDREN THROUGH THE ALIMENTARY TRACT.

Dr. THEOBALD SMITH: Dr. Blackader has gone so thoroughly over the ground of human tuberculosis in its etiological relation to the disease in animals, more particularly that of cattle, that there is very little, if anything, for me to add to the discussion. His position is probably that of nine-tenths of those who have given the subject any serious thought. Whether it shall prove the correct position cannot be known today.

This subject of the interrelation of human and bovine tuberculosis has passed through several phases, beginning with the discovery of the tubercle bacillus and its cultivation by Koch in 1882, at which time he assumed the essential identity of all forms of mammalian tuberculosis. As a result, the machinery of public health was set in motion to contrive ways and means for preventing the transmission of bovine tuberculosis to man. In all civilized countries this subject received much attention, and in some of the United States, notably our own, the effort to destroy all infected cattle, the logical though extreme outcome of the position assumed by Koch, led to large expenditures with but inadequate results.

In 1896 I published a preliminary paper, pointing out certain striking differences in two cultures of tubercle bacilli, and after considerable interruption, due to external causes, the work was continued and in 1898 I was prepared to maintain that the bovine tubercle bacillus differs from the human in being much more virulent to animals and more constant in its morphological and pathogenic characters.

This work was instrumental in checking in many states the efforts to go to extreme measures in the eradication of the bovine disease, and it became evident that if it was to go on at the same pace a firmer scientific basis must be forthcoming.

The medical profession, however, paid little attention to this new phase until last summer, when the whole machinery of public health was suddenly and rudely shaken by Koch's address, which reversed completely his earlier position.

Since then minds have been active constructing arguments against this latest phase although practically all possibilities raised thus far were discussed in my article of 1898. The two main queries which have been raised may be briefly expressed as follows:

(1) The bovine tubercle bacillus may change its characters in the human body and approach the type of human bacilli.

¹ See page 665 of the Journal.

(2) The infection of the human body through the digestive tract may proceed in a way different from what we have supposed; that is, it may be more concealed and unrecognizable.

These presumptions require careful experimental and statistical investigation. As regards the first, I am of the opinion that the bovine bacillus, if it changes at all, changes but slowly, and that in the brief course of tuberculosis in infancy this factor probably does not enter.

The second proposition, which implies that perhaps much of the pulmonary tuberculosis has its origin in the digestive tract, cannot be definitely solved by experimental and comparative studies, for the mode of dissemination of tubercle bacilli in the body differs to a certain extent in different species. If comparative pathology were to express an opinion it would be to the effect that food infection is in general distinguishable from air infection in the earlier and, perhaps, most of the later stages, and that the only mode of infection which might lead to pulmonary disease without leaving any traces is intra-uterine infection. This mode is on the other hand generally regarded as rare.

But it is further claimed that food infection is not so rare as Koch and others have maintained. Certainly the tables given us by the speaker show much divergence, while German and American observers regard intestinal infection as a negligible quantity. English observers bring a much larger array of such cases. Here again the disturbing factor enters, that nations differ as to boiling and sterilizing milk used by children.

In the midst of these difficulties I believe we have only left the path suggested by me several years ago, namely, a study of certain types of tuberculosis supposed by clinicians to be due to food infection, also a study of rapidly fatal forms of the disease and such as appear to be more or less directly contagious. If the bacillus isolated from such cases is identical, or nearly so, with the bovine bacillus, the question is solved for such cases.

In the meantime the position we should take towards bovine tuberculosis is to support the public health authorities in making regular examinations of dairies and destroying all cows with suspicious udders and such as are emaciated. The few bacilli which may be shed by cows without udder tuberculosis are, we believe, with the speaker, eliminated from the digestive tract of human beings and thereby rendered innocuous.

DR. WHITNEY: I want to thank Dr. Blackader very much indeed for this valuable array of statistics which cover the subject so well and thoroughly. I have really very little to add to this point. I wish to call your attention to one thing Dr. Blackader has mentioned, but has not laid so much stress on as should be, namely, infection through the mouth. We are apt to consider the food infection as only intestinal. Now, the intestines seem to be rather the tract in which the bacillus does not invade the body quite so rapidly as from some other localities. In cases of phthisi-

cal or tuberculous patients, who undoubtedly have advanced lesions, intestinal lesions were found in only about half the number of cases, although undoubtedly large numbers of the tubercle bacillus must have reached the intestinal tract. The mouth must be regarded as one of the seats of food infection and the localization of tubercle bacilli in the mouth, being introduced and lodging in the various crypts of the tonsils, pharynx and the like, can gain ready access to the lymphatic system and from there be distributed to the cervical glands and bronchial lymph glands and possibly to very distant points.

As regards autopsies at the Infants' Hospital there have been comparatively few cases of primary tuberculosis of very young children that I can recall at this moment. There were two last spring in which the infection could be directly traced to living with older people who were extensively tuberculous and in which the child, although born healthy, contracted the disease very shortly after birth; but the evidence of disease was rather in the lung than in the intestine.

DR. ORRIS: I desire to join with Dr. Whitney in thanking our distinguished guest, Dr. Blackader, for the valuable and exhaustive consideration of this subject which he has presented to us.

I shall never forget the exceedingly dramatic and impressive occurrence in St. James' Hall in England when Dr. Koch presented his memorable paper, and the appearance of surprise, nay! of consternation, of the audience, as it passed out of that hall. Surely, nothing could have been more surprising than the paper, and I doubt if any medical paper has ever received such extensive circulation and comment upon it as this one of Professor Koch's; but I wish here to say that, three or more years ago, very much of what was said in that paper was presented to the medical public by our own confrère here, Prof. Theobald Smith, who has spoken to us tonight. I do not think that this fact was sufficiently acknowledged at the congress in connection with Professor Koch's paper. Two or three days after Professor Koch presented his paper, Dr. McFadyen also read a paper a portion of which was devoted to discussing the argument of Professor Koch, and he presented a series of English statistics which were very greatly at variance with those presented by Professor Koch. Professor Koch says, "For instance, among 104 post mortems of tubercular children, Biedert observed only 16 cases of primary intestinal tuberculosis," while Professor McFadyen, on the other hand, says, in London, at the Great Ormond Street Hospital, the post-mortem records indicate that in 29.1% of the cases of tuberculosis in children primary infection appeared to have taken place through the intestine; and 28.1% of the cases of tuberculosis among children in Edinburgh are due to alimentary infection. While statistics are thus so conflicting, it seems difficult, at present, to arrive at any absolute conclusion; and, as Koch observed, further experiments and observations are desirable. It is well, however, to bear in mind the practical

fact which was so well expressed in the conclusion to Dr. Smith's paper—that we should still continue to demand rigid inspection of all dairy products, and the destruction of cows who were proved to have serious disease of the udders and cows which were much emaciated. You remember in Professor Koch's paper he said that he did not deem it advisable to take any measures against infection by milk. I believe Professor Smith's conclusions, however, as well as the conclusions of the congress in their resolutions, should be the working basis upon which still all physicians should go; that no precautions taken with regard to the protection of the children from the milk should be abandoned until we have further proof of the innocuousness of tuberculous milk. The results of observations are still, as I have said, so much at variance that we must go on as we are doing and wait for further light. This whole subject presents many problems still unsolved. Because we have no evidence of primary intestinal tuberculosis, does it prove there is not an infection from ingesta? As Dr. Whitney says, it may take place through the tonsils, through a carious tooth, etc. Can we prove, on the other hand, if we do have evidence of primary intestinal tuberculosis that it is the result of ingesta? Again, how does the tubercle bacillus make its way through the body? Can we tell how the tubercle bacillus reaches the meninges of the brain, the genito-urinary apparatus, or the joints, etc.? What is the result of the gastric juice upon the tubercle bacillus? What do we know with regard to the varying virulence of the bacillus in different animals? These and various other problems have still got to be more thoroughly worked out, and until they are, and until we get some more definite practical results, let us continue the same precautions now practised regarding the milk supply and the inspection of cattle.

DR. SPOONER: It seems to me that, inasmuch as Dr. Langdon Frothingham of Boston published his first paper in the *Zeitschrift für Thier Medizin* in 1895, his name ought to be mentioned very prominently in connection with early work upon this subject. It seems to me he should be given credit for the work he has done, as he is the pioneer in this line of investigation.

DR. FREDERICK A. PACKARD of Philadelphia read a paper on

THE NECESSITY FOR SPECIAL STUDY AND EXPERIENCE IN TREATING CHILDREN.²

DR. C. J. BLAKE: In opening the discussion upon the comprehensive and suggestive paper which has just been read, I shall only attempt to speak along the line which is my special province. The ear is a small window through which it is possible to see much, if one only gets near enough to it, and I have followed the paper with interest because it has brought to mind cases seen in consultation for the purpose of an examination of the ear. That the structure of the ear in the child is very different from the structure

of the ear in the adult is as true as is the fact stated in the paper read, that the structure of the chest and the position of the organs within it differ greatly in childhood and in adult life. In the child there is a small auditory canal, practically an absence of a bony canal and sometimes absence of bone around the tympanic ring, with greater possibility of passage of infectious material from the middle ear into the external canal,—this dehiscence of bone being found in about 15% of all infant skulls. In cases of meningitis a distinct elevated red spot, its long axis at right angles to the long axis of the canal, is sometimes seen on the posterior wall, close to the drum-head.

This red spot has been found in about 15% of the observed cases and is explained by the vascular connection through a dehiscence of bone about the tympanic ring and its connection with vessels of the petro-squamosal suture.

The reader has spoken of the peculiar ery which is distinctive of certain diseases in childhood. The ery which accompanies the acute inflammation of the middle ear in the very young child is one which may be said to be particularly distinctive, a sharp ery gradually fading away into a wail as the pain diminishes and recurring with equal intensity at shorter and shorter intervals as the congestion of the drum-head increases.

There are diseases of the ear in childhood also, which remain unnoticed until they make themselves evident by discharge, without pain. One of these is the tubercular infection of the middle ear. The initial point of the lesion is in the tympanic cavity where the mucous membrane forms numerous reduplications the congestion of which presents a particularly favorable condition for the beginning of an infectious process. The course of these cases is very rapid, from the initial redness and edema of the drum-head to perforation above the short process of the malleus and free discharge sometimes within 24 hours.

The importance of an examination of the ear in the diseases of childhood is shown by consideration of the reflex relationship of the ear to other organs, acute congestion of the ear during dentition, acute congestion in diseases of the chest and in connection with intestinal disease; in cases of meningitis there are objective symptoms which make examination of the ear of value in diagnosis.

An examination of the children in the deaf-mute institutions throughout the United States which is now in progress and which includes in its plan thus far the examination of about 12,000 children, that number to be augmented as the work goes on, gives a very excellent opportunity for determining the frequency of severe lesions of the auditory apparatus which have occurred unnoticed in childhood. Of the examinations thus far made half of them certainly emphasize the statement of the late Dr. Edward H. Clark, that the general practitioner who failed to make an examination of the ear in the case of one of the exanthemata in childhood could be justly denominated an unscrupulous practitioner. Of the

²See page 671 of the Journal.

children examined it has been found that 8% can by treatment be so far relieved as to their hearing as to be taken out of institutions and put in hearing schools; 7% still further can have their hearing so far improved as to make possible the hearing of their own voices, thus utilizing the hearing for instruction in articulation; and 50% of the children in deaf-mute schools are found to have lost their hearing as the result of inflammations of the middle and internal ear in childhood; more or less amenable to treatment. These investigations point very definitely to the importance of the examination of the ear in early life in patients who cannot express themselves fully and who cannot indicate, as can the adult, the possibility of a lesion of this hidden organ.

DR. C. P. PUTNAM: I think Dr. Packard's paper is of the greatest possible interest and value to the medical community. It seems to me to have covered so many points I hardly feel like mentioning any more. Still I will speak of a few ear symptoms, since Dr. Blake has not happened to include them in his remarks though they are well known to him. Sometimes children vomit a considerable length of time without making any complaint of the ear, and then it turns out that the ear, not the stomach, was responsible for the vomiting. Although Dr. Blake mentioned chronic disease coming on without pain, I think it ought to be remembered that children sometimes have an accumulation of fluid in the middle ear and rupture of the membrane without any complaint of the ear nor any evidence of ear trouble until the moment that the perforation comes. The respiration in the ear cases is sometimes accelerated and altered so as to simulate pneumonia in some respects. I should also like to add to the difficult diseases that Dr. Packard has mentioned, the detection of appendicitis, which is extremely hard to make out in the young child and I fancy has more often been the cause of death than is generally supposed.

I should like to say with regard to irrigation of the bowels that my impression is if that is a measure which is overdone in Philadelphia it is underdone in Boston and vicinity. It seems to me the more common experience is that children are left with foul and irritating substances in the rectum and colon and that very great relief is brought about by washing this out, and I am rather afraid in our community at least to have anyone warn us against doing that too much.

Dr. Packard's address is a convincing statement to show that special study and experience are necessary in the treatment of children. When people take the opposite view, as they sometimes do, and say that the child is only a small edition of the adult, and therefore requires no special treatment or care, I am reminded of the story told by Miss Fletcher who for a long time lived with the Indians. She said when she first went among them, the Indians said: "Miss Fletcher does not know the right way to sit down, and she does not even know that there is a right way to sit down." It seems to me the people who deny that diseases

of childhood require special study and experience not only are not familiar with the great differences between the child and the adult, but have not even taken the trouble to find out that these great differences exist.

What is it that constitutes a specialty? Of course the general practitioner readily accepts the eye and the ear as a specialty; various other specialties are willingly recognized, but as a matter of fact the specialty of children's diseases is more important, one may say, than any of those, because the physiology and pathology of children are the natural groundwork on which to build the physiology and pathology of older life. It is not as with the eye and the ear that any one organ is to be studied or treated except in so far as certain organs are actually different in the child and the adult. It is perhaps analogous to the greatest specialty of all, surgery, in that it takes up the same thing from a different standpoint. It is, however, only an accident that the study of children is a specialty and not the main study of medicine. It would really be more natural, if a system of medicine had been actually worked out and had not arisen by accident, to say, "We will start the physiology and pathology of the human being with the birth or the earliest fetal growth," whereas now we begin medical study in the middle. Very little is learned of the child until after general medicine has had its chance. I do not mean to say that pediatrics is not taught in the Harvard Medical School, but that it is not taught as a part of general medicine, and if there were no professor and no set of teachers of pediatrics it would fare no better than at the time I was in the medical school. I am defending the present system against the theory that there is no need of such teaching. Thirty-two years ago when I went into the St. Anne Hospital in Vienna and heard Wiederhofer, who lectured almost every day and gave extremely interesting lectures, it seemed to me an entirely new subject was opened. Before that, I had not been familiar with any book on children except the translation of Vogel which came out about that time, and from then on knowledge of the physiology, pathology and treatment of children has increased and been developed in every direction. It ought to be a main study and not a subsidiary study.

DR. LOVERT: It is so late I will only take up a minute of the society's time. I was particularly interested in Dr. Packard's paper because it seemed to have so direct an application to the surgical diseases of children. Many of the statements that he made one can carry directly over from medical affections into surgical. The need of making the diagnosis from objective signs holds particularly there. In congenital syphilis, or hereditary syphilis as we see it at the Children's Hospital, in most cases it is impossible to get any history of it in the parents, and the diagnosis has to be made from the knowledge of the bone lesion. If a surgical diagnosis is going to be made from objective signs, however, the examination must be thorough. A diagnosis of stomachache is occa

sionally made when Pott's disease exists, and a thorough objective examination would have shown it. Again, there are certain symptoms that one in dealing with a surgical affection of children comes to attach importance to which in adults have no special significance. Localized pain in a child is of course always a suspicious symptom. As Dr. Packard has said, osteomyelitis is often diagnosed as rheumatism.

A limp in a child is a matter of a good deal of importance, and not of the slight significance it might be in the adult.

Sudden loss of weight or rather persistent loss of weight from the surgical standpoint is significant. I was interested in measuring a large number of tuberculous children in the early stages of hip disease and Pott's disease coming to the Children's Hospital, and, not daring to compare them with the average school children, thinking the hospital patients might be of a poorer class, I compared them with the brothers and sisters who came with them, and almost invariably, even in the early stages, the tuberculous children showed that they were much lighter and shorter than the brothers and sisters of the same class and that not only with regard to the late stages of hip disease and Pott's disease, but even in the very early stage where the disease had apparently only existed a few months there seemed to be a very decided percentage in nearly all cases of loss of weight and diminution in height.

The need of special study in the surgical part of the diseases of children is rather emphasized just now by a feeling among orthopedic surgeons that a good deal has been called tuberculous joint disease that probably was something else, and what has passed as hip disease is now being scrutinized a little more closely to see if it may not be epiphysitis, due to some nutritive disturbance or bending of the neck of the femur, or impacted fracture of the neck of the femur, or rheumatoid arthritis, or osteomyelitis, rather than, as we supposed formerly, a chronic tuberculous affection of the joint. Those things are going to demand time and specialization for their solution. The custom, as you know, has been to regard practically all chronic joint disease in children as tuberculous. The solution of that problem will take a good deal of time and a good deal of specialization.

With regard to the deformities of rickets; why one child has knock-knee and the other bow-legs, why the child stands in the attitude it does, we know nothing, so that if good work is to be done in the surgical aspect of children's diseases specialization is going to be necessary and special study is going to be essential.

ACCORDING to the *Medical Record* several of the lepers in the isolation colony at Molokai have written to the papers charging the Hawaiian Board of Health with neglect and misdemeanors in connection with their supply of food and water. They ask for a State commission to investigate.

Recent Literature.

Diseases of the Digestive Organs in Infancy and Childhood, with chapters on the Diet and General Management of Children, and Massage in Pediatrics. By LOUIS STARR, M.D., late Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Consulting Pediatricist to the Maternity Hospital, Philadelphia, etc. Third edition, rewritten and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

The author in his preface states that the whole subject of pediatrics has been so greatly advanced during the ten years since the publication of the last edition of this work that revision of the original work had become necessary for its continued usefulness. He also states that this revision has been as thorough as possible. Although the work has been revised, the point of view is not that of today or even that of ten years ago, but that of a generation or more ago. There is little evidence of familiarity with the recent advances in bacteriology, pathology and feeding. The work is full of misstatements, half-statements and inaccuracies, so full that the limits of these columns prevent consideration of them in detail.

In the introduction on the general management of children the subject of feeding is taken up. While the author on the whole prefers preparations of milk as a substitute when breast milk cannot be given, he does not seem entirely adverse to the use of proprietary foods. While he feeds with mixtures of cows' milk, he gives only arbitrary mixtures and does not mention percentage feeding at all. He condemns laboratory feeding almost absolutely, but from his own description shows that he only partially understands the process. He is evidently unaware of what the laboratory can do. Many of his arguments in condemnation of the laboratory have been disproved time and time again. He relates the poor results he has obtained with laboratory milk. In the light of his apparent misconception of laboratory methods, failure to mention percentage feeding, and the favorable results of laboratory feeding in the hands of other men, it would seem possible that his bad results may be due to the fact that he does not understand how to use it. He gives Westcott's formula for the preparation of modified milk at home, but even here says nothing about percentage feeding or how to use percentages in feeding.

In Part I he treats of the diseases produced by improper feeding and imperfect nutrition. It is a question whether these diseases should be treated in a book with this title. Under the head of simple atrophy he includes starvation, secondary wasting, etc., as well as the real disease atrophy. Under the morbid anatomy he states that the stomach is ulcerated. Other observers have failed to find any definite pathological lesion. He states that the essential treatment of scurvy is a cream and milk mixture, and that the juice of fresh, ripe

fruit is a useful addition and an essential aid to rapid recovery. The usual point of view is that the juice of fresh, ripe fruit is a specific. Under lithemia he states that infants who have uric acid infarctions have a lithemic family history. This view is hardly in accordance with the accepted one as to their origin. He apparently does not know that Rachford's ideas regarding the xanthins have been disproved.

In Part II the chapters on the affections of the mouth, throat, liver and peritoneum are fair. He does not describe as icterus neonatorum the condition usually known by that name, but describes a number of other conditions, including catarrh of the common duct and congenital malformations of the bile ducts. The classification of the affections of the stomach and intestines is not that which is now ordinarily accepted. We think it far inferior to that of the American Pediatric Society. The descriptions of the morbid anatomy are different from any we have seen in recent years. He describes pathological conditions as constantly present, which it has not been our fortune to meet commonly in these diseases. While he mentions bacteria as a cause of some of these disorders, he apparently attaches but little importance to them and does not refer to the recent work on this subject. The treatment is better than the classification and pathology, but the importance of the temporary withdrawal of food is not sufficiently emphasized, and too much drug-giving is advocated.

We feel that most pediatricists would hardly agree that "if other measures of reduction fail, or if the case is seen for the first time after the third or fourth day that the question may arise as to the propriety of laying the abdomen open and reducing the intussusception by direct traction." The present tendency is to open the abdomen at once. We feel, too, that most pediatricists would feel like calling the surgeon in appendicitis earlier than is advised here.

Diseases of the Upper Respiratory Tract, the Nose, Pharynx and Larynx. By P. WATSON WILLIAMS, M.D. (Lond.), Physician in Charge of the Throat Department at the Bristol Royal Infirmary. Fourth Edition. Illustrated. New York, London and Bombay: Longmans, Green & Co. 1901.

This textbook of 430 pages has not received the attention in America that it justly deserves. As compared with some of the books of the same size, covering the same field, it is clear, concise and judicious. It is a students' and practitioners' manual, and does not quote many references to authorities nor aim at discussions of doubtful questions.

This edition has, in most subjects, been well brought up to date. One feature of an up-to-date textbook is the substitution of agnosticism for many positive statements in etiology, and for many positive recommendations in treatment. The author is sufficiently judicious to be accurate and sufficiently dogmatic to be clear.

There is a long list of plates and illustrations, many of them good, some of them poor.

The anatomical descriptions of the nose and larynx are good, the pharynx seems to have been omitted. Several illustrations are double, stereoscopic photographs, capable of being brought out into relief by an ingenious double lens attached to the cover. This gives an interesting sense of realism to many of the anatomical illustrations, even where we do not need the aid of a third dimension to understand them.

The chapter on the neuroses of the larynx and nose are very good. The etiology of ozena and nasal polypi are more satisfactory than if several pages had been devoted to them. In the latter it is to be commended that a line is drawn between local inflammatory and vasomotor causes. It is also satisfactory to find a reference to the probable infectious origin of some forms of acute rhinitis, but why should simultaneous laryngitis and bronchitis not be considered as part of the same disease.

The chapter on the tonsils is good, except the description of peritonsillar abscess.

As a whole the book is well written and well balanced. We may wonder why there is so little space devoted to syphilis of the fauces, or why a table is necessary to differentiate acute tonsillitis from carcinoma, or whether the author means that most children with adenoids have pinched noses and narrow jaws, but these are minor points, and there are not many of them.

In the treatment of the different diseases the author has avoided the common error of advocating too much manipulation and too many drugs. He sustains McBride in recommending cupric electrolysis for atrophic rhinitis. In the treatment of hay fever he has found great benefit in the use of a spray of a solution of biniodide of mercury. A general formula is added in an appendix.

The Century Book for Mothers. A practical Guide in the Rearing of Healthy Children. By LEROY MILTON YALE, M.D., formerly Lecturer on the Diseases of Children at Bellevue Hospital Medical College, New York, and Gustav Pollak, Editor of *Babyhood*. New York: The Century Company. 1901.

In preparing this book the authors state in the preface that they endeavored to keep in mind two queries: What ought an intelligent mother to know, and, beyond that, what would she wish to know regarding the care of her child? Part I is devoted to answering the first question, and Part II to the second.

Part I is devoted to matters of hygiene and to the discussion of the things which go toward the establishing and preserving of healthful conditions. The object is to help the intelligent mother to become the alert and judicious guardian of the nursery, and to teach her how to recognize and avoid disease. Special emphasis has been laid on the care of children, including the feeding, clothing and housing. Special diseases receive but little

mention, though general methods of treatment are considered.

This part of the work deals too much in glittering generalities and does not give enough definite information or data. As a rule the directions given are not specific enough, and the mother in search of information would, we feel, hardly be satisfied with what she found. Although, as a rule, the directions given are not specific enough, yet we feel that directions for home treatment are given in cases in which a physician should be called at once. We fear that the book may thus do great harm by causing delay in summoning the physician, and hence must to a certain extent regard it as unsafe.

The chapter on food and feeding is good. The arguments in favor of milk in preference to proprietary preparations as a food for infants are well presented. The necessity of the supervision of the feeding by a competent physician is, however, not sufficiently emphasized. The sections on the food for older children are full of good common sense.

In order to answer the second question as to what the mother would wish to know regarding the care of her child the writers have answered the questions actually put to them as editors of a magazine devoted to the care of children. In this way they have covered most of the common ailments and troubles of early childhood and thrown light on many of the perplexities of nursery life. This part of the book is worthy of much praise. The answers are full of medical knowledge and common sense and are put in a way which the average mother should understand. Many of the superstitions and heresies regarding the care and feeding of infants are neatly disposed of. Here, too, however, we feel that harm may result by too much home treatment before the physician is summoned.

As a rule the medical information given is accurate, even more accurate than would naturally be expected in a book of this sort. Occasional inaccuracies occur, however; for example, the statement is made that the proteids in the mother's diet govern the amount of proteids in the breast milk.

A Handbook of the Diseases of the Nose and Pharynx. By JAMES B. BALT, M.D. (Lond.), Physician to the Department for Diseases of the Nose, Throat and Ear. West London Hospital, etc. Fourth edition with 61 illustrations. New York: William Wood & Co. 1901.

This is a book of 130 small pages for the "Practitioner and Senior Student." It is to be noticed that the larynx is not included, a fact which might limit its usefulness in many courses for students in this country, where the nose, pharynx and larynx are commonly classed under the general head of "laryngology." This would have certain advantages, however, if we had at hand a similar book on the larynx.

The impression given by the book as a whole, is that it must have been originally written as a

series of didactic lectures for a class of students, and that the author collected his material from an extensive personal experience, rather than from other authorities. This is not at all a bad foundation, especially for a student's manual. An instructor, who found himself obliged to cover the subject in a certain number of lectures, might well take the book as a guide and put it in the hands of his students for reference. It does not pretend to be a book of last resort for an advanced student and it contains a grateful element of common sense and an absence of wild theories. It tells us that epistaxis generally comes from the cartilaginous septum; that acute tonsillitis is a disease of the whole glandular ring and not of the faucial tonsils only; that a one-sided purulent discharge in a child generally means a foreign body, and in an adult, empyema of a sinus; and other simple things which a student often misses in our large textbooks.

The section on anatomy is perfunctory. Those on physiology and general diagnosis are brief and to the point.

The illustrations are either indifferent anatomical drawings, or instruments, many of which the reader will very possibly consider inferior to his own.

The Medical News Visiting List for 1902. Weekly (dated, for 30 patients); Monthly (undated; for 120 patients per month); Perpetual (undated for 30 patients weekly per year); and Perpetual (undated for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60-patient Perpetual consists of 256 pages of blanks. Philadelphia and New York: Lea Brothers & Co.

A good visiting list is a great convenience for every active practitioner. The "Medical News Visiting List" is a good one, in fact one of the best. It begins with 32 pages of useful printed data, including an alphabetical Table of Diseases with Approved Remedies, a Table of Doses, Sections on Examination of Urine, Artificial Respiration, Incompatibles, Poisons and Antidotes, a Diagnostic Table of Eruptive Fevers, and a full-page plate showing at a glance the incisions for ligation of the various arteries. We recommend it as well adapted to the wants of the practitioner.

Pediatrics. The Hygienic and Medical Treatment of Children. By THOMAS MORGAN ROTCH, M.D. Third edition, rearranged and rewritten. Philadelphia: J. B. Lippincott Co. 1901.

The improvements in this edition are many and satisfactory. As the author states in the preface, the work is "offered to the profession as practically a new book. The order in which the different subjects have been treated, and the relative space assigned to them, have, in many instances, been radically changed. The endeavor has been made to emphasize the practical character of the work by thoroughly systematizing the etiology, the symptomatology, the diagnosis and the treat-

ment of the various diseases." The chapter on the Laboratory Modification of Milk is most interesting, going, as it does, into every detail. As the work of the founder of the system, one can excuse the enthusiasm and faith in its perfect accuracy, as well as the evident attempt to gloss over its imperfections. In the section on home modification of milk, the dangers and pitfalls are so vividly portrayed, one trembles to think of the temerity of the young physician who would dare to recommend home modification in his practice. Unless he is at the same time an expert mathematician, he would, however, be appalled at the method recommended for calculating the percentages, and would fall back on the laboratory as the only way out of the difficulty. The work is full of instructive cases, and the illustrations have been increased by several new colored plates and a number of radiographs.

A Textbook of Medicine for Students and Practitioners. By DR. ADOLF STRUMPELL. Third American edition. Translated by permission from the thirteenth German edition. By HERMAN F. VICKERY, A.B., M.D., and PHILIP COOMBS KNAPP, A.M., M.D., with editorial notes by FREDERICK C. SHATTUCK, A.M., M.D. With 185 illustrations in the text, and one plate. New York: D. Appleton & Co. 1901.

The second edition of this translation of this excellent textbook was published in 1893, eight years ago. Since then seven new editions have appeared in Germany, all of which indicates its continued popularity there and here, notwithstanding the many other good books having the same purpose with which it comes in competition. The last German edition is practically a new production, and the same statement may therefore be made of this American translation, with its numerous valuable notes and annotations by those who have collaborated upon it.

The arrangement of the contents remains practically the same as in the previous edition. But various sections show the revision necessitated by new laboratory methods and advances in physiological chemistry and bacteriology, as for instance, in the Section of Diseases of the Stomach, to which a new chapter has been added on the Examination of the Gastric Contents.

The division devoted to Diseases of the Nervous System is also particularly full and satisfactory.

The illustrations are unusually good, and the index is complete and in keeping with the character of a book which we heartily commend to student and practitioner.

The Physician's Visiting List for 1902. Philadelphia: P. Blackiston's Son & Co. 1901.

The present volume is the fifty-first publication of this visiting list. It is compactly bound, and contains various facts of value to physicians apart from the pages left for entering patients. That these pocket visiting lists are extensively used, is shown by the fact of their continued publication in increasing number.

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REPORT OF THE SURGEON-GENERAL OF
THE NAVY.

The report of the Surgeon-General of the Navy, for 1901, reflects, as does that of the Surgeon-General of the Army, the widening circle of our national interests and responsibilities. West India Islands, those of the Pacific, the Philippine group and China, all demand notice and consideration.

The health of the Navy and Marine Corps for the calendar year 1900 is reported as having been satisfactory, though the complete returns indicate a slight increase in the ratio of admissions to the sick list per 1,000 of strength as compared with that for the previous year. The ratio was, for 1900, 824.12; for 1899, 783.03.

The average strength of the active list for 1900 was 23,756, an increase of 2,937 over the previous year. Complete returns were received by the Medical Department from a force of 22,977, the difference, 779, representing individuals on leave, waiting orders, special or detached duty, or serving on small vessels from which medical returns in detail are not received.

The total number of admissions for all causes was 18,936; of these, 15,829 were for disease and 3,107 for injury, giving a ratio per 1,000 of strength of 688.90 and 135.22, respectively. The corresponding ratios for 1899 were 636.11 and 145.52.

The daily average of patients was 799.80, and the ratio per 1,000 of strength 34.80, as compared with a daily average of 645.82 and a ratio per 1,000 of 32.11 for 1899. The total number of sick days was 291,934, giving an average of 12.28 days for each man of the Navy and Marine Corps, and 15.41 days as the average duration of treatment per case. In 1899 the average number of sick days per man was 11.22, and the average duration of treatment per case was 14.97 days.

The number of persons invalidated from the service (including retirements of officers for disability and transfers to the Government Hospital for the Insane) was 695, a ratio of 29.25 per 1,000 of force; the corresponding ratio for 1899 was 26.03. Of the total number discharged during 1900, 586 were for disease and 109 were for injury.

During the year there were 211 deaths, the death-rate per 1,000 of force being 8.88, divided as follows: For disease, 5.01; for injury, 3.87. The mortality rate for 1899, including deaths from all causes, was 7.35 per 1,000, 4.56 for disease and 2.79 for injury. Thirty-four deaths occurred in the Navy and Marine Corps in China during the recent hostilities, while several others, occurring since, were directly attributable to those operations. If these cases of deaths were excluded in the comparison, it would be found that the mortality during 1900 was practically the same as in the previous year.

The admissions to the sick list during the year included 1,699 cases of epidemic catarrh, 983 of malarial diseases, 963 of wounds, 902 of diarrheal affections, 828 of rheumatic affections, 336 of dengue, 24 of alcoholism, 195 of dysentery, 175 of typhoid fever, 160 of measles, 132 of mumps, 128 of heat stroke, 117 of pulmonary tuberculosis, 100 of organic heart disease, 99 of pneumonia, 40 of nephritis, 37 of rubella, 10 of smallpox, 2 of yellow fever and 1 of bubonic plague.

The report states that in considering the admissions for disease a conspicuous feature indicated by the returns, was the extensive and widespread prevalence of epidemic catarrh, that disease causing more admissions than any other on nearly every ship and station. The returns do not indicate that the unusual number of cases was due to conditions peculiar to the naval service, but rather that it was incident to a pandemic spread of the disease. Among the force afloat on the Asiatic and North Atlantic stations malarial affections caused the greatest number of admissions for any one cause other than epidemic catarrh.

The number of cases of typhoid fever, 175, exceeded that for the previous year by 41, the difference being accounted for by a greater prevalence of the disease in the Tropics and an increase in the enlisted force of the navy. This disease was especially prevalent at Guam, L. I., 28 cases occurring there out of a total 83 cases returned during the year from all shore stations. Twenty-seven cases occurred in the force afloat on the Asiatic station, and 19 aboard the vessels of the North Atlantic Squadron.

Diarrheal affections were somewhat less prevalent, relatively, than during the previous year, but dysentery caused a larger number of admis-

sions than in 1899, 40 cases occurring in Guam, L. I., 34 among the force ashore in China, and 33 in Cavite. There were also 6 admissions for dysentery in the North Atlantic Squadron and 32 in the force afloat on the Asiatic Station. Only 5 deaths were attributed to this disease.

Dengue was, as in previous years, especially prevalent at Cavite, P. I., nearly all persons on duty there being attacked shortly after their arrival. Such attacks appear to have been generally mild in type, ending in complete recovery and, usually, in immunity to the disease. The only localities outside of the Asiatic station from which dengue was reported were at San Juan, P. R., where 18 cases occurred, and at the navy-yard, Pensacola, Fla., where there was 1 case.

A graphic report is presented from Surgeon George A. Lung, medical officer with the first regiment of marines in the Pekin relief expedition. This may be read advantageously in connection with reports on the same expedition from army surgeons which appear in the annual report of the Surgeon-General of the Army. The column suffered inevitably from heat, the thermometer ranging above 100° F., from dust, from insufficient or bad water and from excessive fatigue.

Dr. Lung says:

Nearly everyone lost flesh on the march. In a few cases this was the only symptom that indicated by its pronounced character that the individual was suffering from some form of infection. In connection with the marked emaciation there was a peculiar tendency of the patient to cry. When he applied for treatment and was asked to describe his symptoms his lips trembled and tears ran down his face, conscious all the time he was acting ridiculously, but unable to control his emotions. It reminded one of descriptions of the so-called boohoo fever said to occur in the Hawaiian Islands.

There were at times, particularly during the march, unusual irritability of temper, both among the officers and men. It was due entirely to fatigue or commencing illness.

The most interesting feature of the expedition was the opportunity furnished to observe the qualities of the various nations represented. Here was a military exhibition such as never falls to the lot even of special observers to see. It was an exhibition not for display, but for the real purpose for which soldiers are trained. There was no self-consciousness in it, or vanity, but there was the one definite idea in mind—that of getting to Pekin—and every effort of mind and body was devoted to that one purpose. For that reason, what one saw he felt was natural, and that each nation was doing the best it could with the best it had at hand. The Russians were big, heavy, phlegmatic men. They were thoroughly drilled and looked formidable from their size and always fixed bayonets. They seemed to take great inspiration from the singing of hoarse songs while drilling and at certain times during the march. Their uniform was a white cap with visor and wide

overlapping top, a white blouse, long, baggy trousers of some dark material, high-legged boots without heels, and in lieu of stockings the feet were wrapped in a piece of cotton cloth. They ordinarily carried nothing more than their rifle, cartridge belt, blanket and canteen. Black bread formed a large part of their diet. Their food was cooked in stoves specially designed and mounted on wheels. These seemed to answer admirably for field service. They were looked on as good soldiers and of much physical endurance.

The Japanese won the admiration of everybody. They displayed the greatest zeal and energy in everything that was done. Well drilled, tough, strong, intelligent, courageous, they were nearly always in the van, and among the first in every important event. They were clad in white, which made them needlessly conspicuous. Their rifle was a little shorter than those carried by other nations, and their knapsacks seemed large in proportion to their size. Incidentally it may be mentioned that the Japanese soldier is only small in stature, most of them having chests and legs as big in circumference as people of greater height. They ate rice as a standard diet. On beginning the march each morning, every man carried a box full of cooked rice for his next two or three meals. They were patient, obedient, full of endurance, and never disorderly.

The French on the expedition were few in number and unrepresentative. The same may be said of the Germans. After Pekin was taken these two nations were represented by a larger and a better body of men.

The British were represented mostly by Indian troops. They were handsome men, well drilled and set up, and made a fine showing.

In every point the Americans were the equal of any. What I have written concerning the fatigue and disease that prevailed among our men is true in the same degree of all the other nations represented. The heat made havoc in all ranks, and other nations were as susceptible to fevers and diarrheas as our own. One had but to make a brief look beyond our own men to see others overcome by fatigue or prostrated by heat. To pass a Russian ambulance train was to hear the groans of sick men and to see their little two-wheeled carts filled with the exhausted and sun-stricken. Even the Japs did not escape. Groups of them overcome by fatigue and the heat were often passed, and stragglers were not infrequently seen. In appearance, too, our men were noticeable. Their height and stride were in strong contrast with the smaller Japanese, and when compared with the Russians they seemed to be much more active and quick.

many in the community, and entail no little hardship upon hotel and boarding-house keepers, as well as their patrons.

Ever since the late Dr. Alfred L. Loomis, a number of years ago, recommended the climate of Liberty for tuberculosis patients, it has been becoming more and more a resort for this class. A very large amount of capital has been expended in fitting up expensive hotels expressly for their accommodation, and only one hotel in the place closed its doors to consumptives. On the other hand, it is expected that the summer patronage of these hostleries will be considerably increased on account of the restriction now to be enforced. It is stated that the Loomis Sanitarium will not be affected by the ordinance, as it is located outside the village limits, except that as this specifies that no consumptive patients whatever can be entertained within the limits, the inmates will not be allowed to stop at any of the hotels for temporary rest or refreshment.

THE DEATH OF SIR WILLIAM MACCORMAC.

THE sudden death of Sir William MacCormac, in general unexpected, appears to find its explanation in the exposure and hardships he underwent in his service with the British Army in South Africa, a fact to which the *Lancet* calls attention in a recent issue. Early in the war, although he had then attained an age which should justify freedom from arduous work, he accepted the position of consulting civil surgeon to the troops. He was then sixty-four years old, and well. During his service at the seat of war, however, he contracted dysentery, which so far undermined his constitution that his failing strength was a matter of common observation. In the attempt to find relief from the various debilitating symptoms which had developed, by systematic baths, he succumbed suddenly to cardiac failure, possibly superinduced by the treatment. Sir William MacCormac adds another to the already long list of physicians whose deaths have been more or less attributable to the exigencies and hardships of the war.

LIBERTY EXCLUDES LICENSE IN TUBERCULOSIS.

THE local Board of Health has just enacted an ordinance providing that no building situate within the limits of the village of Liberty, Sullivan County, N. Y., shall be used, occupied or maintained as a hospital, pest house, or sanitarium for the reception of public or private patients suffering from consumption. A first violation of the ordinance is punishable by a fine of \$50, and a second violation with a penalty in the discretion of the board, not to exceed \$100. This will no doubt be received with great disfavor by

MEDICAL NOTES.

AMERICAN JOURNAL OF ANATOMY.—A new quarterly journal, entitled the *American Journal of Anatomy*, is about to appear under the editorship of L. F. Barker of the University of Chicago, Thomas Dwight and C. S. Minot of Harvard University, S. H. Gage of Cornell University, G. C. Duher of the University of Michigan, G. S. Huntington of Columbia University, F. P. Mall and H. McE. Knower of Johns Hopkins Univer-

sity, and G. A. Piersol of the University of Pennsylvania.

PRIZE MONEY WORTHILY EMPLOYED.—It is reported that Professor Behring, to whom was awarded recently the Nobel medical prize of upwards of \$40,000, is to use the money for the purpose of investigating and combating tuberculosis in cattle.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Dec. 18, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 33, scarlatina 24, measles 113, typhoid fever 15, smallpox 57.

MASSACHUSETTS GENERAL HOSPITAL LIABLE FOR DUTIES.—A case hitherto much talked of was recently heard in the United States Circuit Court of Appeals, in which the Massachusetts General Hospital of this city sought to determine if it must pay duties on certain surgical instruments which it had imported, and which the United States, as plaintiff, declared to be payable. The earlier decree of the Circuit Court, holding that an importation of surgical instruments was dutiable under the tariff of July 24, 1897, as cutlery and manufactured goods, was affirmed in the higher court by Judges Putnam, Webb and Aldrich. The amount of duties which the hospital must pay is a little more than \$700.

NOMINATION OF TRUSTEES FOR INSANE COLONY.—The governor of Massachusetts has nominated seven trustees provided in the act passed last year, establishing a State colony for the insane. These are: Herbert B. Howard, M.D., Boston; Edward A. Whitman, Cambridge; Charles N. Dasey, Boston; George N. Harwood, Barre; W. H. Baker, M.D., Lynn; Mrs. John H. Coes, Worcester; Mrs. Alice M. Spring, Fitchburg.

LONG ISLAND HOSPITAL, BOSTON HARBOR.—Dr. Arthur S. Hartwell has been appointed to the position of superintendent and resident physician of the Boston Almshouse and Hospital to succeed Dr. A. J. Ranney, who has resigned to fill the position of superintendent of the Lakeside Hospital, Cleveland, Ohio. Through these changes the position of assistant physician is vacant.

VACCINATION STATIONS CLOSED.—The various public vaccination stations have, with a few exceptions, been closed by the Board of Health, owing to the lack of persons applying.

PRECAUTIONS AGAINST TUBERCULOSIS IN NEW HAVEN, CONN.—The New Haven Board of Health has adopted a regulation requiring physicians to report in writing cases of pulmonary tuberculosis,

and providing that rooms be disinfected under official supervision which have been occupied by tuberculous persons.

A BOSTON PHYSICIAN KNIGHTED.—King Oscar of Sweden has made Dr. Richard Hogner of Boston a Knight of the Vasa Order.

NEW YORK.

MORTALITY STATISTICS.—The Health Department reports show that during the month of November the mortality in the city represented an annual death-rate of 17.52, against 17.39 for October and 16.83 for November, 1900. It will thus be seen that the death-rate was slightly higher in November than in October. This is an exception to the rule, as in the month of November the mortality almost invariably reaches the lowest point of the entire year. Among the diseases in which there was an increase in mortality were the following: The weekly average of deaths from diphtheria and croup increased from 32.5 in October to 43.75 in November; from scarlet fever, from 6.5 to 13.25; from measles, from 4.25 to 6.5; from pneumonia, from 84 to 121, from phthisis, from 143.25 to 148.5; from bronchitis, from 23.75 to 38.5; from cancer, from 44.75 to 50.5; from diseases of the genito-urinary system, from 110.75 to 118; and from influenza, from 1.5 to 3.25. Among the diseases in which the mortality declined were the following: The weekly average of deaths from typhoid fever decreased from 21.5 to 18; from smallpox, from 2.5 to 1.75; from diarrheal diseases, from 117.75 to 45.75; and from diarrheal diseases in children under 5 years, from 104 to 38.5. During the month there was reported 1 death each from leucocythemia, osteomyelitis, malignant pustule and exophthalmic goitre.

THE SUPPRESSION OF QUACKERY.—At a meeting of the Medical Association of the Greater City of New York held Dec. 9, Dr. Andrew H. Smith was nominated for president. The committee appointed to consider methods for the suppression of quackery in the State of New York made a report setting forth the grave difficulties of the problem and the necessity for united action on the part of the entire profession. They therefore recommended that the association should address a communication to the other incorporated medical societies of the city, suggesting the formation of a conference committee to meet with the Association's committee, such conference committee to consist of one representative for each one hundred members of the society to be represented; to meet, at the earliest possible date, to take this matter into consideration and to form, if possible, a permanent body. This recommendation, after

it had been so amended as to include incorporated societies in the State as well as in the city, was unanimously adopted by the association.

AGAINST A PEST HOUSE.—The New Jersey Court of Chancery has issued an order requiring the city of Orange to show cause on Dec. 23 why it should not be directed to remove from its present location the isolation hospital and its inmates suffering from smallpox. The hospital, after many mishaps, such as being burned down, wrecked with axes, stopped by injunctions, etc., was finally placed where it now stands—on the line of an unopened street and a thousand feet or more from any house, although in a somewhat fashionable neighborhood. It was erected, by employing workmen day and night, between the time the courts rose on Saturday and their resumption of business Monday morning. Several residents have moved away in fright, and it is said that some of these will bring suit against the city.

THE ACTION OF ALCOHOL.—Before the biological section of the New York Academy of Sciences, on Dec. 9, Dr. Frederic S. Lee, adjunct professor and demonstrator of physiology in the Medical Department of Columbia University, gave the results of a series of experiments on the action of alcohol on muscle. These fully substantiated, he said, the conclusion of Professor Atwater of Wesleyan University, that, administered in certain definite proportions, alcohol is essentially a muscle food, by means of which greater force can be obtained than under normal conditions. While Professor Atwater made his tests on human subjects, Professor Lee conducted his experiments on frogs' legs, in which the alcohol had been injected before amputation.

PRESIDENT OF BOARD OF HEALTH.—It is announced that Mayor-elect Low has appointed Ernst J. Lederle, Ph.D., at present chemist to the Board of Health, the new head of the Health Department. While this is, no doubt, in many ways a very good appointment, it comes as a distinct disappointment to the medical profession, who naturally looked for one of their own number to be Health Commissioner, now that the recent change in the charter of the city permits for the first time the selection of a physician to be president of the Board of Health, a fact accomplished only after many years' contest.

APPOINTMENT OF DR. NELSON H. HENRY.—Governor Odell has appointed Dr. Nelson H. Henry of New York, Adjutant-General of the State, to succeed the late Brigadier-General Edward M. Hoffman. Dr. Henry, who was graduated from the College of Physicians and Surgeons in 1879, has been in the State Militia medical service since 1883.

METEOROLOGICAL RECORD

For the week ending Dec. 7, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Wet bulb.		Rainfall in inches.		
		Daily mean.	Maximum.	Minimum.	S. 8.00 A.M.	S. 8.00 P.M.	S. 8.00 A.M.	S. 8.00 P.M.	S. 8.00 A.M.	S. 8.00 P.M.	S. 8.00 A.M.		S. 8.00 P.M.	
Sun.	130.06	37	50	24	70	77	73	S	W	S	W	12	14	C.
Mon.	29.87	51	61	41	80	80	80	N	W	W	12	17	17	O. C.
Tue.	29.85	54	65	45	100	88	88	N	W	N	12	17	17	R.
Wed.	29.83	21	36	16	67	70	68	N	W	N	12	17	17	O. C.
Thurs.	30.22	18	35	12	78	68	68	N	W	N	12	9	9	C. C.
Fri.	30.48	17	35	9	69	71	70	N	W	N	10	9	9	C. C.
Sat.	30.49	20	35	14	82	75	78	N	W	N	15	9	9	O. O.
Mean	30.12		37	20		75								1.76

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow; indicates trace of rainfall.
 † Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DEC. 7, 1901.

CITIES.	Estimated population	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria and croup.	
New York . .	3,487,292	1,255	345	23.75	15.62	1.67	2.93	3.82	
Philadelphia . .	1,698,655	—	—	—	—	—	—	—	
St. Louis . .	238,697	440	119	18.63	18.40	.90	.22	4.08	
Baltimore . .	575,238	—	—	—	—	—	—	—	
Cleveland . .	508,967	180	43	23.33	17.22	2.77	1.11	.55	
Buffalo . .	351,768	—	—	—	—	—	—	—	
Cincinnati . .	325,902	—	—	—	—	—	—	—	
Pittsburgh . .	321,616	108	27	22.22	24.07	2.78	2.78	2.78	
Washington . .	242,715	—	—	—	—	—	—	—	
Milwaukee . .	285,310	—	—	—	—	—	—	—	
Providence . .	175,597	60	10	26.65	21.65	5.60	—	1.66	
Boston . .	569,892	237	62	25.32	13.92	1.69	2.53	3.38	
Worcester . .	118,421	39	12	17.04	17.34	2.56	2.56	—	
Fall River . .	104,863	—	—	—	—	—	—	—	
Lowell . .	94,969	53	32	33.96	28.30	—	1.88	16.98	
Cambridge . .	91,886	37	11	18.91	27.02	—	2.70	8.10	
Lynn . .	68,513	25	6	12.00	8.00	—	—	—	
Lawrence . .	62,559	15	5	13.33	13.33	—	—	—	
New Bedford . .	62,442	23	8	26.69	13.04	4.34	4.34	—	
Springfield . .	62,059	12	1	8.33	8.33	—	—	—	
Scranton . .	61,743	11	1	29.41	11.26	—	—	5.88	
Holyoke . .	45,712	7	5	42.86	28.60	—	14.30	—	
Brookton . .	40,063	19	2	20.00	—	—	—	—	
Haverhill . .	37,175	12	2	25.00	8.33	—	—	8.33	
Salem . .	35,856	8	—	—	12.50	—	—	—	
Chelsea . .	34,072	7	3	—	—	—	—	—	
Malden . .	33,961	10	—	20.00	20.00	10.00	—	—	
Newton . .	33,587	5	1	20.00	—	—	—	20.00	
Fitchburg . .	31,531	10	2	10.00	—	10.00	—	—	
Taunton . .	31,636	12	3	25.00	8.33	—	—	8.33	
Gloucester . .	26,121	6	1	16.67	—	—	—	—	
Everett . .	24,336	—	—	—	—	—	—	—	
North Adams . .	24,290	—	1	40.00	—	—	—	20.00	
Quincy . .	23,899	—	—	—	—	—	—	—	
Waltham . .	23,481	3	1	—	—	—	—	—	
Pittsfield . .	21,706	10	1	20.00	—	20.00	—	—	
Brookline . .	19,435	—	—	—	—	—	—	—	
Chicopee . .	19,167	2	1	—	50.00	—	—	—	
Medford . .	18,244	6	—	—	33.33	—	—	—	
Newburyport . .	14,478	7	2	28.60	—	—	14.30	—	
Melrose . .	12,962	4	—	35.00	—	—	—	—	

Deaths reported 2,658; under five years of age, 708; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 600; acute lung diseases 435, consumption 287, scarlet fever 25, erysipelas 6, typhoid fever 45, whooping cough 14, cerebrospinal meningitis 9, smallpox 25, measles 22, diarrheal diseases 56.

From whooping cough, New York 6, Philadelphia 2, Baltimore 3, Pittsburg 1, Providence 1, Boston 1. From cerebrospinal meningitis, New York 4, Boston 1, Worcester 2, Somerville and Brockton 1 each. From scarlet fever, New York 12, Philadelphia 7, Pittsburg 2, Boston 2, Lowell and New Bedford 1 each. From typhoid fever, New York 21, Philadelphia 1, Baltimore 3, Pittsburg 3, Providence 3, Boston 1, Worcester, New Bedford, Malden, Fitchburg and Pittsfield 1 each. From erysipelas, New York 2, Providence 1, Boston 2, Lynn 1. From smallpox, New York 2, Philadelphia 8, Boston 14, Cambridge 1. From measles, New York 13, Philadelphia 1, Boston 2, Worcester 1, Lowell 5.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,926, for the week ending Nov. 23, the death-rate was 21.3. Deaths reported 4,577; acute diseases of the respiratory organs (London) 582, whooping cough 50, diphtheria 82, measles 143, smallpox 22, scarlet fever 57.

The death-rate ranged from 12.6 in Huddersfield to 28.4 in Norwich; Birkenhead 15.3, Birmingham 19.7, Bolton 19.8, Bradford 20.8, Brighton 22.3, Bristol 20.9, Burnley 23.7, Cardiff 19.2, Croydon 14.7, Derby 14.7, Gateshead 17.5, Hull 20.7, Leeds 20.2, Leicester 12.3, Liverpool 20.4, London 22.3, Manchester 22.7, Newcastle-on-Tyne 21.5, Norwich 28.4, Oldham 25.0, Plymouth 15.9, Portsmouth 17.3, Preston 23.5, Salford 25.4, Sunderland 21.3, Swansea 16.5, West Ham 20.4, Wolverhampton 28.2.

RECENT DEATHS.

THOMAS WATERMAN, M.D., M.M.S.S., died in Boston, Dec. 14, 1901, aged 60 years.

DR. FRANCIS ASBURY UTTER of New York, a graduate of the medical department of the University of the City of New York, died Dec. 10, at the age of 61.

DR. RUSH S. HINDERKOPER died in Philadelphia Dec. 17, at the age of 57. He was born in Meadville, Pa., May 3, 1854. He was graduated at the University of Pennsylvania in 1877 as a veterinarian. He had been connected with the Philadelphia Dispensary, the Children's Hospital and the University of Pennsylvania Hospital. He was United States commissioner general to the exposition at Hamburg in 1883. He served as surgeon in the Spanish-American War.

ALEXANDER JACKSON, M.D., M.M.S.S., died in Boston, Dec. 12, 1901, aged 82 years. Dr. Jackson was a prominent physician of Plymouth, Mass., from 1843 to 1890. His early education was received in the Boston public schools and the Boston Latin School, and at the age of 17 he was graduated from Amherst College, in the class of 1840. He graduated at the Harvard Medical School in 1845. After practising for a while in Boston, he decided to establish himself in Plymouth, and did so in October, 1845, and continued in practice almost uninterruptedly until 1890, when, having passed the age of 70 years, he retired.

BOOKS AND PAMPHLETS RECEIVED.

Syphilis and Other Venereal Diseases. By H. de Meric. New York: William Wood & Co. 1901.

Lessons on Massage. By Margaret L. Palmer. Illustrated. New York: William Wood & Co. 1901.

L'aphasie Motrice. Dr. F. Bernheim. Institut de Laryngologie et d'Orthophonie. Paris. 1901.

Studies in Heterogonias. By H. Charlton Bastian, M.A., M.D., F.R.S. First Part. Illustrated. London: Williams & Norgate. 1901.

A Manual of the Practice of Medicine. By George Roe Lockwood, M.D. Second edition, revised. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

A Textbook of Diseases of Women. By Charles B. Penrose, M.D., Ph.D. Fourth edition, revised. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

A Textbook of Obstetrics. By Barton Cooke Hirst, M.D. Third edition, thoroughly revised. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

A Textbook of Embryology for Students of Medicine. By John Clement Heider, M.D. Second edition, thoroughly revised. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

A Textbook of Surgery. By Hermann Tillmanns. Translated from the seventh German edition by Benjamin T. Tilson, M.D., and John Rogers, M.D. Edited by Lewis A. Stimson, M.D. Vol. I. Illustrated. New York: D. Appleton & Co. 1901.

Modern Obstetrics. General and Operative. By W. A. Newman Dorland, A.M., M.D. Second edition, revised and enlarged. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

The Century Book for Mothers. A Practical Guide in the Rearing of Healthy Children. By Leroy Milton Yale, M.D., and Gustav Poliak, editor of "Babyhood." New York: The Century Co. 1901.

The Medicinal Plants of the Philippines. By T. H. Pardo de Tavera, M.D. Translated and Revised by Jerome B. Thomas, Jr., A.B., M.D. Philadelphia: P. Blakiston's Son & Co. 1901.

Nervous and Mental Diseases. By Archibald Church, M.D., and Frederick Peterson, M.D. Third edition, thoroughly revised. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

A Textbook on Diseases of the Ear, Nose and Throat. By Charles H. Burnett, M.D., E. Fletcher Ingals, M.D., James E. Newcomb, M.D. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1901.

Liverpool School of Tropical Medicine. Memoir V. Part I. First Progress Report of the Campaign Against Mosquitoes in Sierra Leone. By Ronald Ross, F.R.C.S., D.P.H., F.R.S. Dated Liverpool, Oct. 15, 1901. At the University Press of Liverpool. 1901.

The Mental State of Hystericals, a Study of Mental Stigmata and Mental Accidents. By Pierre Janet, Litt.D., M.D., with a preface by Prof. J. M. Charcot, translated by Caroline Rollin Corson. New York and London: G. P. Putnam's Sons. 1901.

Typhoid Fever and Typhus Fever. By Dr. H. Curschmann. Edited, with additions, by William Osler, M.D. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D. Philadelphia and London: W. B. Saunders & Co. 1901.

Anatomy: Descriptive and Surgical. By Henry Gray, F.R.S. Edited by T. Pickering Pick, F.R.C.S., and Robert Howden, M.A., M.B., C.M. A revised American, from the fifteenth English edition. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

International Directory of Laryngologists and Otolologists, containing Names and Addresses of Practitioners engaged in the Study and Practice of Laryngology and Otolology, compiled by Richard Lake, F.R.C.S. (Eng.) Second edition, revised and enlarged. London: Reiman, Ltd. 1901.

Dose-Book and Manual of Prescription-Writing, with a list of the Official Drugs and Preparations, and Many of the Newer Remedies with their Doses. By E. Q. Thornton, M.D. Second edition, revised and enlarged. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

The Surgical and Medical History of the Naval War between Japan and China during 1894-1895. Translated from the original Japanese Report, under the direction of Baron Saneyoshi, F.R.C.S., etc. By S. Suzuki, M.R.C.S. (Eng.), L.R.C.P. (Lond.), etc. Illustrated. Tokio: Tokio Printing Co., Ltd. 1901.

The Diagnosis and Treatment of Diseases of the Rectum, being a Practical Treatise on Fistula, Piles, Fissure and Painful Ulcer, Proctitis, Polypus, Stricture, Cancer, etc. By William Allingham, F.R.C.S. (Eng.), and Herbert W. Allingham, F.R.C.S. (Eng.) Seventh edition. Illustrated. New York: William Wood & Co. 1901.

Studies in Physiological Chemistry. Being Reprints of the more important studies issued from the Laboratory of Physiological Chemistry, Sheffield Scientific School of Yale University during the years 1897-1900. Edited by R. H. Chittenden, Ph.D. New York: Charles Scribner's Sons; London: Edward Arnold. 1901.

A Reference Handbook of the Medical Sciences. Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By various writers. A new edition, completely revised and rewritten. Edited by Albert H. Buck, M.D. Vol. II. Illustrated. New York: William Wood & Co. 1901.

A Reference Handbook of the Medical Sciences. Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By various writers. A new edition, completely revised and rewritten. Edited by Albert H. Buck, M.D. Vol. III. Illustrated. New York: William Wood & Co. 1901.

Pathological Technique, a Practical Manual for Workers in Pathology, Histology and Bacteriology, including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By Frank Burr Mallory, A.M., M.D., and James Homer Wright, A.M., M.D. Second edition, revised and enlarged. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

Address.

SOME SURGICAL TENDENCIES FROM A MEDICAL POINT OF VIEW.¹

BY REGINALD H. FITZ, M.D., BOSTON.

It was not without considerable hesitation that the honor of addressing you this evening was accepted, especially as what I am about to say is somewhat opposed to the prevailing tendencies of the day and relates rather to differences of opinion than to well-established principles. If I pay too much attention to the other side of the subjects brought before you, it is because this is less urgently advocated at present than the reverse. The importance of the subjects, however, is unquestionable since they belong to the borderland of medicine and surgery and may be stated as some surgical tendencies from a medical point of view.

The region mentioned obviously includes both the province of the physician and the domain of the surgeon. These terms may be supposed to represent the modest claims of the former and the imperialistic tendencies of the latter. It is common ground, however, and the successful advance of either surgeon or physician into the region previously occupied by his colleague will always be welcomed, provided the interests of mankind thereby are served.

The improvement in methods of surgical procedure during the last thirty years has so greatly increased the number and variety of surgical operations that it has seemed to me desirable to question the value of some of these, and especially to pay more attention to the subsequent history of the patient than to the immediate success of the operation. As physicians, we have been duly impressed with the progressive diminution in the mortality-rate of operations, but we are far more concerned with the degree of benefit which the patient may have experienced. For centuries the pathologist has taught that there are diseases so mortal in their progress as to be regarded as practically incurable. The advance of knowledge shows that the number of these apparently incurable diseases is somewhat diminished by a more intelligent classification of symptoms and lesions, and that all diseases which have received a common designation are not necessarily identical. There still remains, however, a considerable group of what the physician regards as hopeless cases, and of late years, especially, he has been in the habit of asking his surgical colleague to make some attempt to relieve the condition of these patients. Numerous efforts have been made and most encouraging results have been published, especially elsewhere. Unfortunately, when the comparison is drawn between such results and those under familiar conditions, the conclusion is not so satisfactory as is to be desired.

It will readily be admitted that a sufficient trial of surgical treatment is justified in many cases

where mechanical disturbances exist which medicinal treatment cannot relieve, provided the life of the patient is not endangered by the operation. Experience has shown that certain cases previously regarded as extremely dangerous or fatal without surgical treatment have been greatly benefited if not cured by such treatment. On the other hand, experience also has shown that immediate death, extremely short relief or prolonged suffering have resulted from operations designed to give longer life or greater freedom from distress than the physician could hope to offer. The surgeon is willing to operate upon the presumably hopeless case because the patient often survives the operation and may be benefited. The benefit is to be hoped for, since at times the diagnosis proves faulty and remediable conditions are found. If the diagnosis proves correct and incurable lesions are met, the patient is regarded as no worse off than before the operation, while the latter may relieve suffering and prolong life. The physician, therefore, is encouraged to transfer his patient and give him what is often called the benefit of the doubt. Unfortunately, a not infrequent result of the operation under such circumstances, is the death of the patient somewhat earlier and with more suffering to mind and body than if spared the surgeon's aid. In such cases the value of the doubt must be considered as problematical.

The failure of the surgeon to relieve to any great extent the sufferer from a supposed incurable disease leads him to request the transfer of the patient at a time when the characteristic features of the affection are less pronounced, with the hope that the morbid process may be arrested at an early stage. Indeed, he may wish to attempt relief at a time when in the light of our present knowledge it is impossible to make a diagnosis. The physician may suspect the grave, perhaps fatal, nature of the malady, but, owing to the similarity, if not identity, of the symptoms to those of less serious conditions, he feels compelled to wait for further developments.

The surgeon, on the contrary, would at once make an exploratory incision on the ground that the better the patient's general condition the less the immediate danger from the operation to the patient's life, and, if the supposable lesions are encountered, the chance of relief is increased. But the diseased appendix is found normal, the acute intestinal obstruction proves to be a phantom tumor, the incarcerated gallstone is nonexistent, the abdominal tumor becomes a harmless enlargement of the liver. Exploratory laparotomies are undertaken for the relief of suspected cancer of the stomach and no cancer is disclosed. There are the patients, too, often more desirous of the operation than is the surgeon who is to perform it. The experience presumably is not unique in which a patient undergoes removal of the ovaries, uterus and vermiform appendix for asserted pelvic and abdominal pains and subsequently presents herself for surgical exploration of the region of the pancreas. The pain referred to this organ proves, without operation, to be depend-

¹ Anniversary discourse before the New York Academy of Medicine, Dec. 6, 1901.

ent upon disordered gastric function of neurotic origin.

Dr. Foote, at a recent meeting of the Harvard Medical Society of New York, reported the case of a young man who complained of abdominal pain. The physical examination showed the scars of four laparotomies, one of which had been performed in Russia and three in this country. On the same occasion Dr. Gibson mentioned that a normal appendix, seven inches long, had been removed from a patient who claimed to have had previously seven attacks of recurrent appendicitis. The patient, not content with this demonstration of a normal appendix, subsequently applied at the Roosevelt and Bellevue hospitals for treatment for appendicitis. It is not to be wondered at that the host of neurotic and neuropathic men and women seek for operative relief for real and fancied ailments when they receive such advice as the following, taken from the editorial column of a daily paper: "It is probably true that the Dowager Empress Frederick's life could have been saved if she had been willing to have her stomach amputated. There are enough stomachless human beings alive and flourishing, and slight enough record of failures of the operation, to have made the chances distinctly even. The discomforts are not many, either; a few rules must be followed. The food must be cut up very fine and carefully masticated. One must show moderation at meals. The man without a stomach cannot eat as much as the man who has one. Everything must be warm, because the stomach, which heats food for the intestines, is missing."

Exploratory laparotomies, whether by advice of the physician, desire of the surgeon, or urgency of the patient, are only too frequent. They are not without considerable danger, and often disclose conditions which cannot be relieved, and which might have been appreciated without an operation; the high mortality in such instances often is attributed by the surgeon to the disease and not to the operation. Not infrequently they are undertaken without sufficient forethought. They tend to make the physician superficial in observation, since the diagnosis is to be made definitely by means of the operation. They lead the surgeon to become only too ready to act upon the diagnosis of those often incompetent to make them either through ignorance or inexperience, since the actual condition is likely to be made clear by his skill. Each case should carefully be scrutinized both by physician and surgeon before this operation is undertaken. The former may find conditions which will nullify the success of any operation; the latter may be led to recognize that the exploration can but add to the discomfort of the patient without prospect of any definite relief. It should not be made for diagnosis simply, but always for the purpose of curing disease or of relieving suffering. The art of the surgeon should ever be regarded as sanatory and should be called upon as rarely as possible to make a diagnostic procedure of what is essentially a therapeutic measure. The exploratory operation which dis-

closes nothing is more likely to reflect upon the judgment of the surgeon who performs it than to represent a tribute to his skill.

In partial justification of some of these statements, as well as of others which are to follow, I have asked a former assistant, Dr. G. A. Waterman, to examine the records of the Massachusetts General Hospital during the period of 10 years from 1890 to 1900. This decade was selected as it is recent enough to include many of the advances which have been made in operative technics, and the years represented are sufficiently numerous to furnish an experience of profit. The value of the evidence lies in part from its source, and in part from its representing the experience in a single institution of a number of surgeons identified with the practice of surgery in general.

The following table shows the increasing frequency and various results of exploratory laparotomies at this hospital. It is not asserted that all such operations occurring during the years included are tabulated, only as many as could readily be ascertained by an examination of the records, hence the figures are to be regarded as chiefly of relative value. Many successful explorations undoubtedly are recorded under other titles than that of exploratory laparotomy. The total mortality and the failures to cure may be distinctly less than stated, but they indicate sufficiently that an exploratory laparotomy, except in especially selected cases, is an operation which carries a very decided immediate risk to the life of the patient, and a very considerable doubt as to the degree of relief to the symptoms. In general, with the increasing frequency of these operations, there is some lessening of their mortality-rate, although the percentage of relief and cures is not especially improved.

FREQUENCY AND RESULT OF EXPLORATORY LAPAROTOMIES AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1890 TO 1900.

Year	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899
Number of operations	10	5	15	13	15	21	39	23	42	30
Cases of malignant disease	8	2	9	8	5	8	25	7	28	18
Number of deaths	3	2	7	8	7	9	11	13	16	11
Failure to relieve	6	2	5	3	2	5	22	9	17	13
Relief or securing diagnosis	1	1	3	1	2	5	5	4	6	5
Cure										
Percentage of malignant disease	80%	40%	60%	61%	33%	38%	64%	30%	60%	60%
Percentage of deaths	30%	40%	46%	61%	46%	42%	28%	56%	38%	36%
Percentage of failure to cure or relieve	60%	40%	33%	23%	20%	38%	56%	60%	76%	80%

The relief of suffering and the lengthening of life are legitimate aims for the surgeon as well as for the physician. The methods of the former are necessarily so much harsher than those of the latter that it may well be questioned whether too many operations are not performed with these objects in view. Granting that life may be more prolonged by the aid of the surgeon, is the life thus extended worth the living? Neither physician nor surgeon can answer this question with any degree of certainty until the life of the pa-

tient has been lived. But the physician and surgeon are called upon to advise and are not always united in their opinions. It is often the tendency of the surgeon so to express himself to the sufferer that the latter frequently is made more hopeful than is justified by the evidence at hand. He is likely to bring before him the most favorable outcome of the suggested operation. The mortality is apt to be placed as low as has been obtained by the most skilful and experienced of the world's surgeons, although it may be far the reverse in the practice of the surgeon concerned. The degree of relief obtainable is likely to be exemplified by the exceptional instances, not by the rule, for the surgeon is more likely to recall the few successful cases seen at more or less frequent intervals, than the numerous fatal cases of whose history after recovery from the operation he may know nothing. Assuming that the diagnosis of the conditions suggesting surgical treatment is clear, it is often found that complications exist rendering any treatment useless. The resection of ribs and drainage of the pleural cavity in pyopneumothorax seem of but little value when there is extensive tubercular infiltration of the lung on the side opposite the diseased pleura. The operation must be regarded as worse than useless if at the same time there is evidence of amyloid disease of the abdominal viscera. What avails the extirpation of a renal tumor if at the time of the operation secondary nodules are present in the brain or lungs? The more learned in pathological anatomy the adviser is, the more cautious will his prognosis be. Unfortunately it is the tendency of the day for the surgeon in general to neglect this branch of knowledge. He is inclined to devote himself rather to the bacteriopathology which makes his operation succeed than to the post-mortem examination which usually gives ample evidence of the cause of the patient's death.

It may be unwise for the sick man to be placed in any other than a hopeful position before the operation, but the latter should not be decided upon until those nearest the patient are as thoroughly informed upon all points as possible. It is especially for the physician on such occasions to realize his responsibilities and to prepare himself to meet them, since it is he who eventually is the less likely to be relieved of them. He cannot discharge this obligation by transferring his trust to the care of the surgeon, but should endeavor to aid the latter to the utmost possible extent. The patient then will be in a better position to decide whether he will prefer the known to the unknown; for with the best intentions of the surgeon the future of his patient is only to be forecast by past experience, and fateful as this may be, it is not infrequently is rather to be welcomed than the alternative offered.

Such statements receive their strongest illustration in malignant disease of the alimentary canal. Both surgeon and physician are agreed upon the usual fatal outcome of this affection and the uncertainty as to its duration. They are fully aware that in many cases death is likely to be pre-

ceded by great suffering from mechanical obstruction. Nevertheless, the surgeon is ready to operate because there is a possibility of error in the diagnosis and the symptoms may prove to be due to a remediable cause, or the obstacle may be removed or overcome for the time being. The abdomen, therefore, is explored, first to make clear the diagnosis. Should this prove correct, even if there is evidence of extensive incurable disease, the inclination then is strong to attempt some sort of relief by resection, gastrostomy, anastomosis or colostomy. The surgeon may urge resection on the ground that it has successfully been performed by himself or by others, and if the patient survives the operation pain is likely to be relieved and a life of usefulness may be prolonged for a number of years. He may present as an alternative anastomosis, with its somewhat lower mortality and less favorable outlook as to the duration of life. With the discovery of conditions unfavorable to the former operation and mindful of the high mortality-rate of anastomosis, recourse may be had to colostomy, with its customary disagreeable and annoying after-effects, producing at the best only a kind of relief for an uncertain period of time. The physician knows that without any operation apparently insuperable obstructions have yielded and indefinite periods of active life have subsequently been enjoyed. He knows that if the symptoms of obstruction persist the patient's suffering may be lessened by medicinal treatment, and that such treatment often is necessary even after temporary comfort only is obtained from an operation. He may know also that the surgeon himself, when asked what he would desire if in the place of the patient, has replied that he should prefer to die during the operation or to live the least possible time after it, than to prolong life at the probable cost of health and happiness. The higher its mortality the warmer would be his welcome of the operation.

In order to obtain the experience of patients after such operations upon the alimentary canal, an inquiry has been addressed to the friends of a considerable number of those who have been operated upon at the Massachusetts General Hospital, during the period between 1890 and 1900, for diagnosed and demonstrated cancer of the stomach and intestines. Information was sought as to the degree and duration of any relief which may have resulted from the operation. The replies which have been received, including the information derived from the hospital records, pertain to nearly three-fourths of the cases thus investigated and show clearly what has been the melancholy outcome in many of the cases of this class of gastro-intestinal disease so generally cared for at the present time by surgeons. The pathos of some of these replies make them all the more convincing.

It should be stated that it is probable that all the patients operated upon during this period are not included, that successes may have been overlooked, and that few or many of those from whom no replies were received are likely to have under-

gone the more favorable experience, if such it may be called, of prolongation of life, perhaps even of relief from suffering. Regarding the mortality and duration of life as relative, and the percentage of suffering as inexact, the evidence presented nevertheless must be considered as offering grave doubts as to any considerable benefit from this class of operations as a whole. It may be that the coming ten years will prove more encouraging, but the enthusiasm of the operator should not permit a warping of the judgment based upon so recent an experience.

In the series collected there were 14 operations for cancer of the stomach. These included 4 gastrotomies, all the patients with the exception of 1 not heard from, dying within 2 months, and 4 pylorotomies, 1 of which was not heard from, 2 died within the first month after the operation, and the fourth was relieved for several months. At the end of 6 or 8 months, however, the last patient began to fail and died at the end of a year and a half. Of the 6 gastro-enterostomies, 4 died within 17 days, 1 received no relief whatsoever and after 12 years of terrible suffering passed away. The sixth felt quite well for about 2 months after the operation. He was then confined to the bed the greater part of the time and "suffered untold agony" till his death 9 months later.

There were 10 cases of intestinal resection of which 8 died within a month after the operation. The ninth patient was found to have a girdling ulcer without gross evidence of malignant disease, although from microscopical examination regarded as an adenocarcinoma. He was at work as janitor and enjoying fair health two and a half years after he was operated upon. The tenth patient was not heard from. Of the 5 cases of intestinal anastomosis 2 died within the fortnight following the operation, 1 lived 6 months and 2 have not been heard from.

There were 19 inguinal colostomies, and the subsequent history of 37 of these has been ascertained. Twenty-eight of the latter died within the half-year following the operation. Two lived between 6 and 12 months, 5 lived from 1 to 2 years, and 2 lived 27 and 30 months respectively after the operation had taken place. Thus only a few more than one-fifth of the cases heard from were alive one year after the operation.

When the question of relief to suffering is considered it appears that among 16 patients who fully recovered from the immediate effects of the operation and lived 1 month or more after it there was some or much relief in 8 and no relief also in 8.

The operation was regarded as "decidedly unsuccessful" in a patient who died a month later and in 10 days after leaving the hospital. A patient who lived for 2 months was afforded "only temporary relief." Another living 3 months received "very little relief." One who lived 1 month was relieved "of the intense agony she was almost constantly suffering previously." After the operation the pain occurred occasionally.

Her last 4 months of life, however, were spent in the hospital. Of a patient who lived 5 months it is stated, "the operation was no relief. The pain from the running sore continued. Only for the pellets you prescribed in the hospital he would be screaming all the time. They had the effect of deadening it." Another who lived 5 months "derived no benefit from the operation. . . . She suffered intensely except when under the influence of opiates. . . . No doubt the operation prolonged the suffering." A patient who lived 6 months after the operation had "slight temporary relief from acute suffering, but she never regained strength." Another patient also lived 6 months "free from pain that was severe until the end, and the chills were less. An ugly growth formed on the outside which caused him much uneasiness." The patient who lived 16 months died "after a painful illness which lasted till death. Excepting a few days at a time he was continually in pain and under doctor's care." For one who lived 21 months "the relief did not last only about 3 months. Then he was a great sufferer the rest of the time." The life of one patient was prolonged "for 2 years, during which time he suffered continually. The relief afforded lasted about 3 weeks, and from that time on his suffering steadily increased." Of another patient, who lived also 2 years, it was learned that "he never was so he could sit up, but he thought it must have been a great relief to him to have the discharge come the way it did. He thought that he lived longer by having the operation, although he would have been glad to go long before he did he suffered so much. He suffered a great deal but he had a medicine . . . that took away the pain in a measure. . . . He said if it was to do again he should have the operation as before."

The two patients who lived 27 and 30 months respectively were relieved for a year. Each was then operated upon for a second time, after which the condition was one of invalidism.

There were 8 cases of anal excision of rectal cancer, 3 of whom were not heard from. Of the others 1 died within a week, 2 lived 14 and 18 months respectively, the fourth was living and well at the end of 2 years, but in this case the nature of the growth does not form a part of the record of the case. The fifth patient is now alive and well nearly 12 years after the operation. The microscopical examination of the specimen showed "a fibrous tissue stroma, the spaces of which were filled with epithelial cells." Nevertheless, the result in this case is so exceptional that a legitimate doubt must be raised as to the cancerous nature of the tumor. The evidence recorded is not sufficient to remove this doubt except from the mind of the sanguine surgeon. The patient who lived 11 months became "an intense sufferer. He had to take morphine for relief. When he died he was a mere skeleton. When he got home he had not control of himself and used 1 pound of cotton a week; at the time of his death he used 7 pounds." Concerning the patient who lived 18 months it was stated that she "was relieved for

only 2 months and then it began to trouble her and she lived until March 19, 1892, and some of the time suffered intensely. The last 6 months was under the influence of opiates most of the time."

Of the 17 Kraske operations 7 were not heard from. Of the 10 remaining 7 died within the year following the operation. Three lived 22, 29 and 32 months respectively. One patient remained in the hospital for two months after the operation, then returned to her home, "lived 4 weeks, and was a great sufferer during that time." A patient who lived 8 months after the operation "was a constant sufferer from the time he was operated on until the time of his death." Another who lived 22 months "never worked at all, as he was not able. He did not suffer very much until he was home about a year, and after that he suffered something terrible; could not get any relief at all; he was just as helpless as any infant." Of the patient who lived 29 months it was stated "that no relief followed operation. It was no doubt a success, but the cancer grew within a year, and although the operation prolonged my father's life, complications arose resulting from the new rectum, and it was worse, much worse than cancer. My mother died 6 months after my father. She passed through a serious operation, died also of carcinoma. If ever I have the dreadful disease I shall insist to be filled with morphine and die sooner, although I believe in operations, but not for that disease." The patient who lived 32 months "enjoyed fairly good health for 6 months, but after that she never saw a well day."

Of the 77 cases of cancer of the alimentary canal, whose history subsequent to the operation for the relief of this affection was learned, it appears that death took place within one week in 28, or 36%; between 1 and 4 weeks in 15, or 19%; between 1 and 6 months in 14, or 18%; between 6 and 12 months in 4, or 5%; between 1 and 2 years in 9, or 11%; between 2 and 3 years in 4, or 5%; living as above stated, 3%.

Thus 54% of these cases died within a month after the operation and 72% within 6 months. Any considerable prolongation of life applied, therefore, to less than 30%, and to many of these the life was one of suffering and sorrow, necessitating the frequent or constant use of opiates to obtain any measure of relief.

Intracranial tumors form another series of growths which have been operated upon for a sufficient number of years to permit a medical opinion to be formed of the value of this operation. Of the 15 cases included in the decade under consideration the subsequent history is known in 10. Of these, 4 died on the day of the operation. One died at the end of 3 days, a fourth at the end of 11 days, another at the end of 3 weeks, and 1 at the end of a month. Thus, within the month following the operation, 8 out of 10 cases died. The ninth patient died in the hospital at the end of 10 weeks. Of the tenth patient it is stated "that previous to the operation he suffered most intensely from headache and vomiting, with

attending weakness. After the operation (the immediate effects having passed away) he was comparatively free from pain, and there was some gain in his speech and paralysis.

"The second operation was more successful and he was much better, being able to drive and go about in the cars, etc. The improvement lasted until 2 or 3 weeks before his death, when he began to show signs of failing." He died 7 months after the second operation, which followed the first by a month.

The treatment of tumors of the kidney also occupies the debatable ground between medicine and surgery, and the experience at the hospital during the decade mentioned again offers but slight encouragement to the surgical treatment of this affection. There were 11 nephrectomies for malignant disease of the kidney, and replies were obtained relative to the fate of 8 of these patients. Four died within a fortnight of the operation, another at the end of two months, a sixth at the end of 3 months, and another at the end of 5 months. The eighth patient was living and practically well 8 years after his operation. The examination of the tumor after removal showed that the growth, stated to be a sarcoma, proceeded from the suprarenal capsule, the kidney being but little altered.

Physicians will readily admit that the surgical treatment of external malignant tumors frequently offers a source of relief to pain, deformity and incapacity, with but little immediate risk to the life of the patient. With the recognition that the disease probably will recur, the hope is maintained that recurrence may long be delayed, that it may take place within internal organs and prove relatively painless, or that death may result from some intercurrent affection wholly independent of the original disease. External tumors thus seem to fall wholly within the region of surgery. The physician, however, should stand ready to reclaim from the knife what may otherwise be satisfactorily treated. The surgeon is quite willing to transfer for medical treatment after operation the case of disease which may recur, with the hope of avoiding or postponing recurrence, but in certain instances it is apparent that medicinal or non-operative measures are to be tried before an operation is undertaken. No more satisfactory instances of the value of such treatment have been reported than those of W. B. Coley, from the use of mixed toxins, and those of F. H. Williams and others, from the use of the Röntgen rays. Certain tumors of the neck in particular may be said to lie in this borderland of medicine and surgery. Long regarded as demanding surgical treatment in the first instance, the repeated unsatisfactory result of such treatment inevitably leads to the conclusion that surgical methods are to be employed only as a last resort after other measures have failed. The patient seeks medical advice for enlargement of the thyroid gland. The physician, perhaps not well informed, sends the patient to the surgeon, who frequently takes the shortest way of ridding the patient of the

deformity, unmindful that thyroids are not to be removed simply because they are enlarged. Indeed the deleterious effects of this treatment are only too well known by those who have seen the patient subsequently suffer from cachexia strumipriva to obviate the effects of which various modifications in operative treatment have been introduced and medicinal treatment has become necessary. It is always to be remembered, however, that we are mainly indebted to a surgeon, Kocher, for our knowledge of the curative effects of iodine in 90% of the cases, to say nothing of his more recent recommendation of phosphorus, thus rendering operative surgery unnecessary if not injurious in this proportion of the patients.

The wise surgeon realizes that the operative treatment of goitre is demanded only for such varieties as have undergone secondary changes. The colloid and cystic, the fibrous and calcified portions alone are those primarily demanding the use of the knife, provided the deformity is sufficient, while the parenchymatous enlargements usually rapidly subside when submitted to the treatment with iodine. If a part of the thyroid gland presents the characteristics of these secondary degenerations, it does not follow that the entire gland is disorganized. It is for the surgeon so to familiarize himself with the pathology of this structure as to treat what demands surgical measures, but to refrain from his treatment of such goitres, entire or in part, as can more successfully otherwise be cared for.

Even if the limitations of the medical and surgical treatment of goitre are well understood it would seem that the relation of enlargement of the thyroid to Graves' disease is frequently misunderstood. The surgical treatment of the latter affection finds new advocates from time to time, and the value of this treatment is supported by columns of most encouraging figures. It must be remembered, however, that the term goitre means merely enlargement of the thyroid gland, and that such enlargement differs in etiology, structure and in associated disturbances of function. Admitting that the removal of a considerable part of the diseased thyroid from a case of sporadic goitre produces a cure by relief to the deformity and to the immediate mechanical and remote constitutional disturbances, it by no means follows that this operation is to afford a like relief in Graves' disease. In the former affection the goitre is a cause of the disturbances; in the latter it is one of the disturbances the cause of which is unknown. Removal of this deformity, so often a vascular goitre, merely takes away one feature of the disease and has repeatedly led to the sudden and unexpected death of the patient, either on the operating table or while apparently in a state of normal convalescence from the operation. It would seem as if the reported successes of the surgical treatment of Graves' disease were attributable rather to a lack of agreement as to what should thus be designated than to the especial skill or good fortune of the operator. Buschan's conclusions from his analysis of such reports are

so suggestive, that in genuine Graves' disease extreme or threatening deformity alone is to be regarded as a satisfactory indication for the removal or obliteration of considerable portions of the diseased thyroid.

In like manner the surgical treatment of malignant lymphoma is to be disputed. Here again we have to deal with a progressive disease tending to produce extreme deformity of the neck often before other parts of the body are invaded. It is only after many years, even centuries, of observation and experience that the glandular deformities of the neck have become more and more sharply defined, grouped and classified. Even now there is apparent uncertainty and lack of agreement as to the significance of the term malignant lymphoma and the relation of this alteration of the lymph glands to other changes in the structure of these glands. That certain of the regional enlargements of lymph glands, with or without any considerable increase in the leucocytes of the blood, pursue the course of a malignant disease and eventually prove fatal, is universally known. The resulting deformity is so annoying that the patient hopes to find speedy relief in the extirpation of the tumors. The uselessness of this treatment of leukemic lymphomata seems almost universally recognized. In a leukemic malignant lymphoma, however, despite failure after failure on the part of the surgeon to afford anything but the briefest possible relief to deformity, case after case continues to be operated upon before any sufficient trial of medicinal treatment has been made. Finally the discouraged patient returns to his physician with equal, if not greater, deformity than before from the enlarged glands, and in addition bearing the scars of repeated operations. The intility of the treatment is sufficiently indicated by the combination of the lesions. Despite the limited value of the arsenical treatment of this disease, it is likely to be advised after the operation, and if of value then, as it sometimes is, although perhaps temporarily, it is likely to have been equally useful before operative treatment was undertaken. Despite such experiences operations are so frequent upon this class of patients that it would seem as if ignorance of the progress of this disease prevailed, that its nature was unrecognized, or that the patient had not been fully informed of the inevitable outcome.

The illustrations here presented are but a few drawn from the borderland of medicine and surgery, and it is unnecessary and perhaps undesirable to extend them indefinitely. They are not intended to oppose the surgeon in his persistent efforts to relieve suffering humanity, but to emphasize the importance of the careful study and selection of suitable cases. It is not to be expected that the practice of the healing art is to be based solely on hygiene and surgery, the former to prevent, the latter to relieve or cure disease, although this assertion so frequently has been the shibboleth of the last quarter of a century. The value of remedies in common use is sufficiently well established to permit their limitation to

be recognized, and progress in the future is likely to depend much more upon the discoveries which shall make surgery less necessary than to open new fields for surgical treatment. Fully recognizing the marvelous benefits to humanity which anesthesia and asepsis have brought about, it must be admitted also that these benefits are not wholly unalloyed. Operations are undertaken which are followed by the immediate death of the patient; others prove to be wholly unnecessary; and still others leave the patient in a condition of helpless invalidism, often making life worse than death. Any operation which does not better the condition of the patient must be regarded as a therapeutic error, since the knowledge thus obtained shows that the operation should not have been performed.

The advance of knowledge in the future should be in the direction of limiting these unnecessary and harmful operations; for the wisdom of the surgeon should serve as well to restrain him from operating as to enable him to operate successfully. Especially to be cultivated for these purposes are greater accuracy in diagnosis and prognosis, and a more widely spread knowledge of pathology and pathological anatomy. The surgeon thus will become a better adviser, although the number and variety of his operations thereby may materially be lessened.

Original Articles.

SUCCESSFUL OPERATION UPON A CASE OF BRAIN ABSCESS FOLLOWING SUPPURATIVE MIDDLE EAR DISEASE.¹

BY FREDERICK L. JACK, M.D., BOSTON.

Aural Surgeon to Massachusetts Charitable Eye and Ear Infirmary.

PRIOR to the appearance of Macewen's² treatise, the subject of suppurative infection of the meninges and brain, resulting from disease of the middle ear, had not received the systematic attention it deserved, though many cases had been reported, and the subject of brain abscess had been by no means neglected in the literature. This is not surprising in view of the universally hopeless prognosis of these conditions, both with and without operation.

A new impetus to the study and a fresh incentive to operation were aroused in 1893 by the work of this author, whose elaborate presentation of the subject from the pathological, symptomological and operative point of view, placed it for the first time on its proper plane, whether regarded from the scientific or from the purely practical standpoint.

The increasing interest in this subject as well as the improvement in prognosis appears from the statistics gathered by various writers. Up to

1889 von Bergmann³ found only 8 successful operations on brain abscess of otitic origin; up to 1894 Körner⁴ had collected only 55 cases of operation both successful and unsuccessful; in the following year he had increased this number to 92. In 1898 Marsch found reports of 60 successful operations upon temporal and 12 upon cerebellar abscess.

The prominent symptoms of brain abscess are headache and vomiting, with normal or subnormal temperature in uncomplicated cases, slow pulse, progressive mental deterioration, mental dulness passing into apathy and eventually into coma, preceded or accompanied by convulsion. Pupillary changes, ocular paralysis and optic neuritis may appear, the latter less frequently than in tumor. Hemiplegia sometimes completes the picture, and generally denotes extension from the temporal lobe inwards upon the internal capsule.

The usual seat of abscess is in the temporo-sphenoidal lobe over the tegmen tympani, and in this direction the exploratory operation proceeds unless definite symptoms of cerebellar disturbance point to invasion of that organ. Such symptoms following ear disease demand prompt surgical interference. It is true that in rare instances a small abscess may be absorbed, or a large one near the surface may discharge spontaneously, but this chance is too remote to justify expectant treatment.

The case which forms the basis of this communication is sufficiently important to place on record as showing the possibilities of operation even upon a moribund patient. It further shows that trephining over the squamous portion of the temporal bone is not always necessary for the evacuation and complete discharge of the abscess and removal of all symptoms. This point is of practical interest in view of the following conclusion of Macewen⁵ with regard to the operation through the tegmen tympani. "Such an opening into the cerebrum suffices for temporary purposes, but though it always ought to be made in order to eradicate the source of the infection, it is not safe to trust to it alone, as in many cerebellar abscesses there are sloughs of brain tissue which cannot be easily removed in this way, but require a larger opening in the skull for their evacuation."

From the symptomological point of view it is hoped that the detailed examination of the speech defect in this case will be of interest, since Macewen states that careful reports are lacking of the variety of aphasia accompanying this disease, though its occurrence has been noted.

J. W., newspaper reporter, married, 25 years old, of Boston, presented himself at the clinic of the Massachusetts Charitable Eye and Ear Infirmary July 31, 1901.

History.—The left ear had troubled him for 3 years. There was a discharge last winter which ceased up to 6 months ago, when it reappeared. During the last 6 weeks he suffered with frontal

¹ Read before the Boston Society for Medical Improvement Dec. 2, 1901.

² *Pyogenic Infective Diseases of the Brain and Spinal Cord*, by William Macewen, M.D., Glasgow. New York: Macmillan & Co., 1898.

³ *Die Chir. Behand. v. Hirnkrank.*

⁴ Cited by Miller, *Deutsch. Med. Woch.*, 1897, vol. xxiii, 8, 842.

⁵ *Deutsch. Med. Woch.*, 1897, vol. xxiii, 8, 333.

headache, but there was no pain in the ear until 2 days before admission to the Infirmary, when he awoke from a sound sleep with a severe headache.

Examination showed a small amount of pus in the auditory canal. The walls of the canal were slightly swollen, but not especially tender to pressure. Landmarks of the drum membrane were obscured by swelling. The posterior segment of the drum was red and bulging. The mastoid was tender to touch over the tip and antrum, but not swollen.

The hearing tests were as follows: Watch not heard; the hearing for the voice was reduced about one-half. The tuning-fork by air conduction was only heard one-twelfth of the normal time (T. F. 512 V. S. A. C.=20 "heard 1"). Bone conduction was normal (B. C.=10 "heard 10"). Tuning-fork applied to the skull was heard

through sclerosed bone the entire distance. The antrum was found filled with pus. On enlarging the opening above, and posteriorly, softened bone with granulations and purulent matter were found. With chisel and curette the bone was removed from the middle fossa for over a distance of 1 inch in length, and a half-inch in breadth. The lateral sinus was also exposed about an inch. This was necessary in order to thoroughly remove all diseased parts.

The dura was normal in color and without bulging. The wall of the sinus showed nothing abnormal. The neck of the antrum was enlarged and the middle ear carefully curetted, removing the incus together with masses of cholesteotom. The wound was irrigated with a bichloride solution (1 to 3,000) and sterile water and dressed in the usual way.



louder in the affected ear (Weber F. 256 V. S. louder in the left ear). The test by Galton's whistle was normal. The low tuning-fork was not heard (V. S. 192).

Severe headache appeared in a few days. The mastoid tenderness, however, gradually disappeared and also the swelling in the canal. The temperature fell from 101° F. on August 1 and remained at 99° F. for several days. The pulse during this time varied between 60 and 70. On August 7, seven days after opening (paracentesis) the drum, the patient had a chill and complained of intense frontal headache. The temperature quickly rose to 102° F., pulse 90. There was no tenderness over the mastoid. Operation was advised and accepted.

Extradural operation.—Under ether the usual mastoid incision was made and the periosteum was divided. A deep opening was necessary

Bacteriological report.—Mixed infection.

For a few days after the operation the patient's symptoms improved. The temperature on the following morning was 100° F., the pulse 80. The wound was dressed daily and looked well. He complained, however, of severe headache (frontal). The ice bag and repeated doses of codeia afforded some relief.

August 16, at 1 a.m., on the eighth night after the operation, the patient was found pulling and pushing the bedclothes and could not be roused. The pupils were equal and contracted, but reacted to light. Temperature 98° F., pulse 102, thin and wiry. Convulsions soon appeared in the hands and arms. The temperature suddenly rose to 103° F., and the pulse fell to about 60. The patient was perfectly quiet and deeply comatose for 4 hours before operating. Perspiration was profuse, and the urine was passed involuntarily.

Intradural operation.—The wound was reopened and enlarged by an incision upwards over the squamous bone and posteriorly for about 2 inches towards the occipital protuberance. The skin and periosteum were retracted so that the skull above the mastoid was fully exposed. With chisel and rongeur forceps bone was removed so that a larger surface of the middle cranial fossa was exposed than at the previous operation.

There was bulging outwards of the dura most marked over the tegmen tympani. No opening could be found in the dura. A hypodermic needle was passed twice upwards into the brain before pus was drawn into the syringe. A narrow knife was then entered at a point over the tegmen and passed upwards about 1 inch into the brain following the direction taken by the needle. The opening was enlarged by forceps and over 4 oz. of foul pus and sloughing brain tissue were evacuated.

The abscess cavity was thoroughly irrigated with a solution of carbolic acid (1 to 40), then one of bichloride (1 to 3000). After all necrotic material had been removed the dural wound was wicked with a small piece of iodoform gauze. The wound over the skull was partially closed by sutures, and the cavity of the mastoid covered with thin rubber sheeting packed with plain gauze and dressed.

August 17.—The temperature rapidly fell to 99° F. in 12 hours, and the pulse ranged between 60 and 70. The patient was quiet during the night and seemed rational at times. Answered when asked if he had any pain. The wound was dressed, and upon removing the wick about one-half ounce of fetid pus discharged from the abscess cavity in the brain. The cavity was washed out and dressed.

August 18.—The patient recognized his attendants this morning. Temperature 100° F, pulse 75. The wound was dressed daily, and every possible care taken of his general condition.

August 22.—During four days the patient had complained of headache (frontal). The temperature varied slightly between 98° and 99° F., pulse good. He had been less rational, and at times was roused with difficulty. The discharge of pus from the abscess cavity was becoming less in amount, and the brain was found somewhat bulging into the mastoid wound.

Examination of the eyes.—Pupils react normally to light. No hemianopsia. With homatropine the fundus of the right eye showed a slight swelling of the disc and tortuosity of veins, the left eye marked swelling of disc and tortuosity of veins. There was paralysis of left abducens muscle (eye would not rotate outwards beyond the median line). The patient stated, however, that the left eye had always turned inwards. The movements of the right eye were normal. He showed signs of aphasia. When shown an object he was unable to name it, although he repeated the name when told. He also recognized a relative whom he had not seen for 4 or 5 weeks, but could not call her by name.

August 23.—Symptoms of imperfect drainage appearing, blunt scissors were inserted into the cavity of the abscess, and upon enlarging the opening there was a discharge of about 2 oz. of very foul pus. The cavity was irrigated and a rubber drainage tube was inserted in place of gauze. The aphasia continued the same.

Recovery was uninterrupted from this time, and the patient was discharged practically well Sept. 12.

Remarks.—Should the brain have been explored for the abscess at the time of operating upon the mastoid? Against such a step were absence of bulging of the dura or congestion and no visible erosion of the dura after careful inspection, especially over the area of the tegmen tympani. It is true that Wallace⁶ reports a similar case in which an abscess involving the greater part of the temporo-sphenoidal lobe failed to produce bulging of dura into the opening made by operation. It is perhaps, therefore, unsafe to regard this failure as an absolute contra-indication.

Up to the time of the operation all of the symptoms could be accounted for by the condition found, and it did not seem advisable to injure brain tissue. The abscess, however, undoubtedly existed at that time and was the cause of the headache.

This question was discussed at a recent meeting of the *Société Française d'Otologie de Rhinologie et de Laryngologie* in 1897.⁷ The prevailing opinion seemed in favor of delaying for a day or two after operating upon the extradural abscess. The suggestion was made, however, that the danger of infection through continuing the first operation into the brain might be obviated by applying the thermocautery to the spot through which the puncture was made.

The opinion of Macewen regarding the necessity of opening the squamous portion as well as opening through the tegmen tympani seems to be very generally shared. Review of available literature shows that the practice of trephining (or of opening by the chisel) over the ear is practically, perhaps quite, universal, and it would be presumptuous to assume from this one case that the prevailing opinion was erroneous. That such an opening is not invariably necessary is certainly demonstrated.

A certain advantage is gained by avoiding the external opening, in that the danger of hernia is reduced to the minimum, though this consideration should not deter the operator if any question exists as to the complete evacuation of the contents of the abscess.

The opening through the tegmen sufficed not only for the removal of a large amount of pus, but also of considerable sloughing brain tissue. That the evacuation and drainage were complete is shown by the perfect recovery.

⁶ Translation Medical Chirurgical Society, Edinburgh, 1895, xv, 96.

⁷ Ann. de mal. de l'oreille et du larynx, Paris, 1897, p. 640.

STUDY OF THE APHASIA PERSISTING DURING CONVALESCENCE AFTER EVACUATION OF BRAIN ABSCESS.¹

BY GEORGE L. WALTON, M.D., BOSTON.

Physician to Neurological Department, Massachusetts General Hospital; Clinical Instructor in Neurology, Harvard University.

EXAMINATION AND CLASSIFICATION OF THE SPEECH DEFECT.

SEARCH through available reported cases of otitic brain abscess since the publication of Macewen's work shows that this subject has not received the attention from the neurological that it has from the otological point of view. With the exception of the full report of a case by Marie and Sainton,² careful reports of the resulting aphasia seem still lacking. The brief statements regarding speech defect all point, however, in the same direction, namely, toward impaired function of the auditory word centre and its connections.

Muller's³ patient, on being shown a key, could not name it, but said, "Yes, that is to close"; shown a glass, said, "That is to drink"; when these objects were named, said, "Yes, key," "Yes, glass." Patient answered questions, though could not name objects. Muller states that this amnesic aphasia is not a sure sign of abscess, for Kühn⁴ has reported it in simple meningitis.

Koe⁵ reports hesitancy in speech and loss of memory for words.

Burnett⁶ mentions "paraphasia," "sensory aphasia," and states that patient seemed to understand questions but was unable to give answers. If asked how he felt, would shake his head affirmatively, but if examiner said, "Better?" he would then say in a low tone, "Better."

Steinbruger⁷ reports "false answers and kind of partial word deafness," giving as illustrations: When asked how long he had been a soldier, patient answered, "Four days" (incorrect); when asked his age, answered, "Seventh Company." No motor or optic aphasia. Indicated objects and told the day and year of his birth.

Moss⁸ states that the patient was not able to use the word she wanted; after it was suggested would finish the sentence.

With a view to contribute toward filling this hiatus in our knowledge of cerebral disorder, careful examination was made of Dr. Jack's patient, on the 29th and 30th of August, with reference to the variety of aphasia. For this purpose answers were obtained to the 34 questions suggested in Bastian's system.⁹ The following are the details of the examination:

(a) *Preliminary qualifications.*—(1) The patient is right-handed. (2) There is no paralysis

of face or limbs; every movement of the hand is perfect, there is no astereognosis or other form of numbness, and no lack of facility in handling the pen or other instrument. (3) He is an educated person,—a reporter on a newspaper.

(b) *Activity of auditory word centre and glosso kinesthetic centre with afferent, commissural and emissive fibres.*—(4) Patient has moderate deafness, as recorded in the otological report, not sufficient to materially impair his ability to hear ordinary conversation. (5) He recognizes and appreciates ordinary sounds and noises. (6) He comprehends simple speech, understanding and obeying promptly the orders to show teeth, protrude tongue, and to close eyes. His understanding for speech of a higher order is somewhat impaired; he does not appreciate, for example, the meaning of the word "explosion," though the meaning of the word "thermometer" is grasped. Again, when asked to make an exact copy of the numerals $5 + 5 = 10$, writes the words *five plus five*, and fails to grasp the idea of the words "exact copy," even after repetition. He recognizes his own name and simple words. (7) Spontaneous speech is somewhat impaired in ordinary conversation, and markedly so on attempting conversation of a higher order, the patient sometimes substituting the wrong word, as *arm* for *car*, *supper* for *breakfast*, and at other times substituting a word having no meaning, as *fels* for *wings*, "I don't know why I should be *they-ing* on that," apparently meaning, "I don't know why I should fail on that" (alluding to his attempt to describe the manner in which a bird flies). He is unable to say the Lord's Prayer without transposing words and sentences. (8) He can name the days of the week (leaving out Sunday, but promptly inserting it on his attention being called to the fact that he named only 6 days); he can say the letters of the alphabet and the numbers from 1 to 20 without being started. In naming the months of the year several are omitted at the first trial, though subsequently they are perfectly named. (This point will be discussed further in considering the hearing of this case upon the question of agraphia.) (9) He can repeat short sentences uttered before him, occasionally substituting a word for another word of similar sound; for example, *plight* for *flight* and *say* for *slay*. (10) He apparently was sufficiently musical before his illness to recognize tunes; now mistakes simple tunes but when the tune is correctly named before him appreciates his mistake. (11) He can carry a simple air, together with the words of simple songs, after being started, but cannot start them.

(c) *Activity of the visual word centre and chiro-kinesthetic centre, with their afferent, commissural and emissive fibres.*—(12) His sight is good. There is no homonymous hemianopsia. (For ophthalmological examination see previous report.) (13) He recognizes simple printed or written words, but does not recognize moderately difficult ones; for example, he reads and understands the sentence, "Two colored women

¹ Read before the Boston Society for Medical Improvement, Dec. 2, 1901. — This study applies to the foregoing case reported by Dr. Frederick L. Jack.

² Rev. Neur., 1898, p. 111.

³ Deutsch. Med. Woch., 1897, vol. xxiii, 842.

⁴ Zietschr. f. Ohrenheilk., vol. xxx, S. 1.

⁵ Archives Otolaryng., New York, 1898, p. 237.

⁶ American Journal Medical Science, November, 1897, p. 547.

⁷ Deutsch. Med. Woch., 1897, vol. xxiii, 656.

⁸ Moss, Archives Otolaryng., New York, 1900, vol. xxiv, 41.

⁹ A Treatise on Aphasia and Other Speech Defects, by H. Charlton Bastian, M.A., M.D., F.R.S., D. Appleton & Co., 1898, p. 267.

stab a white man on Carver Street," but fails to grasp the meaning of the sentence "The steamer *Deutschland* communicates with wireless telegraphy station on Nantucket Lightship," and fails to understand a description of a state fair, and even to understand what a state fair is. (14) He recognizes individual letters and numerals, as well as simple words. (15, 16) He can read his own writing a quarter of an hour after it has been written, also simple words without the aid of tracing them over (kinesthesia). (17) He recognizes common objects. (18) He recognizes pantomime and gestures. (19) He writes spontaneously, with freedom, but substitutes incorrect words and meaningless words with about the same frequency that he substitutes them in speaking; for example, on describing his morning's experience he writes, "Let in the bed very comfortable." In describing his breakfast, writes, "glass of egg," for egg on toast, and spells steak *stake*; for thermometer writes *brothan*. (20) He can write his own name, but substitutes letters of the alphabet, numerals from 1 to 20, and the days of the week. In writing the months of the year he cannot do so immediately, but leaves out less than he did on naming them and completes the list after a little study. Half an hour later, on being asked to name and write the months again, he does both accurately and with equal facility. (21) He copies both written and printed words in writing, with an occasional misuse of a letter, as "b" for "d" and "d" for "t." (22, 23) He can copy numerals easily and perform simple calculations. (24, 25, 26, 27) Not tested on reading or writing music.

(d) *The associated activity of three centres, with commissures between the auditory and visual word centres or other sets of afferent and emissive fibres.*—(28) Reads simple sentences aloud, but fails to read more difficult ones, sometimes interpolating wrong words, at times uttering mere jargon. (29) Can name at sight letters and numerals with ease, also simple words, but not difficult ones. (30) Can name at sight a pencil, knife and watch, but fails to name a thermometer or magazine (a few days previously could name none of these objects). (31) Can point to common objects whose name he hears, including the thermometer and magazine.

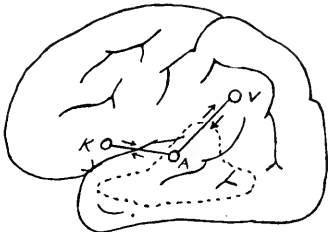
(32) In writing to dictation, "The eagle's flight is out of sight," he first spells *eagle* wrong; on the second attempt he spells eagle correctly but writes, "The eagle's *fly* is out of sight," insisting that *fly* is correct even after his attention is called to it. (This is the same word that the patient was unable to repeat, though the error in that case was somewhat different (*plight* for *flight*.) (33) He can write individual letters and numerals. (34) His ability to play instruments was not inquired into.

In addition to these tests Lichtheim's test was applied, with the result that he was unable to state, or to indicate by pressing the hand or otherwise, the number of syllables, for example, in *thermometer*, *magazine* and *explosion*, either

on seeing them in print or hearing them spoken.

Remarks.—The details of this examination bear marked resemblance to those in the case of Marie and Sainton, in which autopsy confirmed the localization. The lesion in our case also was, doubtless, mainly, if not solely, limited to the temporal region.

This form of aphasia partakes of the character of Bastian's amnesia verbalis, resulting from lowered activity of the auditory word centre, as well as that of his commissural amnesia resulting from defective transmission of stimuli to and from that centre. It includes Wernicke's conduction aphasia, which denotes a break in the connection between the auditory and kinesthetic centre, and is itself included in the comprehensive sensory aphasia of Oppenheim and others and the auditory sensory aphasia of Collins. That the auditory word centre was not entirely destroyed was shown by the fact that the patient understood ordinary commands; that its function was impaired was shown by his inability to understand more unusual words, as "state fair" and "explosion"; also by his inability to reproduce spontaneously in conversation the desired word except of the simplest variety.



It is possible, in fact probable, that the auditory word centre itself was not involved in the encephalitis, but the moderate word deafness was due to impaired conduction of the afferent fibres conveying stimuli to that centre (subcortical sensory aphasia, pure sensory aphasia of Dejerine). The result of such lesion is obviously identical as far as understanding the speech of others is concerned. The diagnostic feature consists in the fact that if the afferent fibres only are affected the patient can still speak spontaneously, because the centres and connecting fibres necessary for this function are intact. It might be inferred, then, that in our case the auditory centre was affected because he could not use spontaneous speech perfectly, but here we are met by the probability that the fibres connecting the temporal lobe with Broca's convolution were interrupted, a lesion in itself sufficient to prevent spontaneous speech.

This study well illustrates our limitations in the attempt to establish the degree in which the different elements of the speech mechanism are affected in a given case. At the same time, it illustrates the accuracy with which we may differentiate the sensory from the motor form of aphasia.

It seems probable that the fibres connecting the visual with the auditory centre were interrupted, for he found difficulty in reading aloud, and though he could recognize an object he could not recall its name. The fibres passing in the opposite direction were doubtless also interrupted, for he could not write difficult words from dictation. That the fibres passing from the auditory area to Broca's convolution were probably impaired is shown by the fact that though he could hear and, to a certain extent, interpret from hearing, he could not talk correctly (paraphasia).

To what extent these different structures were invaded it is impossible to determine. Probably the visual word centre was spared and his inability to recognize certain words when he saw them was due to the inability to reproduce the sound of the word through its sight, that is, interruption of the fibres connecting the visual with the auditory word centres. We have no reason to suppose that Broca's convolution was invaded. His speech showed not the least sign of impairment except for words whose meaning he evidently did not grasp; in other words, there was no evidence of loss of the kinesthetic speech memories, but rather lack of proper stimulus to those centres from the auditory word centre.

This case tends to corroborate the views originally held by Broca and Trousseau and later sustained by Wernicke, Dejerine, Collins and many others, that there is no writing centre in the sense of a centre in which are stored up the kinesthetic memories of written words, and capable of stimulation independent of Broca's convolution. The inability to write in this case was absolutely coincident with his inability to talk. The words he could utter he could place upon paper; those which he could not, he utterly failed to write. When the auditory centre either failed to recall the memory of the sound of the word, or if remembered, to convey the stimulus properly to the kinesthetic speech centre, it failed also to communicate it to the centre for the movements of the hand. It is true that at the first trial he wrote the names of the months better than he said them, in order to do this, however, he took time, and repeatedly scanned his list. The fact that half an hour later he was able also to *say* them, showed that there was really little to choose between the two defects. To one sustaining the views of Bastian, that the centre for hand movements is capable of being stimulated from the visual and auditory centres independently of Broca's convolution, it might be claimed that this case merely showed that the fibres to both the hand centre and to Broca's convolution were equally impaired. In view of the prevalence of similar cases, and in the death of definite cases of agraphia without aphasia,¹⁹ the prevailing opinion seems opposed to Bastian's theory.

That the centres and fibres affected were not destroyed is shown by the complete recovery. The patient presented himself for examination at the neurological clinic of the Massachusetts General Hospital two months after the examination here detailed, and no defect of speech could be elicited by the most searching examination. He brought specimens of his newspaper work which showed no error, and stated that the only trouble he had recently noticed was that on one occasion he found difficulty in spelling the word *jewel*, and on another in recalling the word *yet*. This word is one of a class less readily acquired, and perhaps less readily retained, than nouns and verbs representing tangible objects and actions. It seems probable that if aphasias were systematically examined with reference to their ability to use words of this nature, defects, at least equally serious with those in the use of substantives, would be brought to light, though the simpler conjunctions and prepositions may be more firmly fixed than nouns. This is mentioned in view of the special designation (anomia) which has been used to denote inability to name objects, and which has been accorded by no less an authority than Mills, a special centre in the temporal lobe.

CONGENITAL ELEVATION OF THE SHOULDER.

A REPORT OF TWO CASES ILLUSTRATING THE TWO TYPES OF THE DEFORMITY, TREATED BY OPERATION.

BY JOEL E. GOLDTHWAIT, M.D., AND CHARLES F. FAINTER, M.D., BOSTON.

The following cases are reported as illustrating the two types of the condition described as "Congenital elevation of the shoulder."

In one the position was probably due entirely to the imperfect development of the muscular structures, and is analogous in every way to congenital torticollis in which the sterno-cleido-mastoid muscle is imperfectly developed. It is possible and not improbable that in this condition an injury at the time of birth may be the cause of the trouble, as has been clearly demonstrated in the case of torticollis.

In the other case the position of the shoulder is associated with an embryological condition, there being a distinct articulation between the upper angle of the scapula and the vertebra.

Both cases have been operated upon with improvement in the appearance of the patient, and with practically normal results in regard to function.

ters slowly as if learning them anew, though she had perfect control of the movements of the fingers. She had, however, equal difficulty in sewing, or performing any movements requiring the appreciation of the feeling of objects in the hand, nor could she name such objects with the eyes closed (astereognosis). The inability to write did not demonstrate, then, lesion of a special centre for writing, but was only a single sign of the loss of the kinesthetic hand memories (active touch) resulting from lesion of the physiological group of fibres and cells presiding over the stereognostic sense. The probable seat of the stereognostic sense for the hand is not far distant from that assigned by Bastian to the centre for writing memories, and it requires no great stretch of imagination, as was pointed out in the article mentioned, to assume that the one includes the other.

¹⁹ In a recent article on "Cerebral Anesthesia," contributed to *Brain* by the writer in conjunction with Dr. Paul, a case seen in consultation with Dr. Philippen of Salem was reported, which might be cited as an illustration of agraphia without aphasia. This patient, who suffered from a local cortical lesion accompanied by attacks of Jacksonian epilepsy always commencing in the hand had no defect of speech, but could only write by tracing the let

E. H., a boy 12 years of age, was brought to the Children's Hospital Oct. 6, 1900, because of the position of the left shoulder. The peculiarity was noticed first when the child was a year old. There had been no known injury or other cause for this condition. As the child has grown, the condition has become more marked.

At the time of the first examination the arm could be used freely, and except for the fact that the whole shoulder was elevated, as is shown in the photograph (Fig. 1), there was no disability.

On Nov. 7 the child was operated upon. An incision 6 inches long was made, extending from the middle of the top of the scapula to the angle below, and carried down to the attachment of the trapezius muscle. The attachment of this muscle

of being flat, as it is normally. There had been so much improvement, however, that it did not seem wise to attempt to correct this feature. Accordingly, the tendon of the trapezius muscles was reattached a little higher up on the spine of the scapula than normal, in order to draw the shoulder down, and the wound closed. For dressing, the arm was put up so that the outer part of the shoulder was elevated as much as possible, in order to throw the angle of the scapula far out at the side. With this a strap was carried tightly across the inner portion of the shoulder, so that this portion of the scapula was drawn down as far as possible, and entirely reversing the angle of the bone, as it was before the operation.

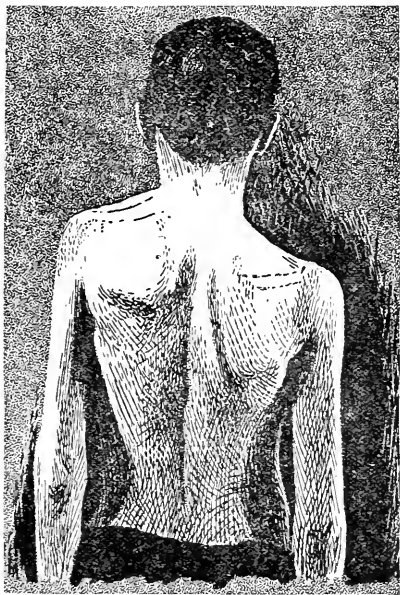


FIG. 1.

to the spine of the scapula was divided, and the lower half of the muscle folded back so that the rhomboid muscles on the inner edge of the scapula could be exposed. Both of these muscles contained little muscular fibre, and were represented largely by fibrous tissue. Both muscles were divided, as were also the levator anguli scapulae. After this it was possible to draw the scapula to the side, but it could not be depressed sufficiently, owing to the lower portion of the serratus magnus which was shortened. This was divided, and the scapula brought down as far as possible. A perfect position could not be obtained, owing to the fact that the portion of the scapula above the spine was bent forward instead



FIG. 2.

The recovery was uneventful. Passive motion was begun at the end of two weeks, active motion a little later, with a gradual increase of both, the chief aim being to develop the muscles which would tend to hold the shoulder in the best position.

The result is shown in the photograph (Fig. 2). Functionally the arm can be used normally.

E. C., aged 11 years, had always been a healthy, active boy. Since early childhood parents have noticed that he was "stoop-shouldered," and that this has increased as he has grown older, and the head has been bending over more and more, as is shown in the photograph (Fig. 3). His

brothers and sisters are well, and there are no congenital deformities among them. The use of the arm has not been restricted, except in the extreme of elevation of the extended arm from the sides — no limitation which would interfere with the usual and habitual exercises of the arm. There is marked facial asymmetry, as in the congenital torticollis. In the past year or two the cervical deformity has increased so rapidly that he was brought on that account.

Examination shows a fairly developed boy. Right arm one-half an inch smaller than left; fore-

vical spine, convexity to the left with prominence of the spine of the seventh cervical vertebra. The axillary and vertebral borders of the scapula are not bound down. The upper angle of the right scapula is attached to the vertebral column by an osseous band which allows of motion upon this as a pivot.

On Sept. 2, 1901, an incision was made over the point of attachment of this osseous band to the scapula. On dissecting it clear it was found to be about one and one-quarter inches in length and three-quarters of an inch in width and one-quarter of an inch in thickness. The vertebral end was



FIG. 3.

arms equal and of about equal strength, as tested by the grip. The right scapula is small as could be seen in the x-ray. The lower angle of the right scapula was at about the level of the middle of the vertebral border of the left. There is slight atrophy of the supra- and infra-spinati on the right. On raising the arm laterally motion was possible scarcely beyond a right angle, and the lower angle of the scapula projects sharply; even with the arm at rest it is more than normally prominent. There is a sharp curvature of the cer-

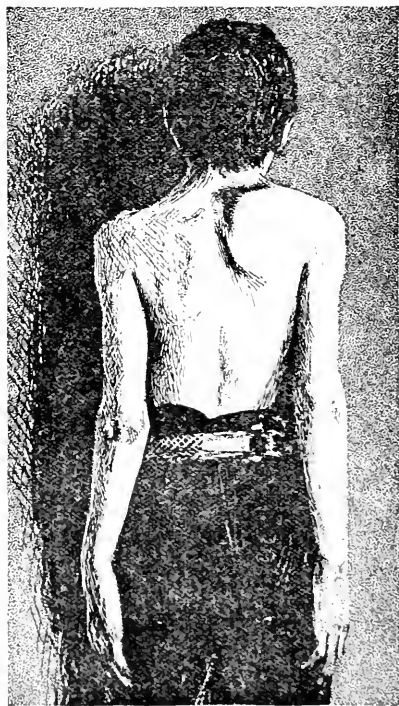


FIG. 4.

attached to the seventh cervical vertebra coming from its transverse process. It was this which, as it grew, apparently had pushed the cervical vertebra over to the left. There was an articulation at the scapula end, and also at the vertebral end. Both were removed. Its removal permitted the scapula to be moved freely and normally as well as could be judged under ether.

The wound healed by first intention, and under massage and exercises, with suspension by the head sling to correct the position of the cervical spine, there has been distinct improvement,

which is partially indicated in the photograph (Fig. 4).

No attempt has been made to present the literature on the subject, as it has been quite recently and fully reported by Rager,¹ but a case illustrating each type of the condition treated by operation seemed of enough interest for special report.

TUBAL PREGNANCY WITH DOUBLE PYOSALPINX.*

BY C. H. HARE, M.D., BOSTON.

Gynecologist to Out-Patients at Carney and St. Elizabeth Hospitals; Gynecologist to the Boston Dispensary and to the Woman's Charity Club Hospital.

INQUIRIES made of several surgeons with large opportunities to see and hear of the various varieties and conditions of extra-uterine pregnancy have failed to find any case just like the one now reported; nor, by a moderate, though not exhaustive, search of the literature upon ectopic gestation, has the writer been able to find a like case.

Miss —, 2,232, was sent into St. Elizabeth's Hospital because of prolonged flowing, and for the correction of a backward displacement. She was 26 years old, single, never pregnant; menstrual life had been of the normal type. Flowing began Jan. 18, being a few days late, and continued to the amount of 1 or 2 napkins almost daily until operation on March 1. For this she had been packed several times, with temporary relief. There was marked pallor and a systolic murmur, probably hemic. There had been no severe or alarming symptoms, but simply those of the ordinary pelvic inflammation. The urine showed an acute cystitis. From the clinical story she undoubtedly had gonorrhea, though unfortunately no microscopical examination was made.

Under ether the uterine canal was $3\frac{1}{2}$ inches deep. Dilating and curetting caused free bleeding, but only a very slight amount of curettings were obtained.

Up to this time the writer supposed that he was most likely dealing with a double salpingitis resulting from a neglected abortion, and the first suspicion of an extra-uterine pregnancy arose when the peritoneum was reached in doing the celiotomy, and dark fluid was observed bulging up the peritoneum. By guess there was a good pint of bright blood in the abdominal cavity. There was extreme retroflexion, with the fundus tubes and ovaries firmly adherent to everything they touched. Each ovary was the size of a large English walnut, with small cysts containing bloody fluid. The left Fallopian tube was the size of a forefinger, and pus leaked from its fimbriated end on freeing it from the surface to which it had adhered. The outer two-thirds of the right tube was thumb size and was bleeding freely from the fimbriated end.

In view of her age both ovaries were resected, leaving a rather poor looking portion of ovary on either side, about one-third the size of a normal ovary. The left tube was entirely removed. The right tube was resected, leaving an inch of the uterine end, to which was attached the remaining portion of the right ovary. The appendix, being mixed up in the adhesions, was freed and removed. The retroflexion was corrected by suspension to the peritoneum, and the belly closed by the usual layer method.

The pathological examination was made by Dr. R. M. Pearce, who reported: The uterine scrapings negative; pus in each tube; and a tubal pregnancy in the fimbriated end of the right tube, which must have preceded the infection and pus being on the uterine side of the pregnancy.

After operation the pulse remained high but of fair quality. The temperature was not above 102° until the eighth day, when a pulmonary embolus occurred. Up to this time she had been a very sick woman, but was gaining, taking plenty of nourishment, and was thought to be on the road to recovery. With the embolus the pulse went to 150, the temperature to 105.8°, and the respirations to 50 or 60, where they remained with the right chest the chief source of discomfort until another embolus, followed by death within 5 minutes on the eleventh day after operation.

Autopsy was not allowed, but the house officer opened the celiotomy wound within an hour after death. Pus was present in the abdominal incision. There was a pint, by estimate, of fluid in the abdominal cavity, and general intestinal adhesions. A small piece of the right lung was obtained, upon which Dr. Pearce reported an acute fibrinous pleuritis, with streptococci in the pleura and lung tissue. Smears from the celiotomy wound and from the abdominal cavity were unfortunately placed upon culture media so old that nothing grew.

In my search for similar cases many most unique cases were found, a few of which the writer will briefly recall to you.

Warthin¹ reported a case of extra-uterine pregnancy with tuberculosis of the placenta and fetus in a patient aged 38; married 13 years, without any pregnancy. From the history, rupture occurred in October and was followed by peritonitis. Both ovaries were cystic at the operation the following April. The right tube was tortuous and large. The left tube thickened and ending in a cocoon-size mass containing a male fetus 7 inches in length.

Jordan² reported a case of right pyosalpinx, ending in a general abscess, which was opened above the right Poupert's ligament. A vesico-vaginal fistula followed childbirth 2 years later, which was cured after 5 operations, 1 being suprapubic. Menstruation continued regular until about 4 years later, when she sought advice, having been 51 days without menstruating and the last one very scanty. Examination was not sat-

¹ Zeitschr. f. Arthropäd. Chir. Bdix, H. I.

* Read before the Obstetrical Society of Boston, Oct. 15, 1901.

isfactory, and she was told to return in a month; but violent pains, vomiting and collapse occurred at noon of the same day, and she was operated at once. There was a small hernia in the scar on the right side and an apple-size hernia through the left inguinal ring, involving the scar of the suprapubic operation. This left-sided hernia had adhered to the sac the left fallopian tube with ruptured pregnancy, the fetus being about 11 or 12 weeks old.

Wendler² reported a most unique case following vaginal hysterectomy, where the right tube and ovary were not removed, one end of the tube being drawn down into the vagina. Menstruation continued, until on cessation for a time a 6 to 8 weeks' fetus was found in the vaginal end of the tube, and on dilating and curetting the fetal membranes and chorionic villi were obtained.

Coe³ reported a case where he removed a 3 to 4 months' live fetus, following rupture, from the right tube, and also found a mummified fetus in the right broad ligament which, from the history, was from a ruptured tubal pregnancy 12 years previously. The right tube was closed at the uterine end, but opened at the fimbriated end. The left ovary had a corpus luteum, but the right none, hence the theory that an impregnated ovum wandered over from the left side to the right, where it entered and developed in the end of the right tube.

Singer⁴ did Cesarean section, finding both fimbriated ends closed from inflammatory processes 2 years previously, following extra-uterine pregnancy, but there was an accessory ostium near the left ovary.

Williams⁵ reported the case of a woman 29 years old, with 1 child 8 years old. Menstruation had been irregular after childbirth, with the last one in December. In the latter part of April there was a sudden gush of water, which continued to dribble for a day, with some sharp, shooting abdominal pains. In July the breasts were filled with milk for 2 weeks, then gradually diminished to normal size. In August for 2 days she had pains resembling labor pains, followed in a few days by a normal catamenia. In September he opened the abdomen and removed a shrunken and macerated fetus about the size of a 5 months' normal gestation. A good-sized placenta was near the uterus in the enlarged right tube, with the cord going to the fetus through an opening in the tube, while the tube near the placenta was sacculated with several ounces of pus. Both ovaries and the left tube were normal.

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1. Medical News, Sept. 19, 1896.
2. Month Med. Woch. No. 1, 1897.
3. Monatsh. f. Geburtsh. u. Gynäk., 1895.
4. Union Medical Magazine, February, 1891.
5. Lancet, Feb. 16, 1895.
6. Buffalo Medical and Surgical Journal, 1891, vol. xxv.

REGISTRATION OF COLUMBIA UNIVERSITY.—There is this year at Columbia a total registration of over 5,000 in all departments. Of this number 800 are in the medical department.

A PLEA FOR PAIN AND PATIENT.

BY EDMOND R. MORAS, M.D., CHICAGO, ILL.

FIRST, as to the meaning of words.

By pain I do not mean that which is conceived by the biased or unconceiving brain of a self-appointed judge-physician or other—but I mean that sensation which is felt by the individual who resents it or expresses it (the pain). And that sensation is never, and in no way can ever be, imaginary or unreal or anything else than pain, physical and real.

Sensations are essentially physical; not psychical, nor psycho-physical, and pain is the most frequent, the most universal, the most logical and the most natural of sensations. Without pain the human race—mind and body—would rot in one generation.

By patient I mean not what ails him, not his social or financial position or condition, not what he may or may not bring to the realm of my reputation, etc., etc., but I do mean the human individual. I mean that one parcel of humanity—the being afflicted—and what that being is to relatives, friends, society and God.

Now let us plead for the patient and his pain. Is pain a cry or a warning from disease? Is a frost-bite a cry or a warning from cold? Or is not pain a cry or warning from health, as a frost-bite is a cry or warning (of the lack of heat) from the healthy remnant of the affected part or tissues? Is that the same thing? Of course that's the same thing, but just the reverse, or upside down, which is why we've been treating pain, or rather nature or humanity, upside down.

Strange, isn't it, that our eye-retinas so soon get things right side up when centuries have failed to teach our brain-retinas to do so? As there is no better way of showing this than by citing a case now under my care, I shall do so. Not because it is interesting, not because it is unique, not because medical societies would be entertained by it, but because it illustrates an everyday blunder committed under the guise of medicine; but because it outlines the easy, uneventful recovery of one of those everyday "hopeless" cases made hopeless not by the sickness, not by the nursing, not by the unexpressed though understood and manifested wishes of the relatives, but by the direct ignorance and malpractice of the attending physician. Yet, he is not altogether to blame, as he is tracking the footsteps of authors and professors. Let him who runs follow.

(1) A well man overexerts to the degree of getting an inguinal hernia on each side. Nature or health utters its cry-pain. Seeing, he runs to the physician, just as on sight of fire one calls upon the fire department.

(2) The doctor prescribes opiates, and together they fail to reduce the ruptures. More pain from the patient fetches more opiates from the physician. But fortunately the opiates produce a condition of rest in bed and starvation. So, some days later, one rupture vanishes and the other is in part relieved.

(3) A double truss is applied. Patient returns to work — of course in a weakened condition. Pain returns, for which he is again given opiates or pain-relieving medicines.

(4) His work has been and is in a dust-laden air. He has a cough now, but feels no pain in chest. Why should he? Is not health's cry smothered by the pain-medicine?

(5) His bowels become very rebellious and flatulent.

(6) In bed again. During the next two months the doctor treats him for this, for that and for the Lord-knows-not-what. Why should he (Lord or doctor) when nearly everything that ails the patient has an artificial (medicinal) origin? Finally, when I reach the bedside the man is dying from "peritonitis and complications." Think of it! In this new century, too! But then, this is the rule, not the exception, wherever one casts a critical brain-line.

(7) It is evening. Death's grip is around the patient's bowels, and death's mask is set on his face. I cull the story in a few minutes, and, bringing eyes and brain together, I perceive that the grip and the mask are false, artificial: not those which nature (or health) employs when she quits the fight and throws up her hands. That's enough! All medicines are stopped; all bowel injections are stopped. Nothing but hot water is poured down the man's throat. For I must hear from health before I may, or can, prescribe or speak on diagnosis, prognosis and treatment. The next forenoon I do get a message from nature, a very encouraging one, by the way, from the bowels. No prescription as yet. No special examination as yet. On third day I hear again from nature, in the manner of an annoying cough.

On fourth day, having heard quite sufficiently from nature, and patient having passed over the main bad effects of the opiates, I make and state my diagnosis, prognosis and treatment, and then proceed to confirm (or disprove) same by physical examination. This is a habit with me in and out of office.

Diagnosis.—Gastro-enteritis, ascitic and pleuritic effusions, and left bronchopneumonia; directly and indirectly induced by improper appreciation of nature's cry of pain and by the improper administration of medicines.

Now, then, where was the original mistake in this case? It was one of bias in education and in conception. What would one think of the fellow who would throw a bucket of water on the obliging individual who yelled "fire" to warn him that his house was on fire? Are not all physicians doing that very thing when, in the event of pain, they smother nature — the individual uttering the cry, the warning? For, if physicians ever knew, physicians have forgotten that opiates, bromides, chloral, etc., etc., never do and never can reach the pain or the seat of pain excepting through the healthy medium of the well individual; and that these remedies never do and never can reach the special afflicted nerves until they have dulled the general sensory nerves.

Therefore, pain-relieving medicines never separate the pain from the patient without first separating the patient from himself — I mean that part of his economy which is well. It is throwing water on the person who is going to call the fire department.

What do I do for pain? That's for later on. But, anyway, I first make a correct and complete diagnosis of the patient as well as of what ails him.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of Oct. 15, 1901, the president, Dr. G. J. ENGELMANN, in the chair.

Dr. C. H. HAILE, by invitation, reported a case of—

TUBAL PREGNANCY WITH DOUBLE PYOSALPINX.¹

Dr. EDWARD REYNOLDS: This case serves to illustrate the fact that we are seeing all the time of the impossibility of laying down fixed laws about anything so protean in its manifestations as extra-uterine pregnancy. If ever there was a case that *a priori* might have been supposed to be sterile it was this one.

Dr. ENGELMANN: I have had a case with corpus luteum on the left, and the left tube closed, yet tubal pregnancy taking place on the right. I have also often been struck with the fact that a tube may become again patent after it has been the site of the severest inflammation. In two cases in which I felt I could say definitely that another pregnancy was out of the question, a child was subsequently born. In one there was the most acute gonorrheal salpingitis and peritonitis, yet there were three children afterwards.

Dr. J. G. BLAKE: I recall a case of enormous pelvic abscess drained by the vagina, in which sterility seemed inevitable, yet she gave birth to a child within two years. One is justified always in holding out a certain amount of hope to would-be mothers.

Dr. J. C. MUNRO read a paper entitled

NEEDLESS LAPAROTOMIES, WITH REPORT OF CASES.

Dr. BLAKE: I suppose that exploration for phantom tumors is not as common now as it was several years ago. I recall very distinctly a case seen in New York. The woman was, as usual, absolutely sure she had a tumor. It collapsed under ether. The abdomen was then strapped down with pads so arranged as to hold it flat. When they were removed, in spite of its having been demonstrated to the woman that there was nothing there, when the pads were in place, it promptly returned, and she was as sure as ever that she had a tumor.

Dr. REYNOLDS: The title of Dr. Munro's paper does not seem to me to express the valuable na-

¹ See page 707 of the Journal.

ture of the cases he brings up. I think it is a very valuable thing that our attention should be called to the fact that medical diseases can produce abdominal symptoms. I have not happened to see cases such as the reader speaks of, as the gynecologist is less apt than the general surgeon to see emergency cases, yet I have seen cases simulating peritonitis or masses which would entirely disappear under observation. The reader has presented a very curious collection of cases in which the abdominal symptoms persisted, or the condition of the patient was such as to force him to operate. This brings up two very interesting questions: First, given abdominal symptoms and threatening conditions without a clear diagnosis, is it not the duty of the operator to consider very carefully whether the risk of death from abdominal symptoms, due to unknown causes, is, or is not, greater than the risk of the operation? In the presence of abdominal symptoms we all feel that the risk of a masked appendicitis, or an extra-uterine pregnancy, or volvulus, is greater than the risk of exploration. If a man has the courage and operates early in such cases of doubt, it can be only a question of time before he has such a collection of cases as the reader has given. The second question has to do with the fact that constitutional conditions may produce abdominal symptoms. A condition that I have often seen, and seen mislead wise practitioners, is acute alarming tympanites with belching of gas occurring an hour or two after delivery. These cases looked very alarming, except for the fact that the woman did not look quite sick enough to correspond with the symptoms. Conditions like rupture of the uterus often were suspected, yet, in each case, the gas passed off by the anus in the course of a few hours.

We are liable to diagnose pelvic masses in the presence of slight pelvic peritonitis when the pelvic mass is entirely due to rigidity of the intrapelvic muscular fibres. In such cases there may be some edema of the pelvic tissues. These named and unnamed muscular fibres are too often neglected. I have seen three or four cases of an acutely threatening nature which I have opened from below in the freest manner and found absolutely nothing, the rigidity of the muscular fibres vanishing before the knife.

Dr. F. B. HYMINGTON: I agree that the reader is a little hard on himself—I thought that we were going to hear a much worse confession. I have opened the abdomen for supposed inflammation of the appendix and found it apparently normal in a number of cases, yet these patients were generally relieved of their symptoms. I also recall a case of laparotomy on a woman now living, who had all the symptoms of acute obstruction existing several days, in whom I found the abdomen full of bloody fluid without any cause that could be discovered. She got well at once after the operation.

Using the word "needless" in its stricter sense, I suppose I have more often needlessly operated for pus tubes than for anything else. I have done

it and lost patients, when now I would have drained from below.

Dr. H. L. BURRELL: Ever since I first heard the title of this paper I have been trying to think of a better adjective than "needless" to describe the reader's cases, for I think it would be a mistake to allow that word to remain, for, while needless as regards the condition found, they were not needless as regards the indications.

My list is as long as Dr. Munro's and perhaps longer. I have twice opened the abdomen for supposed appendicitis and found only a hemorrhage into the mucous membrane of the appendix. Once I opened it for supposed gastric perforation when the correct diagnosis was pneumonia. When I am brought in contact with a case it is my habit to look it over to see what are the chances of recovery without operation. It is not right to lay down hard and fast rules as to what diseases to operate in. It is the patient that should be considered and not the disease. I trust I have learned by my errors, but, except in two cases where, had I operated otherwise, the result would have been different, I cannot feel that any of my laparotomies were "needless," as, at the time, they seemed the best thing to do. This paper brings up strongly the need of accurate diagnosis, and especially the importance of consultation with the family practitioner, whose knowledge of the case may be of the greatest value.

Dr. ENGELMANN: I remember in the days of the grip many cases simulating pelvic inflammation.

Dr. E. REYNOLDS: Another point that I would like to speak of is one that is growing on me all the time as of the first importance in abdominal surgery, namely, that we should subordinate touch and physical examination of the abdomen to the most careful study of the symptomatology. I think we all err on the side of being ready to operate because we feel something with our finger tips. I think when we feel something we ought to stop and consider whether it is best to operate on that mass in the light of the history and symptomatology and constitutional symptoms.

Dr. W. L. BURRAGE: Following Dr. Reynold's line of thought brings to mind certain laparotomies that one has done or seen, in which there was only a little fibroid nodule, or something of the kind, where more serious injuries below, to the vagina or the bladder, were what needed attention rather than the abdominal conditions.

Dr. WHITNEY questioned whether the slight hemorrhage sometimes seen in the mucous membrane of an appendix otherwise healthy was not due to manipulation in removing it.

Dr. BURRELL: One of the cases of which I spoke had hemophilia with hemorrhages afterwards elsewhere. The case was seen as an emergency, and the apparent imminence of the danger led me to operate. I remember now two instances in which I opened the abdomen without finding adequate cause. One was for a foreign body after an x-ray by a competent man, and the other was for supposed intestinal obstruction in a child.

Here the alarming abdominal symptoms may have been caused by an adherent prepuce and the irritation of retained smegma. Another word in protest against the word "needless." If we would recall the cases in which we ought to have operated and did not, and put them in parallel columns with those in which we did operate and should not have done so, the result might be startling.

Dr. MUNRO: To carry out Dr. Burrell's observation, I have made it my rule to operate when in doubt. The trouble with these cases was that I was not in doubt. I find the call to operate for medical symptoms is commoner than I had supposed. I have several times been asked to operate in cases in which the underlying disease was of far greater importance than the symptoms calling for operation. I have seen a number of appendix symptoms in acute nephritis, and I now make it a rule before operating for that condition to rule out the kidneys. Phantom tumors seem generally to have some underlying cause, a distended stomach or sigmoid, for instance, and with better methods of gastric diagnosis they will probably become less common.

Several other gentlemen raised a protest against the word "needless," fearing that its use would give a wrong impression.

Recent Literature.

A Textbook of Physiological Chemistry for Students of Medicine and Physicians. By CHARLES E. SIMON, M.D., of Baltimore, Md. Philadelphia and New York: Lea Brothers & Co. 1901.

This book is to be distinguished from the "Manual of Chemistry," written by W. Simon of Baltimore.

The volume is destined to serve as a textbook to students of physiological chemistry. It is a scientific treatise of the subject suitable to the end for which it was made. The subjects are well classified. Descriptions of methods and tests are clear and concise. In writing this book the author has made use of the recent good literature on physiological chemistry.

Physician's Pocket Account Book. By J. J. TAYLOR, M.D. Philadelphia: Published by the Medical Council. 1901.

This is a small pocket account book, conveniently arranged for the rapid and permanent entry of charges. No doubt each physician has his own method, more or less satisfactory to himself, of keeping a record of his charges. We would, however, commend this simple plan to those who are dissatisfied with their own attempts at accurate account keeping. Any means which may be devised to render the physician more accurate and painstaking in the conduct of his business affairs is to be recommended, and this, we believe, is one of them.

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ANNUS MEDICUS MCML.

RESEARCH in all lines of medicine has made gratifying progress during the past year. Especially noteworthy is the definite establishment of the relationship of yellow fever and malaria to mosquitoes as bearers of the infective material. Much progress had been made in these important lines of work during 1900, but this year, through careful experiment, the final demonstration of the significance of the mosquito in the propagation of these diseases is no longer to be doubted. A further proof of the essential correctness of the theory is brought in the great diminution in the frequency of these diseases in those localities in which mosquitoes have been systematically exterminated. No researches of positive value regarding the etiology of cancer have been forthcoming during the year, although interest in the parasitic theory does not appear to have abated. On the whole the negative evidence regarding this theory is increasing. The application of the x-ray to surgery and medicine has been rendered more exact by recent study. The possibility of using the rays for certain therapeutic purposes appears to be established. The interest in the general subject of tuberculosis culminated during the past year in a notable congress held during the summer in London, Eng., devoted to the consideration of the disease in man and animals. In general, the year must be regarded as an eventful one, marking a distinct step in the line of progress of medical science.

SMALLPOX.

Smallpox has been prevalent throughout the United States during the past year, and although of a mild type the number of cases in many states has been greater than for the same period in 1900.

Through the winter, an epidemic of smallpox gained a hold in Tennessee, showing itself first about Oct. 1, 1900. Up to the 1st of April, 4,228 cases were reported, with a mortality of 98.

During the preceding winter only 592 cases, with 5 deaths, were reported. In Kansas, during January, February and March of this year, 3,915 cases were reported, with 20 deaths, as against 820 cases, with 17 deaths, the year before. Wichita and Topeka have reported the greatest number for this time. The epidemic gradually decreased, and for the month of June only 319 cases were reported, with 4 deaths. In the early months of the year Minnesota reported 2,753 cases, with but 3 deaths, while last year in the same period 464 cases were reported, with 5 deaths. Ohio comes next in the large number of cases, for in January, February and March, 1,685 cases and 21 deaths are noted, where only 360 cases and 5 deaths took place the preceding year. Colorado presented ten times as many cases as during the preceding winter. In Illinois, North Carolina, Oklahoma and Wisconsin smallpox was epidemic during the winter months, with a gradual diminution toward spring and summer, whereas, in Alabama and Louisiana, where the disease had been very prevalent and with high mortality during the winter of 1900, a drop is observable—in Louisiana, for example, of from 2,671 cases with 373 deaths to 206 cases with 44 deaths.

Smallpox was epidemic in New York during December, January, February and March, and stringent measures were taken by the Board of Health. In New York City, it is stated that no fewer than 1,000,000 persons were vaccinated from Thanksgiving to the middle of January. As late as Feb. 11 there were 73 cases in the hospital for contagious diseases at North Brother Island. The monthly bulletin of the Massachusetts State Board of Health, issued Jan. 3, devoted considerable attention to the subject of smallpox. It said, in part: "During the last 3 years we have had considerable experience with smallpox, commencing with an importation, in 1898, by a traveling theatrical troupe, among whose members the disease existed undiscovered, until 20 localities in the western part of the State had been visited, and, as a result, smallpox was distributed in 11 counties; not less than 320 persons took the disease, and a year passed before it ceased to exist. During this current year (1900) smallpox has been brought to 17 places from outside. Now, towards the close of November, prior to which the State had been free for 3 months from this disease, a repetition of the experience of 1898 on a smaller scale is threatening, in the appearance of another traveling troupe of colored minstrels from the South, in whose personnel

smallpox has been discovered, after having exhibited at 8 places in the eastern part of the State, in 3 of which, Albany, Schenectady and Gloversville, an outbreak has followed. The present comparative immunity of this State from smallpox is chiefly due to very general vaccination, secured by health authorities, especially in places where the disease has developed, and more widely by the operation of the law, now several years in effect, requiring the vaccination of school children."

But in spite of precautions the disease became more or less epidemic throughout the State. Since June 1, an increasing number of cases have been reported, especially in Boston, but also sporadically in surrounding towns. The following are the statistics for Boston for 5 weeks up to Dec. 11: Nov. 6 to 13, 29 cases; Nov. 13 to 20, 29 cases; Nov. 20 to 27, 86 cases; Nov. 27 to Dec. 4, 88 cases; Dec. 4 to 11, 48 cases. As we go to press the daily report of cases is growing less. The mortality during this epidemic has been about 10%, so far as known wholly in unvaccinated persons or in those vaccinated in infancy.

Vaccination has been general in Boston, which undoubtedly accounts for the comparatively small spread of the disease. There has, fortunately, in this community, been no systematic opposition to vaccination.

Smallpox, which was last year epidemic in Mexico, is so no longer, and in the early part of the year Merida is the only town that reports the disease. Smallpox was epidemic in Canada during the winter of 1900, but from Jan. 1 to May 1 of this year there was a decided decrease in the number of cases. The provinces of Quebec and Ontario reported the greatest number of cases in the Dominion, and this year there is a drop from 979 reported cases to about a third of that number. The type of smallpox in Canada seems to have been the same as found in the United States.

In the *British Medical Journal* of May 11 last there appeared a paper entitled "Notes on a Mild Type of Smallpox" (*variola ambulans?*), by Dr. Montizambert, Director-General of Public Health, Ottawa. The article gave a short account of a remarkably modified outbreak of smallpox which had spread northwards into Canada from the United States. In the monthly *Bulletin* for July of the Health Department of Chicago the same subject is dealt with by Dr. Heman Spaulding, Chief Medical Inspector, under the title of "Diagnosis of Mild and Irregular Smallpox as found in the Present Outbreak in the United States." The subject is of much interest, alike in its present-day practical aspects and in its historical relationships.

According to Dr. Montizambert, the outbreak, though its exact origin is impossible to establish, began in the Southern States several years ago and is not to be attributed to soldiers returning from Cuba or the Phil-

ippines, as it prevailed before the war with Spain. Owing to unusual mildness of type the variolous nature of the disease has been doubted, and it has been variously named "chicken-pox," "German measles," "impetigo contagiosa," "giant chicken-pox," "Cuban itch," "cedar itch," and so forth. In nearly 12,000 observed cases, the fatality has been only 1.31%, and very many attacks have no doubt escaped recognition altogether, so that the fatality rate may have been even under the percentage stated.

Reasons for regarding the malady as smallpox are given by both the observers quoted. As distinguished from chicken-pox, adults are attacked perhaps oftener than children, the recently vaccinated escape, the unvaccinated are infected, the appearance of the eruption, no matter how trifling, is always accompanied by improvement of the general symptoms, and a "shotty" feeling of some of the papules or vesicles, owing to the true skin being involved, is usually found. In Chicago the mildest and the most severe attacks have been treated in the same wards side by side, and no cross-infection has taken place, as would have occurred had the cases been different in nature. Typical examples of severe confluent and even fatal smallpox have always been present. Of 310 cases in the Chicago Isolation Hospital, 1 was hemorrhagic and proved fatal, and 13 were confluent, with 3 deaths. These being hospital cases, their average severity is probably much greater than that of cases not detected, and therefore not subjected to isolation. Dr. Spalding records examples of variola corymbosa, variola verrucosa, variola cornua, and variola varicelliformis.

Obviously so mild a malady is practically impossible to control by any such means as isolation or disinfection, and in this respect there is suggested a resemblance to the difficulties which in this country (England) are being experienced nowadays in dealing with mild scarlet fever. In Chicago men have been found in the pustular stage of the disease working in printing-houses, packing-houses, and factories, feeling no inconvenience, and quite unaware of the danger to which they were submitting their fellow workmen. The presence of such cases in Chicago packing-houses, from which tinned foods are distributed all over the world, opens up possibilities of a very wide spread of infection. Such possibilities are perhaps remote, but the late Dr. Robert Pringle recorded an outbreak of smallpox in India which originated in smallpox crusts having in some way become mixed with sugar for human consumption.

Though mild scarlet fever and mild smallpox resemble each other in spreading disease by means of unrecognized cases, and in the consequent comparative futility of hospital isolation as a preventive measure, they differ in the one essential particular that against smallpox the individual can protect himself by vaccination, while scarlet fever has no similar shield. If there were no exceptions to the very trivial character of the variola in the present American outbreak, the question of risking attack might conceivably be open to discussion, but seeing that confluent and hemorrhagic smallpox may and do result from infection derived from the mildest cases, the only safety is to be found in vaccination, and the last words of Dr. Spalding's bulletin are, "the disease follows the rule of smallpox in attacking exclusively those not protected by vaccination." The protection referred to here of course is relative to the sufficiency and recency of the vaccination.

Regarding the cause of the exceptional character of the outbreak, there seems little or nothing to be

learned. Dr. Montizambert points out that the theory of its being due to some meteorological conditions is opposed by the fact that since its commencement there has been at least one intercurrent outbreak of a very virulent form of the disease introduced from the Orient, the fatality-rate in a quickly limited explosion being over 50%.

In England smallpox was reported in various parts of the country during the year. In October it was becoming generally diffused in London, with five or six new cases each day. An example of the prompt and efficient service of the Board of Health is to be found in the following:

The disease appeared among hop-pickers on a farm in Sussex. How infection reached these people is not as yet precisely known; but, whether received from London or not, there is no doubt that it has constituted a risk to the population of London. That this risk has been minimized is due to the early recognition by Dr. Newman, the medical officer of health of Finsbury, of the facts that smallpox had occurred in certain persons usually resident in his district who had just arrived from the hop-fields, and that the hop-pickers as a body were returning that day to London, as well as to his prompt communication of this information to the medical officer of the London County Council.

Recent reports from London show that the disease has increased with the onset of colder weather. Up to Dec. 1 the largest number of cases admitted in one day was 37.

Early in February there was a considerable epidemic of smallpox in Glasgow. On Feb. 7, 33 new cases were reported. In March comes the following report:

A very notable diminution has taken place in the number of smallpox cases in Glasgow, the fall having been from 350 cases in one fortnight to 202 in the next. The medical officer of health has no hesitation in connecting this improvement with the remarkable amount of revaccination which preceded it. He notes that the record has shown striking fortnightly waves of infection, originating at times when there was exceptional commingling of the population, on occasions like the New Year holidays and the funeral day of the late Queen. The increment most recently due, however, did not take place, and there can be no doubt that the reason has been the rapid diminution of susceptible material, especially in the localities where the disease had most prevailed, and where, in consequence, revaccination had been most extensively practised.

Smallpox is reported in South America in Brazil. At both Rio Janeiro and Pernambuco there were more than 200 cases during the winter months. In France more than 200 cases were reported. In Paris, where, as in Marseilles, it had been epidemic the winter before, there were but 6 cases. In Italy smallpox was epidemic in Naples. In Russia it was more or less prevalent, Odessa and Moscow giving the greatest number of cases. In Jerusalem, Syria, 1,500 cases were reported from Aug. 2, 1900, to Feb. 2, 1901.

It is a matter of regret that no unanimity of opinion appears to have been reached regarding

the relative merits of the different forms of vaccine virus put out by various manufacturing concerns. It is probable that septic complications have not resulted from impure virus, but rather from secondary infections due to carelessness in the treatment of the sore. For example, an outbreak of tetanus in Camden, New Jersey, attributed at first to impure vaccine, was shown on investigation to be due to a secondary invasion of the bacilli. A standard preparation of vaccine is, however, much to be desired.

PLAGUE.

The plague returns for all India, published late in January, 1901, show 3,277 deaths for one week, which was an increase of 339 as compared with the week before. The reports show from then on a gradual increase in the disease until April 6, when the total number of deaths in all India for one week was 11,606. The unfortunate city of Bombay was, as usual, the seat of a large number of cases; during one week in February more than 100 deaths a day were reported. It is possible, however, that though the plague was not more virulent in 1901 than in previous epidemics, deaths which used to be ascribed to respiratory or digestive ailments, are now being correctly registered as plague. This is suggested by the fact that a much smaller number of deaths from other diseases than usual is recorded. A slight decline of the epidemic began early in April in Bombay, but when one reads the terrible tales of misery unfolded during the taking of the recent census, the presence, continuance and virulence of plague in the city can be readily understood. The whole Bombay presidency was, however, much afflicted by the disease. The Bengal district reported 4,000 cases early in March. The introduction into Bengal had long been apprehended. During the third week of March 1,040 deaths from plague occurred in Calcutta alone. This city had never suffered so severely before; it was in almost as bad a plight as Bombay. In spite of the magnitude of the epidemic there was no indication of the panic that occurred 3 years ago when plague first appeared in the city. There seemed no tendency for the people to run away in thousands, as heretofore, and the policy of the Bengal government, though it has not eradicated the plague, has certainly put an end to the panic. Early in April a house-surgeon at the Ezra Hospital succumbed to the disease, he being the second English medical man to die from this cause. They had neither of them been inoculated against the disease. Although the number of cases is much diminished as the years go on, there has not been a time when Bombay and Calcutta were free from plague. In October, 1901, comes the following report:

The plague returns for all India for the two weeks ending Oct. 19 and 26 show 8,372 and 8,298 deaths from the disease. Although the figures indicate a slight decrease compared with the week immediately antecedent, they exceed by a large amount the deaths from plague during the week ending Oct. 25, 1900, when they stood at 2,174. In Bombay city the deaths from plague during the weeks ending Oct. 19 and 26 numbered 180 and 175 respectively. It is in the Bombay districts that the epidemic of plague mostly prevails, the plague mortality returns for the 2 weeks in question showing 7,372 and 7,199 respectively.

In other parts of India the disease is reported during the early part of the year. It was widely epidemic in Mysore State from early in January until March; in the Kolar goldfields there was a large number of cases. In Karachi and Lahore as late as the middle of March, there were still reported fatal cases daily.

Early in January it seemed an undoubted fact that plague had gained a footing in Capetown. The earliest cases were all dock employees, and the disease then spread to other natives. The mortality among rats at the docks began two months before. Mice seemed to be affected as well as rats, and it was the mortality among rats and mice at the docks that first caused an investigation to be made. There is evidence from several quarters that before plague was diagnosed several persons suffered and died of ill-defined diseases running a rapidly fatal course. There can be little doubt that Capetown was infected from South America, and the occurrence of the outbreak at this port was alarming in the extreme, because for the moment it was one of the most frequented harbors in the world. After a short period of quiescence the disease broke out afresh and in many parts of the city. In consequence of the supineness of the municipal authorities the government took the sanitary control of the city into its own hands. It would appear that Capetown, in common with most towns possessing native quarters, has several low quarters in which the most primitive methods of sanitation exist. There is overcrowding, surface crowding, wretched housing and drainage which is faulty in principle and pernicious in effect. House drainage flows in open channels, obstructed every few yards by rubbish and filth.

During the week ending April 27, 70 fresh cases of plague occurred, with 35 deaths. Up to that time there had been 28 cases among persons under naval and military control. On several days half the number of those attacked were Europeans. Corpses dead of plague were found in various parts of the city, some of the bodies being Europeans. As the cold weather approached there was a general abatement of the epidemic.

Later in May, 1901, the plague epidemic in Hong Kong was at its height, being the seventh

consecutive epidemic in the colony; the disease was of a particularly virulent nature, 187 deaths occurring in 200 cases. Practically every Chinaman died who contracted the disease, and about 50% of the Europeans attacked; in many cases death occurred 8 hours after the beginning of the illness. The community of Hong Kong was much agitated and a commission was appointed to inquire into the sanitary state of the city. Sanitary experts had visited Hong Kong before, but their advice was not taken nor their warnings heeded. The epidemic gradually diminished, and by August only a few new cases were reported.

From Bagdad and Bussorah (Asiatic Turkey) reports of plague came which were especially alarming, for it is by way of Russia and Turkey that Europe fears the inroad of plague; it seems, however, to have amounted to very little.

From Alexandria, Egypt, came the first report of a death from plague for more than a year. Later, Zagazig became infected and was the seat of a slight epidemic, but the disease did not gain the hold of previous years.

Several ports in different countries feared an outbreak of the disease because of the arrival of plague-infected vessels, Marseilles, France, Oporto, Portugal, Hull, Shields and Southampton in England among the number. The authorities dealt with the matter in such summary fashion that no spread of the disease occurred.

Work on the bacteriology of plague is thus described in the *British Medical Journal*:

A year ago Danysz described the bacillus which he had found, and the attempts he had made to exterminate rats by wholesale infection with the organism. Recently Kister and Kötting have published the account of their work upon this bacillus. The bacillus itself is short, thin and very motile; it differs from the bacillus coli communis in not producing indol or coagulating milk, and from the bacillus pestis in that it does not show the polar staining so characteristic of this latter organism, and that it produces gas from glucose-containing media. They have confirmed Danysz's results concerning the pathogenicity for rats and mice, and find that after 3 or 4 passages through rats the bacillus begins to lose virulence; after 10 such passages its virulence has disappeared. The bacillus is without effect upon birds, cats, dogs and guinea-pigs. When a rat is allowed to eat bread soaked in a culture of the bacillus and placed in a cage containing other rats, upon its death the carcass is eaten by the other rats, who then die with the lesions typical of the disease. The experiments appear to have been made to determine how soon the bacillus ceases to kill when the rats acquire the disease by eating their fellows. When the bacillus was kept in the horseflesh bouillon suggested by Danysz for 4 weeks the virulence had disappeared, but when grown upon agar at 10° C. or 25° C. the virulence did not disappear for several weeks, but there was a progressive decrease. The lesions produced by the bacillus in rats and mice were those of a septicæmia with marked engorgement of the spleen; the glandular affections produced by the bacillus pestis were absent. The difficulty of its application on a large scale will be

to find a method of enhancing and maintaining the virulence of the laboratory cultures.

The experience of Dr. Arthur Krausz does not lead him to the conclusion which has been drawn by Danysz, that this bacillus can be used as a means for the wholesale extermination of rats. He made several series of experiments. In the first he fed a rat upon bread soaked in a culture of the bacillus, and then placed it in a cage with 19 healthy rats. The bacillus-fed rat died in 11 days, and by the end of 16 days 8 had died, but no symptoms of Danysz's disease could be seen, nor could the organism be recovered from the cadavers. A second experiment was undertaken in which 19 rats were confined in one part of a cage shut off by a shutter from the other part, which contained 1 bacillus-fed rat. The latter died in 10 days, the last of the 19 died on the twenty-seventh day; all post-mortem and cultural results were negative. A third experiment was performed on the lines of the first—the bacillus-fed rat was allowed to mix with the healthy ones, but no kind of epidemic was produced, even when the rats were kept short of food and had to eat their dead. The death of the healthy rats Dr. Krausz considers to be due to the fact that rats do not thrive in confinement. He agrees with Danysz that when the bacillus is inoculated into the peritoneal cavity the rats die with the typical lesions, and that the bacillus may be recovered from the cadaver. Despite this pathogenicity when inoculated into the peritoneal cavity no comparison can be drawn between the action of Danysz's bacillus upon rats and that of Loeffler's bacilli typhi murium upon mice.

The recognition of the fact that the infection of plague is commonly, if not invariably, introduced into a country by infected rats, lends a special importance to any system which can effectually destroy these rodents on shipboard. The experience of Sidney, for instance, as described by Prof. Ashburton Thompson in the *Journal of Hygiene*, appears to prove, as completely as circumstantial evidence can, that the first persons attacked there contracted the disease in some way from the rat, possibly by the intermediation of the flea.

Some trials have recently been made in England of an apparatus originally devised for extinguishing fires, but which, it would appear, will effectually clear a ship of rats. The principle of the apparatus is to flood the hold with sulphurous dioxide gas (SO₂). The apparatus in which the gas is generated consists of a chamber divided horizontally by a wire netting; sulphur is spread on the netting in the proportion of 1 pound to every 250 cubic feet required; it is ignited with the help of alcohol, and the gas given off is pumped into the bottom of the space to be treated. Another pipe from the top of the space to be treated brings the air back to the generator. The oxygen of the air originally in the treated space, in this case the hold or part of the hold of a vessel, is thus gradually replaced by a sulphur dioxide gas. This gas, being very much heavier than air, diffuses slowly, and experiments show that the rats retire before it, and when the hold is opened are found dead at the highest parts—that is, those nearest to the exit pipe. This is an important point, as in other ways of killing rats there is a risk that the rat may die behind a partition, with consequences which can be easily imagined. In an experiment recently made on shipboard the only ill-effect was the tarnishing of gilding; no permanent damage appears to have been done to upholstered furniture, or to coffee, flour, tea, sugar or salt.

A few sporadic cases of plague have been reported from San Francisco, Cal.

YELLOW FEVER.

Early in January there was the most encouraging report from Havana in regard to yellow fever. No Americans were sick with the disease and there were in all only 17 cases. This is of interest in coincidence with the fact that at this time a systematic effort was being made to exterminate the breeding-places of mosquitoes. Twice a month petroleum, which could not be drained off, was thrown upon the stagnant water of the breeding-places and, as an added precaution, all mosquitoes were ordered to be killed in a house where there had been a case of yellow fever.

Dr. John Guiteras of Havana, director of Inoculation Station of Las Animas Hospital, Havana, in a recent article upon this subject, says:

The name of the yellow fever mosquito has not been definitely settled. It was called *Culex mosquito* by Finlay, who believed it to correspond with the species of that name, described by Desvoidy. The U. S. Army Commission adopted the name *Culex fasciatus*, a species described by Fabricius. *Culex teniatus*, Meigen, has also been suggested. The best description of the insect, that has come to my notice, is that of Fecallbi, who names it *Culex elegans*. It is probable that all these names have been employed for the same species. Mr. Theobald, who is a specialist on mosquitoes, and a great authority in matters of classification, has decided that the yellow fever mosquito must be separated from the genus *Culex*. He has placed it in a new genus to which he has given the name *Stegomyia*. We may use, therefore, for our insect the name *Stegomyia teniata* or *fasciata*. We cannot help regretting that the name of Finlay is not used in naming this insect.

The inoculation station was opened in February of the present year. A large number of larvae of *Stegomyia teniata* were secured, and breeding jars were started in order to have a constant supply of young insects. These were kept in glass jars large enough for a patient to introduce the hand. When a case of yellow fever was reported, one of these jars, containing about 20 female insects, was taken to the bedside. The patient, passing his hand through a gauze sleeve attached to the mouth of the vessel, and held close around the arm, allowed his hand to rest for a few minutes within the jar. As a rule the majority of the insects were found to have filled. The jar and sleeve were then carefully withdrawn to prevent the escape of the insects, and the whole was taken back to the laboratory. There a small dish of water was placed at the bottom of the jar, and a lump of sugar was hung from the top in a small bag of gauze. The sleeve was then tied up with a bit of string. It then became necessary to wait for the period of from 12 to 17 days to pass before the insects became pathogenic.

Until the middle of July the persons who were bitten by the mosquitoes thus made pathogenic, showed no signs of taking yellow fever, but after this date almost every patient presented distinct and often violent signs of yellow fever.

In the cases where, after the bite of the pathogenic mosquito, inoculation did not take place,

every opportunity was given for the transmission of the disease by other means.

The sleeves which enclosed the glass jars and came in contact with the yellow fever patient became thoroughly infected during the six months, but although many nonimmunes came in contact with the sleeves, not one of them contracted the disease until he had been bitten by one of the mosquitoes contained in the jars.

Dr. Guiteras goes on to say:

At the present writing, Sept. 13, there is but one case of yellow fever in the city of Havana. At this time the annual epidemic is always at its height. I do not know of a more brilliant victory in the history of sanitary science. Had the American intervention in Cuba done nothing else for humanity, it may well stand upon that record, and call upon the coming years of the century to surpass it.

As to the principal object of these experiments, namely, immunization on a large scale, I regret to have to report that the desired object cannot be attained by the present methods without considerable risk to the individual. The risk, however, judging from the small number of cases of voluntary inoculation, is less than that incurred when the disease is contracted by ordinary exposure.

The comparatively low mortality obtained with the intentional or inoculation cases, corresponds very closely with the mortality that is obtained with a group of picked cases, that is, cases that are placed in especially favorable circumstances.

We may conclude, therefore, that the intentional inoculation gives the patient the better chance of recovery, and, as stated by Dr. Gorgas, in his "Report of Vital Statistics for August, 1901," "when a nonimmune is going to be exposed to yellow fever, it is better to be inoculated, and have the disease under circumstances where he can be put to bed early and be treated from the beginning, than to take it accidentally."

Finally, I would suggest that in making these inoculations for purposes of immunization, not more than 1 mosquito should be employed for each inoculation, and, of course, that whenever a group of mosquitoes infected from 1 case should show a very decided virulence, their use should be abandoned.

In the November report from Havana, Cuba, it is stated that during the months of October and November, no case of yellow fever occurred in Havana. This is an unprecedented record and justifies the statement that the city has at last been freed from the infection of yellow fever. The report says: "It must be remembered that October and November are the months when yellow fever is rife in Havana, and that, for the past century there has never been a day during these two months when there were not many cases of yellow fever in the city; and very few years can be picked out in all this time in which the record for each day during these months does not show several deaths."

The usual epidemic of yellow fever in Rio Janeiro was much lighter than last year, being only a third the number of cases, extending over the same period of time. This decrease in the

epidemic was reported to be due to a much lighter rainfall than usual.

In 1900, yellow fever was prevalent throughout Mexico, with a severe epidemic in Cordoba, with a fatality of 50%, but in 1901, although a case is reported here and there, the country is freer of the disease than for many years.

CHOLERA.

Epidemics of cholera are chiefly confined to those cities of India which are curiously enough at the same time being devastated by plague. The city of Calcutta, which during the early months of the year lost 5,196 persons from plague, lost in the same period 713 from cholera. Cholera does not seem to have had the same hold upon the city of Bombay as in previous years.

From Singapore Settlements comes the report of an epidemic, but after March 1 there was a decided decrease in the number of cases, and by May 30 the city was free from the disease. This epidemic, however, in spite of the large mortality, seems to have caused very little excitement in comparison with the one case of plague which occurred there.

Other sporadic cases of cholera are reported from various places, usually having been brought by infected vessels.

MALARIA.

As in yellow fever, the chief interest in malaria during the past year has been in the question of its prevention through the extermination of the mosquito known to be the conveyor of infection. Work of systematic destruction of mosquitoes has been attempted at various places with success. In New York, Health Officer of the Port Doty has carried out experiments on Staten Island in a highly malarial district, with satisfactory results. His investigation has been of value in that it has shown: (1) the intimate relation between the mosquito and malarial fever; (2) the true breeding-places of the mosquito; and (3) that petroleum oil will surely and promptly destroy mosquito larvæ, and, so far as careful experiments indicate, it is the only agent which can be depended upon for this purpose. In conclusion, he feels justified in saying that the continued presence of mosquitoes in large numbers as a rule indicates defective drainage, or in some other way an insanitary condition of the infested section, and that the radical and scientific treatment of this condition is proper drainage and a compliance with modern sanitary regulations.

A further and very important investigation was carried out in Sierra Leone under the charge of Ronald Ross and the Liverpool School of Tropical Medicine. The attempt was made to rid the city of Freetown of mosquitoes by systematic methods. One gang of men known as the "culex

gang" collected from private houses broken bottles and buckets, empty cans and similar vessels, in which culex and stegomyia are known to breed. A larger gang devoted itself to draining pools and puddles in the streets and back yards of the houses, in which anopheles breed. With the force of men available, it was found that the "culex gang" could clear about 50 houses daily, and destroy the larvæ, which were numerous at the rainy season, in which the work was undertaken. The occupants of the houses welcomed the gang, and were gratified to be rid of their rubbish, often a collection of years. The "anopheles gang" had a much more difficult task, since everywhere throughout the town were pools of stagnant water, wholly favorable for the breeding of the mosquitoes. These pools were treated in various ways, by filling them with earth, by draining them, or by treating them with petroleum and creosote, and brushing them out with brooms. In spite of the excessive rainfall during the progress of the work, the results were plainly satisfactory. By the latter part of September the "culex gang" had cleared 6,500 houses, and had removed probably more than a thousand cart-loads of rubbish. The total number of workmen finally employed was 53.

In a summary of conclusions on "Researches on the Propagation of Malaria in British Central Africa," Dr. C. W. Daniels, writing in the *British Medical Journal*, concludes as follows:

A combination of methods strictly in accordance with local conditions promises the best results. The outlook is hopeful, as any reduction in any factor by any one method will increase the effect of any other methods adopted. The greatest difficulty I anticipate will result from the skepticism with which the subject will be met in the tropics. With this skepticism I sympathize, and two years ago, before I had investigated the matter, I fully shared in it. This question has received careful attention in England, and has been considered in all its known bearings in a manner quite different from that in which we have been accustomed to see questions relating to tropical medicine and hygiene treated, but the distrust resulting from the older method will not immediately disappear. It is unfortunate that statements regarding malaria and mosquitoes, in themselves of minor importance, have been made by writers with no personal acquaintance with the subject, which will be used by some as an excuse for skepticism. Sufficient regard to the species of *anopheles* has not yet been paid in describing their habits and breeding-places. The very local distribution of some of the species indicates some important differences as yet unknown. It is, I consider, requisite for each species of *anopheles* that direct proof should be obtained whether the human malaria parasites develop in them or not; in only a few is the proof at present conclusive, and it is, I think, being too hastily assumed that the whole genus is implicated.

An expedition beset with very exceptional difficulties was made in Nigeria by the Liverpool School of Tropical Medicine, with positive results.

Dr. J. A. Wegg, writing from Cobreville, Spanish Town, Jamaica, finds the following means of personal protection against mosquitoes satisfactory:

Protection is readily effected by sprinkling some ordinary kerosene about the sleeping chamber, or cabin, or bunk, and tying a handkerchief or clean towel nearly saturated on the bedposts, etc., above the head of the occupant, due caution being, of course, taken not to bring a light too near. We have found it a very excellent adjunct to the mosquito net, which is generally recommended and used, and may under certain circumstances fairly become a substitute thereof. He has likewise used a solution of carbolic acid in the same way as above mentioned for kerosene oil, and with great satisfaction.

TUBERCULOSIS.

Interest in the problems connected with tuberculosis both in man and animals reached a climax during the year in a congress devoted to this one subject, held in London July 22 to 26. The congress was under the patronage of the King of England, and on this account, as well as because of the inherent interest in the subject and the unexpected character of some of the views presented, must be regarded as a most successful meeting. Delegates were present from various foreign countries and the papers presented were on the whole critical and wide in scope.

The opening meeting of the congress was held in St. James Hall, Piccadilly. H. R. H. the Duke of Cambridge, the president of the congress, presided, and after the secretary had read the report of the work to be undertaken by the congress, he welcomed the delegates and declared the congress open, by the command and in the name of the king. The Marquis of Lansdowne welcomed the representatives in the name of His Britannic Majesty's Government, and the lord mayor welcomed them in the name of the citizens of London. After Lord Lister had spoken on behalf of the medical profession of Great Britain, the representative delegates of foreign countries were presented in turn to H. R. H. and addressed the meeting. The first presented was Professor Osler, representing the United States of America. Among the other foreign delegates Professor Brouardel represented France and Professor von Leyden, Germany. After the delegates had spoken, a vote of thanks by the Earl of Derby, seconded by Sir William Broadbent, to the Duke of Cambridge, was passed by acclamation, and his reply brought the meeting to a close. The second general meeting of the congress was held at St. James Hall, Piccadilly, on Tuesday, the 23d inst. Lord Lister, the chairman, introduced Professor Koch, Berlin, who delivered his address upon "The Combating of Tuberculosis in the Light of the Experience that has been gained in the Successful Combating of Other Infectious

Diseases." Short addresses were given by Lord Lister, Professor NoCARD, Alfort, Professor Bang, Copenhagen, and Professor Sims Woodhead, Cambridge, who all agreed that Professor Koch was not justified in drawing the conclusion which he did from the experiments which he had made.

The communication which excited the most interest and was most violently discussed and, in general, opposed, was that by Professor Koch of Berlin. Koch, on the basis of experiments thought by others to be inconclusive, advanced the theory that bovine tuberculosis is probably not transmissible to man. His words were:

Though the important question whether man is susceptible to bovine tuberculosis at all, is not yet absolutely decided, and will not admit of absolute decision today or tomorrow, one is nevertheless already at liberty to say that, if such a susceptibility really exists, the infection of human beings is but a very rare occurrence. I should estimate the extent of the infection by the milk and flesh of tuberculous cattle, and the butter made of their milk, as hardly greater than that of hereditary transmission, and I therefore do not deem it advisable to take any measures against it.

The last sentence is the basis of the violent discussion which has gone on since the meeting of the congress. Work had previously been done on the subject, particularly by Professor Theobald Smith of Boston. His conclusions were, and remain, opposed to Koch's, in so far at least that Smith maintains that Koch's position is entirely unproved. It was a matter of general regret that he was not present at the meeting.

The general feeling of experts everywhere is that precautions should not be relaxed regarding the danger from bovine tuberculosis, in spite of Koch's dictum, although it is generally recognized that much work on the subject remains to be done. A good review of the subject may be found in a paper by Dr. A. D. Blackader (*JOURNAL*, Dec. 19, 1901).

The discussion regarding the uses of tuberculin also proved to be of decided interest. The papers were practically unanimous in favor of further trial, and full of reports of good results from its use.

Professor Courmont found no supporters for his agglutination reaction in the serum of tuberculous patients, though he is still enthusiastic as to its value. Dr. Lydia Rabinowitch read of the negative results of a long series of experiments made in the laboratory in Berlin. The treatment of tuberculosis in sanatoria was discussed with unanimity of opinion. Especially noteworthy was a paper by Dr. Philip of Edinburgh, and well-chosen remarks by Dr. Jane Walker, taking up a side of the subject neglected by other speakers. The position which has been held by Dr. V. Y. Bowditch was spe-

cially emphasized, namely, that eminently satisfactory results are obtained from sanatorium treatment, even in the so-called undesirable climates, such as near Edinburgh and London. The papers regarding the French dispensaries for tuberculosis, one of which was presented by Professor Calmette of Lille, were full of suggestions to those who have to combat the disease in large cities and among the working men and women. The museum prepared for the congress contained an instructive collection of most beautifully prepared specimens, illustrating all phases of the pathological conditions arising from tuberculosis in its various forms.

Sanatoria, as a necessity in the treatment of tuberculosis, have been widely established during the year both in this country and abroad, and decided progress has been made in methods for the prevention and amelioration of the disease in its various forms.

THERAPEUTIC MEASURES OTHER THAN DRUGS.

A feature of the year's work in therapeutics has been the continued and more systematic application of measures other than drugs in the treatment of disease. This tendency has found expression both in America and Germany in the publication of two works, not yet completed, on what may be called "Physical Therapeutics." These works are "*Handbuch der physikalischen Therapie*," under the editorship of Drs. Goldscheider and Jakob of Berlin, assisted by numerous collaborators, and "A System of Physiologic Therapeutics," edited by Dr. Solomon Solis-Cohen of Philadelphia, also with collaborators in special subjects. Various books, many of them excellent, have from time to time appeared on special subjects treated in these volumes, of which Baruch's "Hydrotherapy" is an example, but the significance of what we may regard almost as a new therapeutic movement lies in the systematization of a large body of related facts, and their orderly arrangement as a system of rational therapeutics. It is easy to exaggerate the importance of any one method of treatment when enthusiasm is once thoroughly aroused, but we are convinced that a sober, scientific presentation of all details bearing not only upon the relief of disease, but upon its prevention, will do much toward raising the standard of medical treatment.

The subjects to which especial attention has been paid are methods of treatment by water, hot air, climate, light, and by the x-ray. Renewed study is being given to climate as a scientifically applied measure for the relief and possible cure of various affections, notably tuberculosis, and hydrotherapy is gradually gaining for itself the place it deserves in medical practice. The open-air treatment of pulmonary tuberculo-

sis, in climates naturally unsuitable, is being vigorously prosecuted, with favorable results.

The treatment by light, made familiar particularly by Finsen's work, demands wider recognition than it has yet received, particularly in its reputed effect upon smallpox.

Finsen has met with uniform success in his treatment of smallpox, basing his theory on the principle that the erythemas in general are diminished in intensity, when the chemical rays of the spectrum, particularly those of the ultraviolet, are excluded. He claims that the effect of the treatment is to prevent the suppuration of the vesicles, which gives rise to the most dangerous element in the disease and also to the later pitting of the skin.

The conditions to which attention should be given to attain favorable results are as follows: (1) Exclusion of chemical rays must be absolute. The thickness of the red material used to filter the light depends upon its nature: if paper or thin cotton material be employed, 4 or 5 layers will be sufficient; if rather thick flannel be used, 2 or 3 layers will suffice. It is more convenient to use red glass, but in that case the glass must be very dark. For artificial illumination electric or other bright light should not be employed. (2) The treatment should be continued without the slightest interruption, until the vesicles have dried up; even a short exposure to daylight may lead to suppuration with its sequels. (3) The treatment must be begun as soon as possible after the appearance of the rash; the nearer a patient is to the suppurative period, the less chance there is of good result. The success which has from time to time been attributed to the use of various applications to the eruption, Finsen claims, is due not to any specific action of the drug employed, but simply to the more or less complete exclusion of the light.

The use of concentrated light for other cutaneous affections, notably lupus, is being investigated with apparently positive results. The subject has recently been thrown open to English readers, by the translation of three of Finsen's late memoirs, published in book form.

ROENTGEN RAYS IN MEDICINE AND SURGERY.

Under this heading Dr. Francis H. Williams of Boston, U. S. A., has compiled a valuable book on the subject of the x-ray, recently published, containing a résumé of our knowledge of the subject and many original observations.

The extent to which the x-rays may be of service in diagnosis is surprising. Pulmonary tuberculosis, pneumonia, emphysema of the lungs and bronchitis, pleurisy, empyema, hydro and pneumothorax have all been diagnosed by this means.

The abnormal size or a displacement of the

heart is much more readily perceived than by the ordinary methods of examination, and many cases of aneurism have remained undiscovered until after an examination by the x-ray. Diseases of the esophagus, abdomen and pelvis have all been successfully diagnosed by the same means.

For diagnosis in surgery the x-rays have also proved of value. The bony tissues, foreign bodies and collections of organic and inorganic composition, such as calculi, from their nature offer special advantages in the use of the rays. In a recent paper by Dr. Paul Thorndike we find the following statement:

It seems to be true that stones which contain mineral salts are much more readily photographed than others. Still there is something to expect from x-ray photography in connection with the diagnosis of renal stone; for in those cases, even when there is every clinical reason for thinking that the stone, if present, is composed of uric acid, it evidently needs only a small amount of urates or some other mineral salt to give a shadow which, although it does not show for much on the plate or print, is still capable of being recognized with some degree of precision by properly experienced observers.

The therapeutic uses of the x-rays have been shown to be, perhaps, quite as important as their diagnostic value. Upon the abnormal and normal skin alike the rays have the same effect; first the skin becomes slightly yellow and then slightly red, with irritation and pricking, followed by a burning sensation, which, in many persons, grows into pain. Cases of lupus have been treated by this method, the violent inflammation produced being sufficient to injure the life conditions of the micro-organism. Other diseases of the skin more or less successfully treated are eczema, nevus, sycois, hypertrichosis, psoriasis, acne, external forms of cancer and rodent ulcer.

In the treatment of eczema various physicians have met with marked success. In one case of nevus, about a year and a half after treatment was begun, the affected portion of the skin could hardly be distinguished from the normal.

Cases of epidermoid cancer and rodent ulcer have shown a marked tendency toward improvement during treatment by x-light. It has also been found that x-rays produce analgesia; the mode of action offers an inviting field for physiological study.

In a paper entitled "A Review of the Literature of the Therapeutic use of the X-Rays," Dr. H. P. Towle concludes:

(1) That the real nature of the x-rays is not yet determined definitely, nor whether the therapeutic action following their use is due to the action of the rays themselves or of something of electrical origin accompanying them; (2) that the treatment is not without danger, unless the greatest care is used; (3) that the effects of the x-rays remain for a long time, and recovery

is very slow; (4) that whatever may be the exact origin of the effects produced, a definite reaction is caused in the skin by the use of the x-rays; (5) that the changes induced in the skin are similar histologically to those seen in ordinary inflammation; (6) that the x-rays are not proved to have any bactericidal power; (7) that their therapeutic effect is probably due to the inflammation excited; (8) that hair can be removed by their use, and that lupus and several other diseases can be healed over; (9) that in a few reported cases we may fairly assume that a permanent cure has been effected, but that in a majority of the reported cases too little time has elapsed to rule out the possibility of a return of the disease; (10) that the effect of exposure to the x-rays is so extraordinarily slow in disappearing that months should elapse before an absolute cure is assumed; (11) that while the permanency of the cure effected may perhaps be doubtful as yet, it is certainly desirable to experiment further.

A committee of the American Surgical Association presented at the annual meeting the following somewhat conservative report:

(1) The routine employment of the x-ray in cases of fracture is not at present of sufficient definite advantage to justify the teaching that it should be used in every case. If the surgeon is in doubt as to his diagnosis, he should make use of this, as of every other available means, to add to his knowledge of the case, but even then he should not forget the grave possibilities of misinterpretation. There is evidence that in competent hands plates may be made that will fail to reveal the presence of existing fractures or will appear to show a fracture that does not exist.

(2) In the regions of the base of the skull, the spine, the pelvis and the hip, the x-ray results have not as yet been thoroughly satisfactory, although good skiagraphs have been made of lesions in the last three localities. On account of the rarity of such skiagraphs of these parts, special caution should be observed when they are procured, in basing upon x-ray testimony any important diagnosis or line of treatment.

(3) As to questions of deformity, skiagraphs alone, without expert surgical interpretation, are generally useless and frequently misleading. The appearance of deformity may be produced in any normal bone, and existing deformity may be grossly exaggerated.

(4) It is not possible to distinguish after recent fractures between cases in which perfectly satisfactory callus has formed, and cases which will go on to non-union. Neither can fibrous union be distinguished from union by callus in which lime salts have not yet been deposited. There is abundant evidence to show that the use of the x-ray in these cases should be regarded as merely the adjunct to other surgical methods, and that its testimony is especially fallible.

(5) The evidence as to x-ray burns seems to show that in the majority of cases they are easily and certainly preventable. The essential cause is still a matter of dispute. It seems not unlikely, when the strange susceptibilities due to idiosyncrasy are remembered, that in a small number of cases it may make a given individual especially liable to this form of injury.

(6) In the recognition of foreign bodies, the skiagraph is of the very greatest value; in their localization it has occasionally failed. The mistakes recorded in the former case should easily have been avoided; in the latter they are becoming less and less frequent, and by the employment of accurate mathematical

methods, can probably in time be eliminated. In the meanwhile, however, the surgeon who bases an important operation on the localization of a foreign body buried in the tissues, should remember the possibility of error that still exists.

REQUESTS AND APPROPRIATIONS.

A bequest of \$100,000 has been made to the New Jersey Training School for Feeble Minded Children, by Thomas H. Vinter.

By the will of Miss Maria Sprague Meeker the Brooklyn Home for Consumptives receives \$12,000.

Prof. Henry Morton, president of Stevens Institute, has given another \$50,000 for the completion of the new Chemical Laboratory in that institution.

Mr. J. P. Morgan's munificent donation of upwards of \$1,000,000 to the Harvard Medical School was announced at the Commencement Exercises of Harvard University in June by President Eliot.

By the will of Harriet Wilcox, \$20,000 is left to the New York Skin and Cancer Hospital.

By the will of the late Daniel T. Hoag of New York, \$3,000 is left to St. Luke's Hospital.

The Floating Hospital, Boston, has received a gift of \$10,000 from the estate of the late Francis Mackay.

Dr. Herman Knapp has given to the New York Ophthalmic and Aural Institute the two adjoining buildings on Twelfth street.

William C. Schermerhorn has presented to the New York Eye and Ear Infirmary \$75,000 for a pavilion for ear patients.

By the will of James D. Sawen, St. Luke's and the Presbyterian Hospital of New York each receive \$59,140.

By the will of the late Roger Wolcott, the Massachusetts General Hospital receives \$5,000.

A bequest of \$50,000 has been made for a new hospital at Newburyport, Mass., by W. C. Todd.

A bequest of \$25,000 was given by the will of Stephen Symmes to found a hospital in Arlington, Mass.

An appropriation of \$125,000 was made for improvements at the Craig Colony for Epileptics, in New York State.

By the will of the late Julius Adams a bequest of \$56,500 was given to the Carney Hospital, Boston.

By the will of the late Henry Whitman, the Massachusetts General Hospital receives \$10,000.

By the will of the late Charles R. Hayden the Massachusetts General Hospital receives \$100,000 and the Children's Hospital, Boston, \$80,000.

An appropriation of \$10,000 has been made for a new smallpox pavilion on North Brother Island, N. Y.

A large amount of money has been contributed to build a new Lying-in Hospital, known as

the Manhattan Maternity Hospital and Dispensary in New York.

By the will of Dr. Abbott Hodgman an extensive library has been bequeathed to the New York Academy of Science.

By the will of the late Mrs. Catherine Callahan \$5,000 has been received by the St. Francis Hospital, New York.

By the will of the late J. Arent Vanderpoel of Brookline, Mass., \$25,000 will be received by the Presbyterian Hospital after the death of the testator's widow.

By the will of the late Robert Codman of Boston the following bequests were made: Massachusetts General Hospital, \$5,000; Massachusetts Homeopathic Hospital, \$5,000; Carney Hospital, \$5,000; Boston Lying-in Hospital, \$5,000; Home of the Good Samaritan, \$5,000; St. Luke's Home for Convalescents, \$5,000; Holy Ghost Hospital for Incurables, \$5,000.

An appropriation of \$7,500 a year for a Laboratory of Hygiene has been made by the State of Vermont.

Meyer Guggenheimer of New York has presented the Jewish Hospital Association with \$60,000 for a new building.

An appropriation of \$275,000 has been made for the new Harlem Hospital.

By the will of the late George Gate of Marlboro, Mass., the Marlboro Hospital is to receive \$5,000.

For Sanatoria and Hospitals for tuberculosis in the United States we note the following:

An organization to be known as the Maine State Sanitarium Association has recently been formed by prominent citizens of the State. The object of the association is to provide an institution in the Maine woods as a hospital for consumptives. It is proposed to request an appropriation from the next legislature to assist in carrying out the work.

An appropriation of \$25,000 for a hospital for tuberculosis in Hartford has been made.

An appropriation of \$100,000 for the New York State Hospital for the treatment of incipient tuberculosis has been made.

Dr. George F. Shrady of New York is interested in raising a fund of \$100,000 in aid of the Stony Wolde Sanitarium for consumptive women and children to be started at Kinshaqua Lake, Franklin County, in the Adirondacks.

A bill has been before the legislature in Wisconsin to provide a hospital for the care of incipient cases of tuberculosis.

It is proposed to establish a new hospital for tuberculosis in Brookline, Mass.

J. Pierpont Morgan has purchased an electric plant for \$40,000 and presented it to the Loomis Sanatorium.

The city of Boston has now \$150,000 available for the erection of a hospital for consumptives.

SOCIETY MEETINGS.—UNITED STATES.

The annual meeting of the Boston Society for Medical Improvement was held at the Medical Library, 19 Boylston Place, on Monday, Jan. 7. The American Association of Pathologists and Bacteriologists held its annual meeting in Boston April 5, 6. The annual meeting of the Suffolk District Medical Society was held at the Medical Library Building, 8 The Fenway, April 27. The Association of American Physicians met at Washington, D. C., April 30, May 1, 2. The American Laryngological, Rhinological and Otolological Society met at the New York Academy of Medicine in the city of New York, May 23, 24, 25. The American Surgical Association held its annual meeting at Baltimore, Maryland, May 7, 8, 9. The twenty-third annual meeting of the American Laryngological Association was held at New Haven, Conn., May 27, 28, 29. The American Gastro-Enterological Association held its annual meeting May 1, at Washington, D. C. The twenty-fifth annual meeting of the American Dermatological Association was held in Chicago May 30, 31 and June 1. The American Medical Association held its fifty-second annual meeting in St. Paul, Minn., June 4, 7. The twenty-sixth annual meeting of the American Academy of Medicine was held at St. Paul, Minn., June 1, 2, 3. The fifty-seventh annual meeting of the American Medico-Psychological Association was held at Milwaukee, Wis., June 11 to 14. The annual meeting of the Massachusetts Medical Society was held in Boston June 12. The forty-ninth annual meeting of the Maine Medical Association was held in Portland, Me., June 12, 13, 14. The third annual School for Health Officers, under the direction of the Vermont State Board of Health, was held at Burlington, Vt., July 8 to 11, inclusive. The American Electro-Therapeutic Association held its eleventh annual convention in Buffalo Sept. 24, 25, 26. The American Association of Obstetricians and Gynecologists held its fourteenth annual meeting at Cleveland, O., Sept. 17, 18, 19. The twenty-seventh annual meeting of the Mississippi Valley Medical Association was held at Put-in-Bay Island, Ohio, Sept. 12, 13, 14. The thirtieth annual meeting of the Tri-State Medical Society was held at Nashville Oct. 8, 9, 10.

SOCIETY MEETINGS.—GREAT BRITAIN.

The annual general meeting of the British Laryngological, Rhinological and Otolological Association was held on Jan. 11, in London. The annual general meeting of the Royal Medical and Chirurgical Society was held March 1. The annual meeting of the British Gynecological Society was held on Jan. 10 in London. The annual general meeting of the British Orthopedic Society was held Feb. 16. The sixty-ninth annual meeting of the British Medical Association was held in Cheltenham July 30, 31 and Aug. 2.

CONGRESSES.

The annual meeting of the Third Pan-American Congress was held in Havana Feb. 4. The opening of the nineteenth meeting of the German Medical Congress took place on April 16, in Berlin. The British Congress on Tuberculosis was held in London July 22 to 26. The annual convention of the International Congress of Nurses was held in the city of Buffalo, N. Y., Sept. 16 to 21, inclusive. The fifth International Congress of Physiologists at Turin opened on Wednesday, Sept. 18. A noteworthy tribute of international esteem was paid to Sir Michael Foster, secretary to the Royal Society, K. C. B., M.P., on the occasion of his resigning the office of president of the Congress of Physiologists to his successor, Prof. Angelo Mosso.

LECTURES AND ADDRESSES.

The Lettsomian Lectures on Diseases and Disorders of the Heart and Arteries in Middle and Advanced Life were delivered before the Medical Society of London by J. Mitchell Bruce, M.A., LL.D., M.D., F.R.C.P. The Milroy Lectures on the Influence of the Dwelling upon Health were delivered before the Royal College of Physicians of London, by John F. J. Sykes, M.D., D.Sc. The Cavendish Lecture on Acute Cardiac Failure was delivered by Sir R. Douglas Powell, Bart., K.C.V.O., M.D. The Ingleby Lecture on the Lower Uterine Segment and the Contraction Ring was delivered by W. J. Smyly, M.D. The Croonian Lectures on the Chemical Side of Nervous Activity were delivered at the Royal College of Physicians, London, June, by W. D. Halliburton, M.D., F.R.S., F.R.C.P. The address on medicine before the British Medical Association was given by James F. Goodhart, M.D., LL.D., F.R.C.P. The address in surgery before the same society was given by Sir William Thompson, C.B., M.D., F.R.C.S.I. The presidential address of the Hunterian Society on Traps and Pitfalls in Special and General Practice was delivered by J. Dundas Grant, M.D. Edin., F.R.C.S. Eng. The Shattuck Lecture was delivered in Boston, Mass., by Dr. William F. Whitney, on the Alleged Increase of Cancer in Massachusetts. At the dedication of the new building of the Boston Medical Library addresses by the president, Dr. David W. Cheever, and the librarian, Dr. James R. Chadwick, were delivered. The Middleton Goldsmith Lecture for 1901 was delivered March 26 by Prof. Charles S. Minot on the subject The Embryological Basis of Pathology.

NECROLOGY.—UNITED STATES, 1901.

Lucius J. W. Lee, M.D., of Brooklyn, N. Y., grand-nephew of the late Prof. S. D. Gross, of Philadelphia, died on Jan. 7.

Theodore De Clermont Miller, M.D., of New York, died on Jan. 28.

Homor Octavius Jewett, M.D., the oldest practising physician in Cortland County, N. Y., died on Jan. 30.

Stephen Chandler Greggs, M.D., of Brooklyn, N. Y., died at Nuxley, N. J., on Feb. 1.

Benjamin Franklin, M.D., of Newark, N. J., died on Feb. 6.

Frank Bond, M.D., of Brooklyn, N. Y., died on Feb. 10.

Peter Moir Barclay, M.D., a leading physician of Orange County, N. Y., died at Newburgh-on-the-Hudson, on Feb. 11.

Henry C. Hill, M.D., of Lockport, N. Y., died on Feb. 8.

Erskine E. Hamiltob, M.D., died in Springfield, Mass., on Jan. 24.

Henry J. Herrick, M.D., of Cleveland, O., died on Jan. 28.

James Watson Stronach, M.D., of New York, died in Belleville, N. J., on Jan. 23.

George Holmes Bixby, M.D., died in Boston, on Feb. 26.

Abbott Hodgman, M.D., of New York, died on Feb. 26.

Robert Stone, M.D., of New York, died on March 7.

Edward Bradley, M.D., of New York, died on March 15.

Richard J. Dunglison, M.D., a well-known editor and author of many medical works, died on March 14 in Philadelphia.

John Henry Hobart Burge, M.D., of Brooklyn, N. Y., died on March 24.

Myron H. Parkhill, M.D., Coroner of Steuben County, died in Howard, N. Y., on March 26.

William Jay Youmans, M.D., for many years the editor of the *Popular Science Monthly*, died in New York on April 11.

John Sargent, M.D., the oldest physician in Jefferson County, N. Y., died March 19.

G. W. C. Wren, M.D., died in New York on March 23.

Hugo A. Levison, M.D., of New York, died on March 17.

James S. Carradine, M.D., of New York, died at East Orange, N. J., on April 23.

Frederick J. Brockway, M.D., an assistant demonstrator of anatomy and secretary of the Medical Faculty of Columbia University, died on April 1.

Richard C. Baker, M.D., of Williamsburgh, Borough of Brooklyn, N. Y., died on April 24.

Samuel G. Dorr, M.D., postmaster, of Buffalo, died on April 28.

Abraham Deyo, M.D., died on May 4.

Samuel K. Lyon, M.D., of New York, died on May 4.

Irving C. Rosse, M.D., of Washington, died in that city on May 2.

James Hayes, M.D., died in Plainfield, N. J., on May 13.

John A. Wells, M.D., of Englewood, N. J., died on May 21.

Henry D. Whitbeck, M.D., of Syracuse, N. Y., died on May 21.

Conrad Weinges, M.D., of Jersey City, N. J., died on May 23.

John E. Comfort, M.D., of New York, died on May 29.

John L. Feeney, M.D., sanitary superintendent of the Borough of Richmond, N. Y., died on May 31.

Seth B. Sprague, M.D., of Jersey City, N. J., died on June 5.

George Hosmer Magnus, M.D., of White Plains, N. Y., died on June 25.

James W. E. Roby, M.D., of Brooklyn, N. Y., died on June 25.

Frank A. Jellecker, of New York, died on July 3.

Tabor B. Reynolds, M.D., of Saratoga Springs, N. Y., died on July 3.

Henry G. Wagoner, M.D., of Somerville, Somerset Co., N. J., died on July 2.

Aaron N. Braman, M.D., of Rochester, N. Y., died on July 6.

Stephen Foss, M.D., of Brooklyn, N. Y., died on July 21.

Henry B. Horlbeck, of Charleston, S. C., died on July 31.

James V. Kendall, M.D., died on Aug. 5.

James Alexander Williams, M.D., of New York, died on Aug. 15.

George H. Day, M.D., formerly of New York City, died on Aug. 29.

Theodore Z. Smith, M.D., of Westfield, N. J., died on Sept. 13.

Horace Bigelow, M.D., of New York, died at the Roosevelt Hospital on Oct. 15.

Charles Henry Brown, M.D., of New York, for many years managing editor of the *Journal of Nervous and Mental Disease*, died on Oct. 15.

William L. Harding, M.D., of New York, died on Oct. 11.

Charles F. W. Haage, M.D., of New York, died on Oct. 15.

J. Mortimer Crowe, Sr., M.D., one of the founders and the first vice-president of the New York State Medical Association, died on Oct. 29.

William M. Hudson, M.D., of Hartford, Conn., died Oct. 30.

George Francis Swan, M.D., of New York, died on Nov. 5.

J. S. Dwight, M.D., professor of operative and clinical surgery in the Long Island College Hospital, died on Nov. 16.

Harvey P. Tolman, M.D., of East Onondaga, N. Y., died Nov. 10.

John C. Hartt, M.D., died Nov. 24.

John Stuart Eldredge, M.D., died in Yokohama, Nov. 19.

John Blakeley Norton, M.D., died at Boston City Hospital, South Department, Dec. 8.

Charles H. G. Steinsieck, M.D., of New York, died on Dec. 3.

John E. Beers, M.D., of Danby, N. Y., died on Dec. 4.

Francis Asburg Utter, M.D., died in New York Dec. 10.

Rush S. Huidekoper, M.D., of Philadelphia, died Dec. 17.

NECROLOGY.—MASSACHUSETTS MEDICAL SOCIETY.

Charles Wistar Stevens, M.D., M.M.S.S., died in Charlestown, Mass., Jan. 25, 1901, aged 64.

Augustine Shurtleff, M.D., M.M.S.S., died in Brookline, Jan. 27, 1901, aged 74.

Augusta Alice Steadman, M.D., M.M.S.S., died in Amsterdam, N. Y., Feb. 1, 1901, aged 50.

Harris Orlando Palmer, M.D., M.M.S.S., died in Hubbardston, Feb. 17, 1901, aged 59.

Lawrence John McDonough, M.D., M.M.S.S., died in Lowell, March 2, 1901, aged 42.

Thomas Riley, M.D., M.M.S.S., of Adams, died March 4, 1901, aged 57.

Frederick Lyman Thayer, M.D., M.M.S.S., died in West Newton, March 4, 1901, aged 53.

George Hayward, M.D., M.M.S.S., died in Boston, March 30, 1901, aged 81.

Thomas Albert O'Callaghan, M.D., M.M.S.S., died in Worcester, April 13, 1901, aged 46.

Robert Willard Greenleaf, M.D., M.M.S.S., of Boston, died April 28, 1901, aged 45.

Ephraim Lewis Warren, M.D., M.M.S.S., died in Melrose, April 28, 1901, aged 78.

George Stone Osborne, M.D., M.M.S.S., died in Salem, May 25, 1901, aged 62.

Allen Melancthon Sumner, M.D., M.M.S.S., died in Boston, May 25, 1901, aged 57.

Arthur James Dresser, M.D., M.M.S.S., died in Tewksbury, June 12, 1901, aged 28.

Benjamin Franklin Hastings, M.D., M.M.S.S., of Whitman, died June 28, 1901, aged 64.

James Henry Conway, M.D., M.M.S.S., of Woburn, died July 2, 1901, aged 47.

Lawrence Sumner Smith, M.D., M.M.S.S., died in Haverhill, July 2, 1901, aged 49.

Adolphus Birum Gunter, M.D., M.M.S.S., died in Charlestown, July 15, 1901, aged 50.

Joseph Thomas Pero, M.D., M.M.S.S., died in Indian Orchard, July 19, 1901.

Donald William Macdonald, M.D., M.M.S.S., died in Brookline, July 21, 1901, aged 42.

Franklin Kittredge Paddock, M.D., M.M.S.S., died in Pittsfield, July 26, 1901, aged 59.

John Daniel Kieley, M.D., M.M.S.S., died in Fitchburg, Aug. 27, 1901, aged 43.

George Mason Morse, M.D., M.M.S.S., died in Clinton, Sept. 23, 1901, aged 80.

Aaron Cornish, M.D., M.M.S.S., died in New Bedford, Sept. 27, 1901, aged 68.

Francis Edward Hines, M.D., M.M.S.S., died in Salem, Sept. 30, 1901, aged 49.

Joseph Marcus Rice, M.D., M.M.S.S., died in Worcester, Nov. 11, 1901, aged 74.

Richard Edward Edes, M.D., M.M.S.S., of Roxbury, died Nov. 25, 1901, aged 32.

James Robinson Deane, M.D., M.M.S.S., died in Newton Highlands, Dec. 6, 1901, aged 68.

Alexander Jackson, M.D., M.M.S.S., died in Boston, Dec. 12, 1901, aged 82.

Thomas Waterman, M.D., M.M.S.S., died in Boston, Dec. 14, 1901, aged 60.

Theodore Giddings, M.D., M.M.S.S., died in Housatonic Dec. 28, 1900, aged 64.

NECROLOGY.—GREAT BRITAIN.

Bowater J. Vernon, F.R.C.S., born 1837, died Jan. 28, 1901, aged 76.

William Sedgwick Saunders, M.D., M.O.H., died Jan. 19, aged 76.

Edward Farrell, M.D., Nova Scotia, died in January, aged 58.

Walter Myers, M.A., M.B., B.C. Cantab, in charge of the Yellow Fever Expedition from Liverpool, died in January, aged 29.

Leslie Ogilvie, M.B., B.Sc. Edin., M.R.C.P., Lond., died Feb. 7, aged 48.

James Edward Prichard, M.D., died Feb. 2, aged 51.

Arthur Henry Jones, M.D., London, M.R.C.P., died Feb. 11, aged 48.

Benjamin Barron, M.D., born 1814, and died March 7, 1901.

Sir Edwin Saunders, M.D., died March 15, aged 87.

William Moore, M.D., F.R.C.P.I., was born in 1827, and died in Dublin April 17.

John Cavaft, M.D., F.R.C.P., died in London, April 28, aged 62.

Carsten Holthouse, F.R.C.S., died July 18, aged 90.

E. S. Mosley, M.D., J.P., died July 21, at Blackburn.

James William Miller, M.D., died Aug. 7, aged 64.

A. E. Aust Lawrence, M.D., died in Bristol, Aug. 29.

Thomas Vincent Jackson, J.P., F.R.C.S., died Oct. 12.

Alexander Hughes Bennett, M.D., F.R.C.P., died Nov. 1, aged 53.

Henry Spencer Smith, died Oct. 29, aged 89.

Robert Barbour McKelvie, M.D., died Nov. 5.

Sir William MacCormac, president of the Royal College of Surgeons, died at Bath, England, Dec. 4.

NECROLOGY ABROAD.

Dr. Theodor Husemann, professor of pharmacology in the University of Göttingen.

Dr. Hermann Pfeiffer, physician to the Darmstadt Hospital.

Dr. Otto von Heusinger, extraordinary professor of forensic medicine in the University of Marburg.

Dr. C. J. Rossander, some time professor of clinical surgery in the Medical Faculty of the University of Stockholm.

Dr. N. Tolmatcheff, extraordinary professor of children's diseases in the University of Kazan.

Dr. Ercole Sacchi, *libero docente* of operative surgery and surgical pathology in the Medical Faculty of Genoa.

Josef von Fodor, M.D., born in 1843, died March 25, 1901.

Julio Bezzozero, M.D., died in Turin April 8.

Alwin von Coler died Aug. 26, aged 71.

Herman von Widerhofer, aged 69.

Rene Karl Edward Potain (Paris), died Jan. 5, aged 75.

Prof. A. Berne, some time senior surgeon to the Charité Hospital, Lyons.

Dr. Dubrenil, Honorary Professor of Clinical Surgery in the Medical Faculty of Montpellier.

Dr. Krenslor, of Brandenburg, aged 86.

Dr. Alexander Spengler, the "creator" of Davos as a health resort, aged 74.

Dr. Julius Lehmann, of Copenhagen, well known as a hygienist, especially in relation to tuberculosis.

Dr. G. A. Chatin, a former president of the Paris Académie de Médecine.

Dr. Robert Moericke, for many years professor of gynecology in the University of Santiago de Chile.

Prof. Max Josef von Pettenkofer, of Munich, aged 83.

Dr. Augusto Rocha, died in January, aged 51.

Dr. San Cristobal, rector of and formerly professor in the Medical Faculty of the University of Santiago, Chile.

Dr. Ignacio Quintino de Avellar, surgeon to the Hospital de St. José, of Lisbon.

Dr. Heinrich Schapiro, professor in the Grand Duchess Helena Pawlowna Clinical Institute, St. Petersburg.

Dr. Leopold Weiss, extraordinary professor of ophthalmology, in the University of Heidelberg.

Dr. Julius Homann, assistant in the Hygienic Institute of Kiel.

Dr. Olavide, of Madrid, a distinguished dermatologist.

Baron Albert Gamba, member of the Royal Academy of Medicine of Turin.

Dr. Albrecht Berger, ophthalmologist of Munich.

Dr. W. von Heineke, professor of surgery in the University of Erlangen.

Dr. Carl Laufenauer, professor of psychiatry in the University of Buda Pesth.

Prof. Pietro Panzeri, president of the Milanese Medical Association.

Dr. S. Perret, physician to the Lyons Hospitals.

Dr. George Asp, professor of anatomy in the University of Helsingfors.

Dr. Van Iterson, professor of surgery in, and rector of, the University of Leyden.

Dr. José Joaquín Aguirre, sometime professor of anatomy in, and dean of, the medical faculty, and rector of the University of Santiago de Chile.

Dr. Armand Delpeuch, physician to the Hôpital Cochin, Paris.

Dr. Miguel Colmeiro, professor of natural history in the Medical Faculty of the University of Madrid.

Dr. Hameau, vice-president of the French General Medical Association.

Dr. Edward Tordens, *Agrégé* professor in the University of Brussels.

Dr. E. J. M. Aubrée, professor in the Rennes School of Medicine.

Dr. Hermann Steinbrügge, professor of otology in the University of Giessen.

Dr. Cunéo, inspector-general of the Medical Service of the French Navy. Aged 67.

Prof. Marcell Neucki, of the St. Petersburg Institute of Experimental Medicine.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, Dec. 24, 1901, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 33, scarlatina 22, measles 84, typhoid fever 6, smallpox 18.

BOSTON HEALTH STATISTICS.—Forty-one cases of smallpox appeared within the city limits during the week ending Dec. 21, which is the smallest number since the third week in November. There were twelve deaths due to the disease. In other Massachusetts towns and cities there were nearly thirty cases divided among Woburn, Hyde Park, Athol, Lowell, Lynn, Cambridge, Avon, South Framingham, Somerville, Medford, Tewksbury, Wakefield and Malden. The number of deaths reported to the Boston Board of Health for the week was 232, as against 193 the corresponding week last year, showing an increase of 39 deaths, and making the death rate for the week 21.1. The number of cases and deaths from infectious diseases is as follows: Diphtheria 34 cases, 3 deaths; scarlatina 21 cases, 1 death; typhoid fever 11 cases, 2 deaths; measles 117 cases, 3 deaths. The deaths from consumption were 33, pneumonia 32, whooping cough 1, heart disease 17, bronchitis 9, marasmus 2. There were 12 deaths from violent causes. The number of children who died under 1 year was 36; under 5 years 59; persons more than 60 years 52; deaths in public institutions 68.

HOSPITAL LOAN AUTHORIZED.—The mayor's proposition for a \$5,000 loan for a smallpox hospital in Malden has been approved at a special meeting of the Board of Aldermen.

GIFT TO BOSTON MEDICAL LIBRARY.—The Boston Medical Library has received \$50,000 from the trustees of the Billings estate without restriction.

SMALLPOX.—There has been a notable diminution in the number of cases reported; on one day recently not a new case was reported.

Correspondence.

A CORRECTION.

MR. EDITOR:—Will you allow me to correct a mistake in my article on the "Treatment of Piles by the Injection of Carbolic Acid"? (See this volume of the Journal, p. 629.) The formula in the fifth and sixth lines should read as follows: Carbolic acid (95 %) one part, glycerine and water each *five* (5) parts; this makes a solution of about 10% of the acid, which in my experience is strong enough.

Very truly yours,

GEORGE W. GAY, M.D.

METEOROLOGICAL RECORD

For the week ending Dec. 14, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S..	30.34	28	36	21	87	76	W	W	E	2	1	F. O.	
M..	30.30	44	53	36	92	74	W	W	E	12	2	F. O.	
T..	30.80	47	56	39	100	77	W	W	E	12	2	F. O.	
W..	30.28	44	56	34	94	75	W	W	E	15	6	F. O.	.85
Th..	30.42	39	42	36	78	87	W	W	E	6	6	F. O.	
F..	30.37	48	57	38	93	94	W	W	E	7	20	F. R.	.02
S..	30.16	56	64	49	94	79	W	W	E	9	24	F. R.	.01
Mean	30.20		50	36		80							.88

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall.
 ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DEC. 14, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria and group.
New York..	3,437,202	1,281	381	29.8	—	1.37	2.30	3.10
Chicago..	1,698,575	455	108	21.7	14.74	1.54	1.22	3.74
Philadelphia..	1,293,697	—	—	—	—	—	—	—
St. Louis..	575,258	—	—	—	—	—	—	—
Baltimore..	508,597	189	47	18.51	18.51	.52	1.59	1.59
Cleveland..	381,768	—	—	—	—	—	—	—
Buffalo..	362,387	—	—	—	—	—	—	—
Cincinnati..	325,902	—	—	—	—	—	—	—
Pittsburg..	321,616	—	—	—	—	—	—	—
Washington..	278,718	—	—	—	—	—	—	—
Milwaukee..	278,315	—	—	—	—	—	—	—
Providence..	175,597	75	18	24.00	10.66	2.66	2.66	2.66
Boston..	560,802	193	50	22.79	17.61	1.55	2.67	3.62
Worcester..	118,421	25	9	4.00	20.00	—	—	—
Fall River..	104,863	—	—	—	—	—	—	—
Lowell..	94,969	54	23	27.58	18.52	3.70	1.85	12.96
Cambridge..	91,886	29	8	17.24	24.13	—	—	—
Lynn..	68,513	16	4	12.50	18.75	—	—	6.25
Lawrence..	62,859	19	2	15.78	15.78	—	—	5.26
New Bedford..	62,442	19	2	9.06	4.54	—	—	—
Springfield..	62,059	16	3	37.50	6.25	—	—	6.25
Somerville..	61,643	19	4	10.52	36.92	5.26	—	—
Holyoke..	45,712	10	3	20.00	—	10.00	—	—
Brookline..	40,063	7	7	42.90	—	14.29	—	28.40
Haverhill..	37,175	11	—	9.69	18.18	—	—	—
Salem..	35,956	12	2	16.67	16.67	—	—	—
Chelsea..	34,062	8	2	25.00	—	—	—	12.50
Malden..	33,661	11	3	18.18	18.18	—	—	9.09
Newton..	33,587	7	1	11.30	—	—	—	20.00
Fitchburg..	31,531	10	—	30.00	20.00	—	—	—
Taunton..	31,036	12	1	16.47	16.67	8.33	—	—
Gloucester..	30,121	7	—	28.00	—	14.29	—	—
Everett..	24,336	11	—	18.18	—	—	—	9.09
North Adams..	24,200	4	3	50.00	25.00	25.00	—	25.00
Quincy..	23,899	6	—	16.67	—	—	—	—
Waltham..	23,481	6	—	33.33	—	—	—	—
Pittsfield..	21,766	1	—	—	—	—	—	—
Brookline..	19,935	3	1	—	—	—	—	33.33
Chicopee..	19,167	3	—	33.33	—	—	—	—
Medford..	18,244	5	—	25.00	—	—	—	—
Newburyport..	14,478	5	—	—	—	—	—	—
Melrose..	12,962	4	—	—	—	—	—	—

Deaths reported 2,765: under five years of age, 703; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 534, acute lung diseases 190, consumption 271, scarlet fever 22, erysipelas 5, typhoid fever 40, whooping cough 11, cerebrospinal meningitis 7, smallpox 18, measles 33, diarrheal diseases 44.

From whooping cough, New York 6, Philadelphia 2, Baltimore 1, Lowell 1, Springfield 1. From cerebellar meningitis, New York 3, Philadelphia 1, Providence 1, Lynn 1, Newton 1. From scarlet fever, New York 11, Philadelphia 6, Boston 3, Salem 1, Gloucester 1. From typhoid fever, New York 19, Philadelphia 7, Baltimore 1, Providence 2, Boston 3, Lowell 2, Somerville, Holyoke, Brockton, Taunton, Gloucester and North Adams 1 each. From erysipelas, New York 2, Baltimore 2, Providence 1. From smallpox, New York 2, Philadelphia 8, Boston 6, Cambridge and Malden 1 each. From measles, New York 23, Boston 3, Lowell 3, Cambridge 1, Chelsea 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,926, for the week ending Nov. 30, the death-rate was 20.3. Deaths reported 4,590; acute diseases of the respiratory organs (London) 534; whooping cough 13, diphtheria 79, measles 143, small-pox 21, scarlet fever 61.

The death-rate ranged from 9.9 in Huddersfield to 28.5 in Oldham; Birkenhead 25.8, Birmingham 25.3, Blackburn 18.8, Bolton 19.5, Bristol 20.2, Burnley 13.9, Cardiff 18.3, Croydon 15.1, Derby 12.3, Hull 17.9, Leeds 19.6, Leicester 18.9, Liverpool 20.1, London 20.5, Manchester 24.6, Newcastle-on-Tyne 23.2, Plymouth 13.0, Portsmouth 15.1, Salford 20.9, Swansea 22.0, West Ham 21.5, Wolverhampton 12.1.

CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING DEC. 14, 1901.

J. B. BUCHANAN, assistant surgeon. Ordered to the "Columbia."
N. H. DRAKE, surgeon. Ordered to the "Philadelphia."
J. COWAN, pharmacist. Detached from the Boston Navy Yard and ordered home to wait orders.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DEC. 12, 1901.

BROOKS, S. D., surgeon. Granted leave of absence for 1 day, Dec. 25. Dec. 9, 1901.

WHITE, J. H., surgeon. Granted leave of absence for 16 days from Dec. 9. Dec. 6, 1901.

CARRINGTON, P. M., surgeon. Four days' leave of absence from Dec. 9, 1901, under paragraph 179 of the regulations.

McINTOSH, W. P., surgeon. To proceed to Athens and Ducktown, Tenn., for special temporary duty. Dec. 11, 1901.

ROSENAU, M. J., passed assistant surgeon. To proceed to Mexico, Mexico, for special temporary duty. Dec. 3, 1901.

VICKES, H. W., passed assistant surgeon. To proceed to Buffalo, N. Y., for special temporary duty, assuming command of station during absence on leave of Surgeon Eugene Wasdin. Dec. 10, 1901.

VON EZDORF, P. H., assistant surgeon. Department letter granting Assistant Surgeon von Ezdorf leave of absence for 2 months and 11 days, cancelled. Dec. 4, 1901.

FOSTER, M. H., assistant surgeon. Detailed as inspector of unserviceable property at the port of Port Townsend, Washington. Dec. 7, 1901.

FRICKS, L. D., assistant surgeon. To proceed to Chicago, Ill., and report to medical officer in command for duty and assignment to quarters. Dec. 9, 1901.

HOBBS, W. C., assistant surgeon. Granted leave of absence for 7 days from Dec. 15. Dec. 9, 1901.

BORGESS, J. S., assistant surgeon. Granted 19 days' extension of leave of absence. Dec. 10, 1901.

BARRETT, P. S., acting assistant surgeon. Granted leave of absence for 14 days from Nov. 9. Dec. 1, 1901.

DE SOCARRES, R., acting assistant surgeon. Granted leave of absence for 1 month from Dec. 8. Dec. 4, 1901.

FRICK, JOHN, acting assistant surgeon. Granted leave of absence for 1 month from Jan. 1, 1902. Dec. 6, 1901.

MASON, W. C., acting assistant surgeon. Granted leave of absence for 8 days from Nov. 17. Dec. 1, 1901.

GABH, HENRY, hospital steward. Department letter granting Hospital Steward Gabh leave of absence for 20 days from Nov. 11, amended so that said leave shall be from Nov. 18. Dec. 1, 1901.

MASON, M. R., hospital steward. Granted leave of absence for 15 days. Dec. 4, 1901.

SPANGLER, L. C., hospital steward. Granted leave of absence for 15 days from Dec. 11. Dec. 1, 1901.

BOARD CONVENED.

Board convened to meet at Washington, D. C., Dec. 13, 1901, for the purpose of making a medical survey of an off-

icer of the U. S. Coast and Geodetic Survey. Detail for the Board: Surgeon G. T. Vaughan, chairman; Assistant Surgeon B. S. Warren, recorder. Dec. 11, 1901.

APPOINTMENTS.

DR. CHARLES G. DEWEY, has been appointed as examining physician for the Registration Department of the City of Boston in place of Dr. Thomas Waterman, deceased.

RECENT DEATHS.

DR. GEORGE BAYLES died in Orange, N. J., Dec. 20. He was born in New York in 1836, and was graduated in 1859 at the College of Physicians and Surgeons. He was immediately appointed curator of the pathological department of the New York Hospital, and became associated with Dr. Edward Delafield and Thomas M. Markoe. In 1890 he was sent as a delegate of the New York Academy of Medicine to the International Medical Congress in Berlin. With the outbreak of the Spanish War Dr. Bayles tendered his services to the Government, which were accepted.

DR. ALFRED S. WILEY of Newton Highlands, Mass., died Dec. 20 at his home of typhoid fever. He studied medicine in Dartmouth College, from which he was graduated in 1888.

DR. GEORGE B. HENSHAW of Cambridge, Mass., died in New Rochelle, N. Y., Thursday, aged 34. He was a graduate of Harvard College and Harvard Medical School. He was formerly bacteriologist for the Cambridge board of health.

BOOKS AND PAMPHLETS RECEIVED.

Removal of Foreign Bodies from the Air Passages. By De Forest Willard, M.D., Philadelphia. Illustrated. Reprint. 1901.

Observations on Seven Years' Use of Creosote in Pneumonia. By J. L. Van Zandt, M.D., of Fort Worth, Texas. Reprint. 1901.

Devitalized-Air-Toxemia, a Prime Cause of Tuberculosis. By Charles Denison, A.M., M.D., Denver, Colo. Illustrated. Reprint. 1901.

The Relation of Outdoor Life to High Altitude Therapy. By Charles Denison, A.M., M.D., Denver, Colo. Denver: The Reed Publishing Co. 1901.

Syphilis as a Nonvenereal Disease, with a plea for the Legal Control of Syphilis. By L. Duncan Bulkley, A.M., M.D., New York City. Reprint. 1901.

Is it Extra- or Intra-Peritoneal Treatment of the Pedicle, Total Hysterectomy or a Combination of Both? By Mary Dixon Jones, M.D., F.R.M.S., New York. Reprint. 1901.

A Manila Military Hospital. By John S. Kulp, M.D., Captain Medical Department, U. S. Army; Major and Surgeon of United States Volunteers. Illustrated. Reprint. 1901.

Some Anomalies of the Uterus: Uterus Bicornis and Uterus Rudimentary; Uterus Didelphys; Clinical Reports. By B. Merrill Ricketts, M.D., Cincinnati. Reprint. 1901.

Rectification de la parole et développement des restes auditifs chez un sourd-muet. Paris: Publications de La Parole, Institut de Laryngologie et Orthophonie. Illustrated. 1901.

Proceedings of the Philadelphia County Medical Society. Published by the Society, Monthly, from October to June inclusive, at 110 S. Eighteenth Street, Philadelphia, Pa. Illustrated. 1901.

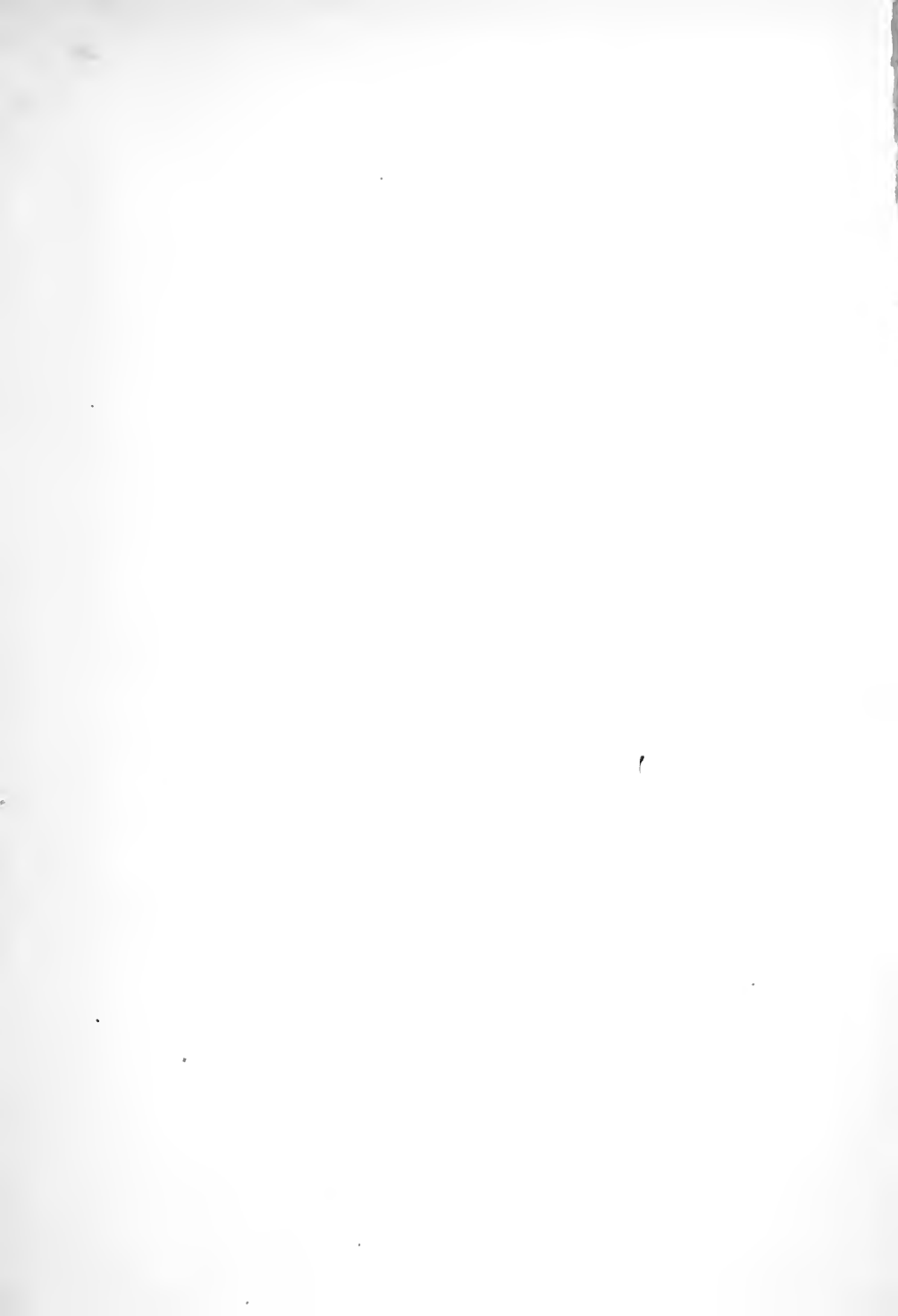
Sur l'Atrologie du Stridulisme Congénital chez l'enfant. De M. J. Thomson et L. Turner. Illustrated. Paris: Publications de La Parole, Institut de Laryngologie et Orthophonie. 1901.

The Progress of Surgery as Influenced by Vivisection. By W. W. Keen, M.D., LL.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Reprint. 1901.

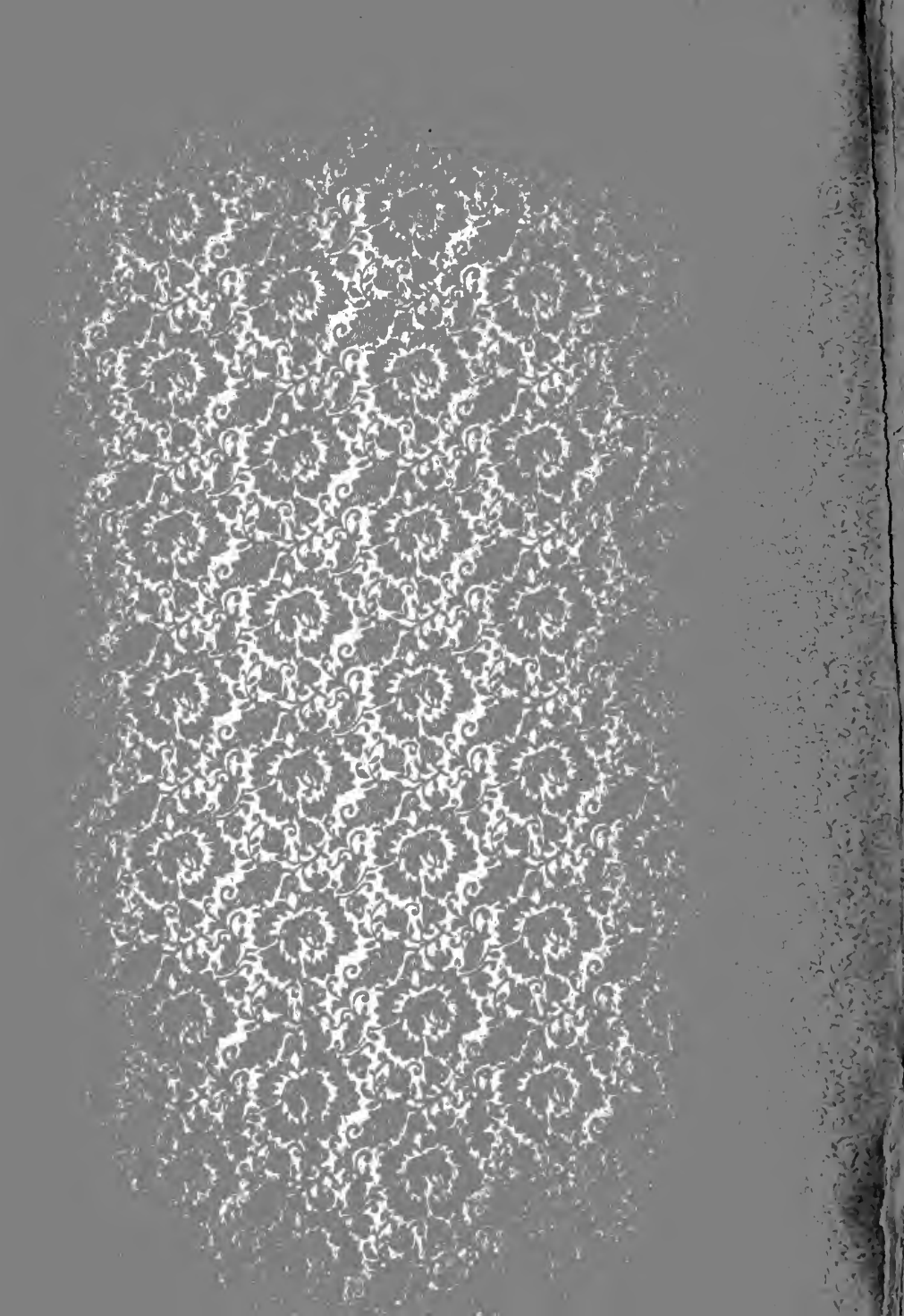
Aneurism of the Thoracic Aorta of Traumatic Origin; Treatment by Introduction of Wire and Electricity. By De Forest Willard, M.D., Philadelphia. Surgeon to the Presbyterian Hospital. Illustrated. Reprint. 1901.

The Principles of Pathological Histology. By Harvey R. Gaylord, M.D., and Ludwig Aschoff, M.D., with an introductory note by William H. Welch, M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Physiology the Basis of Clinical Medicine: A Plan for Scientific Methods. By G. W. McCaskey, A.M., M.D., Professor of Clinical Medicine, etc. Fort Wayne College of Medicine; President Indiana State Medical Society. Reprint. 1901.







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